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# **UNITED STATES MILITARY ACADEMY**

**WEST POINT, NEW YORK**



**ACADEMIC PROGRAM**

**CLASS OF 2021**

**Curriculum and Course Descriptions**

**OFFICE OF THE DEAN**

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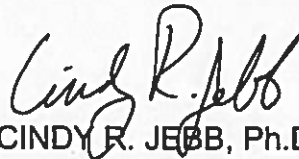
## Preface

West Point educates and inspires leaders of character who think critically, internalize their professional identity, and employ their education to help build the Army and the nation's future. This is the vision for the Academic Program and is what together we strive to achieve.

Educating Army Leaders [\[at this link\]](#) describes how we maintain and enhance our tradition of academic excellence and innovation so that we can achieve our vision. This Redbook provides specific descriptions of the Academic Program's components that are designed to develop cadets into the leaders described above. It serves as a reference document for everyone in the Academic Program to use to decide on a major or minor, refine a course of study, mentor a cadet, or address any questions concerning academic requirements and opportunities. It identifies majors and minors available to each class as well as a listing of all courses, by department, offered during each academic year and term. The Redbook also includes descriptions of some of our Academic Individual Advanced Development (AIAD) offerings that enrich what is taught in the classroom.

There are many resources available for helping cadets develop courses of study that enable them to achieve their potential and pursue their intellectual passions. These include the Company Academic Counselors (CACs) and Department Academic Counselors (DACs) as well as information sessions, which provide cadets with the opportunity to learn more about majors and minors. In addition to looking through course descriptions in the Redbook, cadets should use CACs, DACs, open houses, and other opportunities to engage in conversations with faculty and fellow cadets about potential courses of study.

I wish you all the best of luck during the upcoming academic year. Thank you for committing to academic excellence and innovation as we prepare leaders of character who live honorably, lead honorably, and demonstrate excellence.



CINDY R. JEBB, Ph.D.  
Brigadier General, U.S. Army  
Dean of the Academic Board

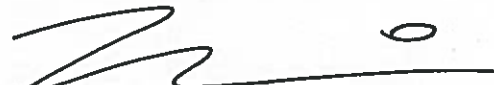


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**MEMORANDUM FOR Cadets, Staff, and Faculty**

**SUBJECT: FOREWORD: Academic Program (Redbook), AY 2020**

1. The Academic Year (AY) 2020 Redbook is a guide for the Academic Program at the United States Military Academy. Used as a reference, this Redbook enables cadets to design and refine their academic programs and provides faculty information to guide and mentor cadets about and through the academic curriculum. This version contains all courses offered in academic year 2020 and the majors and minors for the Classes of 2018-2022.
2. Parts 1 and 2 of the Redbook present information about the United States Military Academy's educational philosophy, graduation requirements, academic standards, core curriculum, and academic discipline descriptions. Part 3 presents a catalog of all the courses offered at the Military Academy. Parts 4 and 5 provide different approaches to explore majors and minors.
4. Substantive revisions to the majors, minors, and courses as well as any substantive changes to other parts of the Redbook are listed by department in an appendix at the end of the Redbook.
5. Cadets in all classes should review their academic programs when adjusting registration for classes each semester and are encouraged to discuss their current program with their Company Academic Counselors (CACs) or Department Academic Counselors (DACs) as appropriate.
6. This volume supersedes all other Redbooks.
7. We welcome suggestions that will improve the Redbook. Please send all comments, suggestions, and edits on the Redbook to [AARS.All@westpoint.edu](mailto:AARS.All@westpoint.edu).



RACHEL SONDHEIMER  
Vice Dean for Academic Affairs  
United States Military Academy





## **Substantive Changes Approved by the General Committee**

(since the AB last approved the Redbook, 9 Jan 2018)

### **Part 1: The Academic Program**

Updated descriptions of Integrative Curriculum Components (ICCs)

Included MX400 as part of the Academic Core Curriculum for the Class of 2019 and beyond

Changed a description of “full academic load” when considering cadets eligible for awards.

### **Department of Behavioral Sciences and Leadership**

N/A

### **Department of Chemistry and Life Science**

Added new course, CH450, Bioengineering Modeling and Analysis, (effective 2019-2), 3.0 credits

### **Department of Civil and Mechanical Engineering**

Added new course, ME493, Weapons Engineering (effective 2019-1). 3.0 credits

### **Department of English and Philosophy**

N/A

### **Department of Electrical Engineering and Computer Science**

Revised courses, CS/EE/IT400, Professional Considerations, (2019-2), 3.0 credits

Revised Electronic & Information Technology Systems Major (EIT1) as a fall back major for EE, CS, and IT majors effective for the Class of 2019

### **Department of Foreign Languages**

Added new courses, LN287 (1.0 credit)/LN387 (2.0 credits), Introduction to Independent Study and Independent Study in Foreign Languages (effective 2019-1)

Added new course, LZ476 (3.0 credits), Advanced Persian: Speaking and Reading in a Military Context (effective 2019-2)

New Dual Language Major tracks, FZX0, which establish Persian as primary track options (effective Class of 2021)

## **Department of Geography and Environmental Engineering**

Added new course, EV201 (3.0 credits), Introduction to Environmental Engineering & Design (effective 2020-1)

Revised Environmental Engineering Major (EVE2) effective for the Class of 2022

## **Department of History**

Added new courses:

<b>Course Number and Title</b>	<b>Eff Yr/Tr</b>	<b>Credits</b>
HI354, World War I in a Global Context	2021-2	3.0
HI410, Violence and Sex – A Cultural History of War	2020-1	3.0
XH341, Intelligence, Information, and Cyber Operations in a Historical Perspective	2020-1	3.0
XH491, Interdisciplinary Capstone Project	2020-1	3.0

## **Department of Law**

N/A

## **Department of Mathematical Sciences**

Added new courses:

<b>Course Number and Title</b>	<b>Eff Yr/Tr</b>	<b>Credits</b>
MA486, Mathematical Computation	2019-1	3.0
MA477, Theory and Applications of Data Science	2020-2	3.0
MA478, Generalized Linear Models	2020-2	3.0

Added new academic major, AST0, Applied Statistics and Data Science major, effective for the Class of 2022

Revised academic major, ORE1, Operations Research Major, effective for the Class of 2022

## **Department of Military Instruction**

N/A

## **Department of Physical Education**

N/A

## **Department of Physics and Nuclear Engineering**

Final approval to reinstate previously conditionally approved courses: PH485, Laser Physics, (2019-1), 3.0 credits; PH486, Experimental Physics, (2019-2), 3.5 credits; PH487, Adv. Quantum Mechanics, (2019-2), 3.0 credits

Added new courses and variants of previous courses for independent study:

<b>Course Number and Title</b>	<b>Eff Yr/Tr</b>	<b>Credits</b>
SP189(A-B) Intro Ind. Study Space Science (1CR)	2019-1	1.0
NE189(A-B) Intro Ind. Study Nuclear Eng (1CR)	2019-1	1.0
PH189(A-B) Intro Ind. Study Physics (1CR)	2019-1	1.0
SP289(A-B) Interm Ind. Study Space Science (2CR)	2019-1	2.0
NE289(A-B) Interm Ind. Study Nuclear Eng (2CR)	2019-1	2.0
PH289(A-B) Interm Ind. Study Physics (2CR)	2019-1	2.0
SP389(A-B) Ind. Research Space Science (3CR)	2019-1	3.0
SP489(A-B) Adv. Research Space Science (3CR)	2019-1	3.0

Final approval to previously conditionally approved course: SP472, Space Physics, (2019-2), 3.0 credits

## **Department of Social Sciences**

N/A

## **Department of Systems Engineering**

N/A

## **Simon Center for the Professional Military Ethic (SCPME)**

Review of core curriculum:

- MX400 Officership (3.0 credits) – change scope, include as part of the Academic core curriculum, count as part of both the MPSC and APSC; effective 2018-3



# **PART I: THE ACADEMIC PROGRAM**



## PART I: THE ACADEMIC PROGRAM

**Note:** This is an interim version of Part 1 for GY2019.

### USMA EDUCATIONAL PHILOSOPHY

**USMA Mission:** To educate, train, and inspire the Corps of Cadets so that each graduate is a commissioned leader of character committed to the values of Duty, Honor, Country; and prepared for a career of professional excellence and service to the Nation as an officer in the United States Army.

**WPLDS:** The West Point Leader Development System (WPLDS) is designed to achieve this mission and begins by defining the institution's leader development outcomes. Upon commissioning, West Point graduates will:

- Live honorably and build trust.
- Demonstrate intellectual, military, and physical competence.
- Develop, lead, and inspire.
- Think critically and creatively.
- Make sound and timely decisions.
- Communicate and interact effectively.
- Seek balance, be resilient, and demonstrate a strong and winning spirit.
- Pursue excellence and continue to grow.

While many good colleges have objectives similar to those of the Military Academy, the Academy's mission adds a dimension that makes West Point unique. It is the sole college in the nation whose only responsibility is to prepare every one of its students for professional service as a regular Army officer. The academic program, like the other aspects of the West Point environment, is designed to foster development in leadership, moral courage, and integrity essential to such service.

### ACADEMIC PROGRAM GOALS

In support of WPLDS, the Academic Program has established the following overarching goal and seven Academic Program Goals to help guide the academic development of cadets.

**The Overarching Academic Goal:** Graduates integrate knowledge and skills from a variety of disciplines to anticipate and respond appropriately to opportunities and challenges in a changing world.

**1. Communication:** Graduates communicate effectively with all audiences.

- 1.1 Listen actively, read critically, and develop an informed understanding of the communications of others.
- 1.2 Speak and write using Standard American English.
- 1.3 Effectively convey meaningful information to diverse audiences using appropriate forms and media.
- 1.4 Communicate in a foreign language.
- 1.5 Use sound logic and relevant evidence to make convincing arguments.

**2. Critical Thinking and Creativity:** Graduates think critically and creatively.

- 2.1 Identify the essential aspects of a situation and ask relevant questions.
- 2.2 Integrate knowledge and skills from a variety of disciplines.
- 2.3 Make meaningful connections and distinctions among diverse experiences and concepts.
- 2.4 Reason both quantitatively and qualitatively.
- 2.5 Think innovatively and accept risk to pursue solutions in the face of ambiguity.
- 2.6 Value reflection and creativity; envision possibilities.

**3. Lifelong Learning:** Graduates demonstrate the capability and desire to pursue progressive and continued intellectual development.

- 3.1 Demonstrate the willingness and ability to learn independently.
- 3.2 Engage successfully in deliberate self-directed and collaborative learning experiences.
- 3.3 Pursue self-awareness and embrace the responsibility for personal intellectual development.
- 3.4 Pursue knowledge in areas of personal or professional interest.

**4. Ethical Reasoning:** Graduates recognize ethical issues and apply ethical perspectives and concepts in decision

making.

- 4.1 Understand the intellectual foundations of ethical principles.
- 4.2 Recognize ethical components of problems and situations.
- 4.3 Examine and evaluate different ethical perspectives, principles, and concepts in context.
- 4.4 Apply ethical perspectives and concepts in solving complex problems, including those found in military settings.

**5. Science, Technology, Engineering, and Mathematics:** Graduates apply science, technology, engineering, and mathematics concepts and processes to solve complex problems.

- 5.1 Apply mathematics, science, and computing to model devices, systems, processes, or behaviors.
- 5.2 Apply the scientific method.
- 5.3 Collect and analyze data in support of decision making.
- 5.4 Apply an engineering design process to create effective and adaptable solutions.
- 5.5 Explain and apply Computing and Information Technology concepts and practices in the context of the Cyber Domain.

**6. Humanities and Social Sciences:** Graduates apply concepts from the humanities and social sciences to understand and analyze the human condition.

- 6.1 Understand, analyze, and know how to influence human behavior.
- 6.2 Analyze the history, diversity, complexity, and interaction of cultures.
- 6.3 Analyze political, legal, military, and economic influences on social systems.
- 6.4 Engage in and reflect on cross cultural experiences.
- 6.5 Integrate the methodologies of the humanities and social sciences in decision-making.

**7. Disciplinary Depth:** Graduates integrate and apply knowledge and methodological approaches gained through in-depth study of an academic discipline.

- 7.1 Apply disciplinary tools, methods of inquiry, and theoretical approaches.
- 7.2 Identify and explain representative questions and arguments of their chosen disciplines.
- 7.3 Recognize limits of a discipline as well as areas in which it contributes to intellectual inquiry and problem solving.
- 7.4 Synthesize knowledge and concepts from across their chosen disciplines.
- 7.5 Contribute disciplinary knowledge and skills as a part of a collaborative effort engaging challenges that span multiple disciplines.

## ACCREDITATION

The United States Military Academy is accredited by the Middle States Commission on Higher Education, 3624 Market Street, Philadelphia, PA 19104. (267-284-5000) The Middle States Commission on Higher Education is an institutional accrediting agency recognized by the U.S. Secretary of Education and the Council for Higher Education Accreditation.

At the United States Military Academy programs in Chemical Engineering, Civil Engineering, Electrical Engineering, Engineering Management, Environmental Engineering, Mechanical Engineering, Systems Engineering, and Nuclear Engineering are accredited by the Engineering Accreditation Commission of ABET; programs in Computer Science and Information Technology are accredited by the Computing Accreditation Commission of ABET, <http://www.abet.org>.

The Geospatial Information Science Major is accredited by the US Geospatial Intelligence Foundation (USGIF) and the Chemistry Major has an American Chemical Society (ACS)-Certified Degree Program.

## OVERVIEW OF THE ACADEMIC PROGRAM

The United States Military Academy's curriculum has two significant structural features. The first is a solid core of twenty-four courses that the Academy considers essential to the broad base of knowledge necessary for all graduates and a three-course core engineering sequence for those cadets who do not choose to major in engineering. This core curriculum, when combined with physical education and military science, constitutes the Military Academy's "professional major." The second structural feature is the opportunity to specialize and explore an area in depth through the selection of an academic major consisting of not less than thirteen required or elective courses.

The two charts below further highlight an overview of the academic program. The first chart presents the curriculum in overall blocks of course requirements. The second chart presents the typical sequence of courses taken over eight



semesters during a cadet's 47-month experience.

Fig 1: Overview of the Academic Program – Class of 2019 and beyond. Courses in blue are Math, Science and Engineering (MSE) courses. Courses in red are Humanities and Social Science (HSS) courses. Courses in black are the Officership course and courses affiliated with each academic major. Courses in green are credit bearing courses from the Military and Physical Programs. Integrative Threads will be further defined in the final version of Part 1-GY2019.

<b>Core (16 courses)</b> 1. Chemistry 1 2. Physics 1 3. Chemistry 2, Physics 2 or Biology 4. Math (Modeling) 5. Math (Calculus) 6. Math (Statistics) 7. IT, Computing, and Cyber 1 8. Cyber 2, Science or Math 9. History 1 (U.S.) 10. Composition 11. Literature 12. Philosophy & Ethical Reasoning 13. Psychology 14. Economics 15. Political Science 16. International Relations	<b>Engineering Sequence (3 courses)</b> 25. Engineering Sequence course 1 26. Engineering Sequence course 2 27. Engineering Sequence course 3  <b>Major (10 courses)</b> 28. Major course 1 29. Major course 2 30. Major course 3 31. Major course 4 32. Major course 5 33. Major course 6 34. Major course 7 35. Major course 8 36. Major course 9 37. Major course 10 – Integrative Exp	<b>Integrative Threads</b> <ul style="list-style-type: none"> <li>• Region-Culture Thread</li> <li>• Military Profession Thread</li> <li>• West Point Writing Program</li> <li>• Plebe &amp; Yearling Integrative Experience (formerly CIT)</li> <li>• Gender, Sexuality, and Respect Thread</li> </ul>
<b>Core Region-Culture Thread (4 courses)</b> 17. Physical Geography 18. Foreign Language 1 19. Foreign Language 2 20. History 2 (Region)	<b>Complementary Support (3 courses)</b> 38. Complementary Support Course 1 39. Complementary Support Course 2 40. Complementary Support Course 3	
<b>Core Mil Profession Thread (4 courses)</b> 21. History 3 (Mil Art) 22. Leadership 23. Law 24. Officership (MX400)	<b>Other Required Courses</b> 3 x Military Science (total 4.5 CH) 1. Intro to Warfighting, 2. Fund of Small Unit Ops, 3. Platoon Ops 7 x Physical Education (total 5.5 CH) 1.Boxing, 2. Military Movement, 3. Pers Fit, 4. Survival Swimming, 5. Combat Apps, 6. Army Fit, 7. Lifetime Sport	

Fig 2: Typical Sequence of Courses - 8 Term Academic Program (8TAP) – Class of 2019 and beyond

*Class of 2019 Standard Course Scheduling*

PLEBE		YEARLING		COW		FIRSTIE	
Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring
EN COMP	EN LIT	MAJ Crs 1	MAJ Crs 2	MAJ Crs 3	MAJ Crs 4	MAJ Crs 5	MAJ Crs 6
CHEM 1	PHYS 1	SCIENCE 2	GEOG	MAJ Crs 7	MAJ Crs 8	MAJ Crs 9	MAJ Crs 10-IE
GEOG	CHEM 1	PHYS 1	SCIENCE 2				
MATH MOD	CALC	PHILOS	PROB/STAT	3CES Crs 1	3CES Crs 2	3CES Crs 3	MAJ Crs – CSC 2
		PROB/STAT	PHILOS				
IT	PSYCH	POLY SCI	ECON	LDRSH	IR	MAJ Crs – CSC 1	MAJ Crs – CSC 3
PSYCH	IT	ECON	POLY SCI	IR	LDRSH		
AM HIST	REG HIST	LANG 1	LANG 2	MIL ART	IT/CYBER	MX400	LAW
REG HIST	AM HIST			IT/CYBER	MIL ART	LAW	MX400
— : per math placement only; must satisfy PHYS 1 requisite		Yellow-shaded cells = slots to schedule courses in each Major including Complementary Support Courses (CSC) & Science2					
Credits	16.5-17.5	17.5	17	16-17	15+	15+	15+
Credits with MS/PE balanced	17.5-18.5	19	18.5	18-19	16+	16.5+	15+

## CORE CURRICULUM

The foundation of the academic program at USMA is 24 core courses and three courses in an engineering sequence for those cadets who do not choose a major in engineering. For most cadets the first year is a common academic experience including, in term 2, the selection of a major followed by the selection of a three-course engineering sequence in the Fall of Third Class year.

Within the core curriculum, there is a mathematics, science and engineering (MSE) sequence that is intended to provide each cadet with a fundamental knowledge of the experimental and analytic techniques of the basic sciences.

This sequence, called a thread, begins in Fourth Class year with two semesters of mathematics, one semester of chemistry, one semester of physical geography and one semester of calculus-based physics. Physical geography or physics may be delayed until Third Class year depending on faculty resources and cadet preferences. The MSE sequence continues in Third Class year with one semester of statistics and an additional science depth course that cadets select based on their major and their interests.

The core curriculum also includes an information technology/cyber sequence (IT/CYBER) designed to ensure that every academy graduate is comfortable with and capable of securely using computers and information technology in an Army that must fight and win in an overarching cyber domain. IT/CYBER skills are first developed through an introductory information technology/cyber course in the Fourth Class year and the integration of computer and cyber applications throughout the core curriculum and particularly in the IT/CYBER requirement in the Second or First Class year. The IT/CYBER requirement may be fulfilled with the core course, CY305, Cyber Foundations or through existing course coverage of cyber topics in particular majors (in this case, the cadet will be required to fulfill a Science, Technology, Engineering and Math (STEM) depth requirement with another STEM course – see listing of core courses below).

Additionally, the core curriculum includes a strong pre-professional sequence of social sciences, behavioral sciences, and humanities to develop an awareness of the people, government, and society that the commissioned officer will

serve. This sequence begins in Fourth Class year with two semesters of history, one semester of literature, and one semester of psychology. It continues in Third Class year with one semester each of political science, philosophy, and economics. Second Class year includes one semester of international relations, one semester of military history, and one semester of military leadership. The First Class year's contribution to this sequence of professional development is found in a one-semester course in constitutional and military law and one semester of a capstone course titled "Officership."

In Fourth Class year, cadets begin a four year integrated program aimed at producing a high level of competence in written and oral communication skills. English composition in the Fourth Class year is the foundation for our West Point Writing Program (WPWP) which focuses on writing and communication skills across the curriculum. WPWP course distribution requirements include courses in the following categories: First Year Composition (FYC – 1 course), Writing in the Core (WiC  $\geq$  5 courses), Writing in the Major (WiM – 1 course) and Writing in the Profession (WiP – 2 courses).

Most cadets will begin their study of a foreign language in Third Class year. If a cadet expresses an interest, however, the sequence may be started in Fourth Class year. All cadets will take at least two semesters of one of the eight foreign languages offered. Course work will present perspectives from another culture, develop the ability to learn another language, provide an introductory level of proficiency in the language selected, and provide a firm foundation for further language study.

These features mean that the first two academic semesters are a common core experience for the majority of cadets, and most of the second two semesters are common as well. Individual alterations to the typical sequence can be made based on specific needs and capabilities. Cadets are encouraged to work closely with academic counselors when designing their academic programs.

Designed to provide educational breadth, the 24 core courses are listed below along with alternate sequences or courses.

## **Chemistry**

CH101 General Chemistry I

*Alternate course:*

CH151 Advanced General Chemistry

## **Information Technology/Cyber**

IT105 Introduction to Computing and Information Technology

*Alternate course:*

IT155 Advanced Placement Introduction to Computing and Information Technology

## **Economics**

SS201 Economics: Principles and Problems

*Alternate course:*

SS251 Advanced Economics: Principles and Problems

## **English**

EN101 Composition

*Alternate course:*

EN151 Advanced Composition

EN100, Foundational Writing, may be required as an additional course

## **Foreign Language**

Two courses required; sequence determined by the Department of Foreign Languages based on cadet preferences.

**History**

HI105 History of the United States

HI108X Regional Studies in World History

*Alternate sequence:*

HI155 Advanced History of the United States

HI158X Advanced Regional Studies in World History

**International Relations**

SS307 International Relations

*Alternate course:*

SS357 Advanced International Relations

**Law**

LW403 Constitutional and Military Law

**Leadership**

PL100 General Psychology for Leaders

PL300 Military Leadership

*Alternate sequence:*

PL150 Advanced General Psychology for Leaders

PL350 Advanced Military Leadership

**Literature**

EN102 Literature

*Alternative course:*

EN152 Advanced Literature

**Mathematics**

MA103 Mathematical Modeling and Introduction to Calculus

MA104 Calculus I

MA206 Probability & Statistics

*Alternative sequence:*

MA103 Mathematical Modeling and Introduction to Calculus

MA205 Calculus II

## MA206 Probability & Statistics

*Alternative sequence:*

MA153 Mathematical Modeling and Introduction to Differential Equations

MA255 Advanced Multivariable Calculus

MA206 Probability & Statistics

MA100 Precalculus Mathematics - may be required as an additional course

*Alternate course for MA206:*

MA256 Advanced Probability and Statistics

## **Military History**

HI302 History of the Military Art

## **Philosophy**

PY201 Philosophy and Ethical Reasoning

*Alternate course:*

PY251 Advanced Philosophy and Ethical Reasoning

## **Physical Geography**

EV203 Physical Geography

## **Physics**

PH205 Physics I

*Alternate course:*

PH255 Advanced Physics I

## **Political Science**

SS202 American Politics

*Alternate course:*

SS252 Advanced American Politics

## **Science Depth**

Cadets choose one of the following courses based on their academic major and their interest:

CH102 General Chemistry II, or

CH275 Biology, or

PH206 Physics II

PH206 Physics II

*Alternate courses:*

CH375 Advanced Biology, or

PH256 Advanced Physics II

**Stem Depth**

Cadets choose one of the following courses based on their academic major and the need to satisfy the IT/CYBER requirement:

CY305 Cyber Foundations, or

MA205 Calculus II, or

CH102 General Chemistry II, or

CH275 Biology, or

PH206 Physics II

*Alternate courses:*

CY355 Cyber Foundations – Computing, or

CH375 Advanced Biology, or

PH256 Advanced Physics II

**CORE ENGINEERING SEQUENCES**

Cadets will seek counsel from their DACs in the beginning of their Third Class year to request a CES that complements their academic major and interests. The Registrar will fill CES enrollments based on cadet preferences and faculty availability.

**CY - Cyber Engineering**

CY300 Programming Fundamentals

CY350 Network Engineering and Management

CY450 Cyber Security Engineering

**EE - Electrical Engineering**

EE300 Fundamentals of Digital Logic

EE350 Basic Electrical Engineering

EE450 Military Electronic Systems

**EV - Environmental Engineering**

EV300 Environmental Science

EV350 Environmental Engineering Technologies

EV450 Environmental Engineering for Community Development

**IN - Infrastructure Engineering**

MC300 Fundamentals of Engineering Mechanics and Design

CE350 Infrastructure Engineering

CE450 Construction Management

### **NE - Nuclear Engineering**

NE300 Fundamentals of Nuclear Engineering

NE350 Radiological Engineering Design

NE450 Nuclear Weapons and Weapons Effects

### **SE - Systems Engineering**

SE300 Introduction to Systems Engineering

SE350 Systems Modeling and Design

SE450 Applied Systems Design and Decision Making

## **THE MAJOR**

The United States Military Academy's curriculum requires cadets to complete at least one disciplinary depth component consisting of an academic major with a minimum of 13 courses. Part 4 of the Redbook describes each academic major in detail.

In general, an academic major at West Point consists of at least three components. The foundation of the major can be found in a study-in-depth component which consists of a minimum of nine courses that may be a mixture of required and elective courses. The second component of every major is a collection of three Complementary Support Courses (CSCs). The purpose of these courses is to provide cadets a broader understanding of their academic majors through disciplinary diversity and choice. The courses support the major by either building a foundation of knowledge otherwise absent from the Core Curriculum but required for a complete major or enriching the major by providing alternative viewpoints or modes of thought. The final component of each major is an integrative experience course or courses.

The integrative experience is designed to synthesize knowledge and skills nurtured in the core and majors programs.

Situated within the major, but drawing upon all goals, integrative experiences present cadets with professionally relevant situations that include political, social, economic, and technological issues and challenge cadets to anticipate and respond appropriately to opportunities and challenges in a changing world.

The listing of each academic major in Part 4 of the Redbook also includes entries for the select core requirements.

Some academic majors may require certain courses to fulfill these requirements: Science Depth, STEM Depth, IT/Cyber, Core Engineering Sequence, and the West Point Writing Program Writing-in-the-Major course.

## **WHAT CONSTITUTES A COURSE**

Although 'course' is a commonly-used word in curriculum descriptions, USMA has the following requirements for an educational experience to be termed a 'course.' Each course is different in many specific ways. In general, however, there are guidelines for any course of instruction which contribute to its being worthy of academic credit. The development of a course along the following lines is what is required for a course to be included for academic credit on a cadet's academic transcript.

**Course objectives that require new learning experiences.** Learning involves a change in capabilities or dispositions that can be attributed to experience. "Change" usually implies students acquiring a new capability or disposition: what they know (knowledge), how they use what they know (intellectual skills), how they think, what they can do (physical skills), or what they value (attitudes and values). Learning is not normally considered as maintenance of already acquired capabilities. A course of instruction then is the purposeful arrangement of experiences designed to facilitate intended change in students' capabilities or dispositions which we represent by

course objectives.

**A valid comprehensive method of evaluating student mastery of course objectives.** Student evaluation is a critical component of the learning process and must be present in a course of instruction. We recognize that evaluation methods and the frequency of evaluation will vary as a function of course objectives, however, the evaluation method should assess students mastery of course objectives and should permit valid inferences about student learning.

If a course of instruction meets the preceding two guidelines, then the awarding of credit hours should be based on a calculation of planned time (40 hours of planned time associated with 1.0 credit hour). A 3.0 credit hour course usually requires 40 instructor contact hours with two hours of preparation required for each hour in class: 40 lessons at 3hrs/lesson = 120 hours = 3.0 credit hours.

## GRADING PHILOSOPHY AND GRADING POLICIES

As a critical and essential part of the educational philosophy, it is important to articulate explicitly the Dean's academic grading policies and philosophies.

### *Grading Philosophy*

The foundation of our grading is a commitment to evaluate cadets based on their achievement of announced course objectives. Satisfactory performance on graded course requirements must therefore reflect satisfactory progress toward meeting course objectives. We will establish reasonable academic standards of achievement in advance of cadets taking a course and taking tests. Our goal is not to rank order cadets against each other based on any preconceived concept of an appropriate grade distribution (curving). Instead we challenge cadets to meet announced standards of performance and assign grades based on their success in doing so. The principal responsibility for academic performance rests with each individual cadet.

### *Policies*

Instructors are responsible for providing sound instruction, measurement of cadet attainment, and a reasonable amount of additional assistance. Instructors shall strive to motivate and inspire cadets to achieve their full academic potential. Beyond these obligations, the responsibility for academic success or failure rests with each cadet.

Instructors will provide cadets with a statement of the objectives for each course. Cadets will be evaluated against these objectives. Departments will avoid evaluation and grading practices that encourage reliance on curving.

However compiled numerically, letter grades ranging from A to F will be the standard means of communicating academic achievement.

Instructors will promptly provide cadets an evaluation of each graded course requirement; the evaluation will be a letter grade or a numerical score easily convertible by the cadet to a letter grade.

## GRADUATION REQUIREMENTS AND ACADEMIC STANDARDS

Regulations for the United States Military Academy state that cadets of the First Class who have been found by the Academic Board successfully to have completed the course of instruction including academic, military, and physical education; to have maintained the standards of conduct; and to possess the moral qualities, traits of character and leadership essential for a graduated cadet; shall receive a diploma signed by the Superintendent, the Commandant of Cadets, and the Dean of the Academic Board; and shall thereupon become a graduate of the United States Military Academy with a degree of Bachelor of Science.

### ACADEMIC REQUIREMENTS

To satisfy the academic portion of these graduation requirements, a cadet must:

- Complete successfully or validate each course in the core curriculum, including the common core courses and a core engineering sequence
- Satisfy the requirements of at least one major
- Successfully complete 40 academic courses of at least 3.0 credit hours each. Validated and remedial courses cannot count towards this requirement and



- Achieve a 2.00 Cumulative Quality Point Average (CQPA) in the courses above. The CQPA is an index of cumulative performance in all academic, military science, and physical education courses. It generally corresponds to grade point average (GPA) or grade point ratio (GPR) in other colleges and universities.

As part of the West Point experience, a cadet is required to complete requirements and achieve minimum standards in three developmental programs within the USMA West Point Leader Development System (WPLDS). Within the WPLDS, the military program score (MPS), the physical program score (PPS), and the academic program score (APS) combine to form the cadet performance score (CPS). A complete explanation of the calculation of the CPS, which ultimately determines a cadet's class rank, can be found at this link ([CPS Calculation](#)). The APS is based on performance in courses within the Academic Program and does not include military science and physical education courses. Cadets who are deficient in one or more of the three developmental programs for failure to maintain minimum program performance standards may be considered by the Academic Board for separation. Graduation requirements for all three programs — academic, military and physical — and institutional (non-program) requirements by class year are available through the following link: Graduation Class of [2019–2020](#) – [2021](#)

## ACADEMIC STANDARDS

The primary responsibility for attaining satisfactory academic performance rests with the individual cadet. Cadets must strive to achieve their highest level of academic excellence. To meet this responsibility, cadets have an obligation to know their academic status, manage their time, and establish priorities in such a manner as to accomplish this goal.

The performance of academic duties is a significant part of the process of preparing for the acceptance of the duties and responsibilities of Army officers. The standard for performance of academic duties is the same as that for the performance of officer duties--excellence and one's personal best.

Cadets must achieve a grade of D or better in all required academic (core and academic major), military science, and physical education courses. Grades of N/C (no credit) may be awarded temporarily, but cadets must resolve the circumstances that resulted in the N/C and be awarded a letter grade in order to receive credit for the course.

### Examinations

**Written Partial Review (WPR):** This examination is designed to test knowledge of course material covering specified lessons. Each department will determine the material to be covered the time of the exam and the weight of the exam. Written Partial Reviews may be scheduled during normal class meetings or during Dean's Hour. Cadets who have more than one (more than two in the case of First or Second Class cadets) major graded requirements (WPR, themes, etc.) coming due on the same day may request permission to attend the examination on the alternate day. Responsibility for seeking relief rests with the cadet while the faculty role is one of cooperation in granting permission when reasonably feasible. Relief must be sought 48 hours in advance of the scheduled examination. All cadets may be required to take two examinations on Saturdays during the Dean's Hour.

**Term End Examinations (TEE):** These examinations, given at the end of the term, test cadets' knowledge of course material presented during that term. The Dean's office will schedule the TEE for each course and every cadet will take the TEE in accordance with the established schedule.

### Grading

In general, the academic departments describe the relative weight of their graded course requirements in terms of marks (points). Graded course requirements include, but are not limited to, daily writs, WPR, themes, research papers, computer exercises, and TEE. Early in each course, each instructor should provide a list of the course requirements and their weights. Because there is no standard scale used by all departments for converting marks to grades, cadets should ascertain from their instructors during the first few lessons of each term how the various departments assign grades.

Cadets can view a report of their grades on-line at least four times during each term. The first three reports are interim or progress reports. They are provided after the sixth, tenth, and fifteenth weeks of the term. The fourth report reflects final grades, average for the term, and cumulative average. Copies of the report are available in the Academic Affairs and Registrar Services (AARS), Office of the Dean, during the summer. In accordance with the Privacy Act, cadets must give permission in writing for the Academy to send academic reports to parents or guardians. Reports will be mailed at the end of each term.

After TEE's have been graded, department heads assign final course grades using the A+ to F scale. These final course grades are assigned quality points in accordance with the following table:

Letter Grade	Quality Points	Letter Grade	Quality Points	Letter Grade	Quality Points
A+	4.33	B	3.00	C-	1.67
A	4.00	B-	2.67	D	1.00
A-	3.67	C+	2.33	F	0.00
B+	3.33	C	2.00		

Should a cadet resign or be separated during the term before the first TEE, his or her transcript for all courses will reflect a grade of W (Withdrawn) with no credit awarded. Once the TEE cycle begins, cadets will receive a grade in every course in which they are enrolled.

### **Minimum Quality Point Averages**

In addition to passing each required course, cadets must achieve a minimum CQPA of 2.00 in order to graduate. In order to monitor progress in the Academic Program and to signal substandard achievement, the Academic Board has established performance standards based on APS term (APST) and APS cumulative (APSC). The following table presents the minimally acceptable standards based on APS. Cadets with averages below those stated will be considered deficient in the Academic Program and will be reported to the Academic Board at the end of each term.

### **MINIMALLY ACCEPTABLE APS:**

CLASS YEAR	TERM	APST	APSC
<b>Fourth</b>	First Term	1.67	N/A
	Second Term	1.67	1.70
	STAP	N/A	1.70
<b>Third</b>	First Term	1.67	1.80
	Second Term	1.67	1.90
	STAP	N/A	1.90
<b>Second</b>	First Term	1.67	1.95
	Second Term	1.67	1.95
	STAP	N/A	1.95
<b>First</b>	First Term	1.67	2.00
	Second Term	1.67	2.00
	STAP	N/A	2.00

The APST is based on grades in all courses taken during a semester excluding Military Science and Physical Education. The APSC is based on grades in all courses previously taken at the Academy excluding Military Science and Physical Education except that grades in repeated courses replace prior grades of D and F.

### **ACADEMIC DEFICIENCIES AND PROBATION**

Cadets who fall below the APSC levels shown in the table for the applicable semester will be reported deficient in the Academic Program to the Academic Board at term end. Cadets deficient in APSC may be considered by the Academic Board for separation for failure to attain minimum standards in the Academic Program.

Cadets deficient in APSC who are retained at the Academy will be placed on academic probation for the following term. Cadets whose APST is below 1.67 will also be placed on academic probation for the following term. Cadets are removed from academic probation at the end of the next term in which both their cumulative and term averages exceed the peg points in the table. Grades earned in the Summer Term Academic Program (STAP) may raise the APSC above the required peg point and remove a cadet from probation. In order to be removed from academic probation for term performance (APST failure), however, cadets must achieve better than in a full academic term (16 weeks).

A cadet placed on academic probation is subject to the following measures during the probationary period:

- Mandatory counseling by an assigned academic counselor within two weeks of the start of the current term. Performance reviews following the tenth and fifteenth week grade reports.
- Mandatory review of chain of command duties by the company tactical officer with a view toward reducing time requirements IAW Annex A, USMA Reg 1-1 (Administrative Scheduling Activities) and the Academy Schedule.
- Assessed room tours in lieu of area tours except in cases of Class 1 offenses.
- Subject to reduced privileges which are reviewed monthly relative to progress and adjustment.
- Limited to participation in one extracurricular activity or Corps Squad sport at a time. This will be reviewed monthly and follow the guidelines in the Academy Schedule.
- Ineligible to participate in events which involve the loss of academic time, either class or evening study period (e.g. away trip sections, spectator at home athletic contests, extracurricular activity events [Director of Cadet Activities (DCA) and religious trips], voluntary lectures or films, Cadet Public Relations Council (CPRC), conferences etc.), except for participation in the one extracurricular activity provided for above. Participation in a mandatory educational trip that is required for a course is permitted.
- Not authorized to use the following facilities during evening study period: day room, post movie, and Eisenhower Hall (except to attend mandatory lectures). Cadets on academic probation may purchase take-out food at Grant Hall. No stopping to socialize is authorized. Cadets are not authorized to consume beverages or food while they wait for their order.
- A cadet's privileges may be withdrawn by the company tactical officer upon the request of an instructor if both agree that this course of action is essential to improve the cadet's grades.

## ACADEMIC ASSISTANCE

Each academic department offers important supplementary programs and assistance to give cadets specific guidance in academic matters. This guidance assists cadets in overcoming academic weaknesses and in exploiting academic strengths.

**Additional Instruction (AI):** Academic departments will provide AI on the day it is requested. It is the responsibility of each cadet to request additional instruction. Specific guidance on AI hours and procedures will be provided by each department.

**Academic Counseling:** The Academic Affairs and Registrar Services (AARS), Office of the Dean, coordinates the faculty based academic counseling programs available to each cadet. Within the Counseling Branch there are counselors available during normal working hours on a walk in basis. They can discuss elective choices, schedules, course changes and overloads and can affect any changes in a cadet's program. One volunteer faculty member serve as a Company Academic Counselor (CAC) for each company and can help cadets on most academic matters or make referrals to the proper authority in the Dean's Office or academic departments. In addition the CAC's have formal academic counseling responsibility for all cadets in each company who have not yet selected a major. Upon selection of a major, cadets are assigned to the Department Academic Counselors (DAC) of the appropriate academic department. Finally, within the cadet chain of command there are the Cadet Company Academic Officer and Sergeant who can advise on the grading system, company tutors, AI and other matters.

## ACADEMIC SUPPORT PROGRAMS

**The Moulner Writing Center:** Located on the second floor of Jefferson Hall, the Moulner Writing Center provides writing assistance for any academic course through the use of experienced staff and faculty and Cadet Writing Fellows.

**Center For Enhanced Performance (CEP):** The CEP improves student performance and capacity for retention by educating and training cadets in performance enhancement techniques. These techniques can be gained by specialized training provided by the performance enhancement staff and the courses the Center offers each academic term.

- **Peak Performance Program:** This is offered to all cadets who wish to enhance their academic, athletic, and military performance through psychological and mental skills training. The goal is for the cadet to gain the ability to perform at full potential in any performance situation especially under pressure and stress. A variety of skills are taught to include relaxation, effective thinking, goal setting, focus and concentration, visualization and imagery, and team building. Individual sessions are scheduled with the cadet and a performance enhancement trainer. Sessions are tailored to meet the cadet's specific needs.
- **Student Success Course (RS101):** This credit-producing course is designed to improve cadet academic physical and leadership performance at USMA. Mastery of a variety of strategies leads to this goal. Strategies

presented include effective thinking, goal setting, time management, textbook study system, concentration, test taking, visualization, memory, note taking and others. The LASSI, the Learning and Study Strategies Inventory, is the pre- and post-course assessment. The strategies mastered are implemented immediately into the cadet's present life at USMA and contribute to life-long learning. The course has five graded assignments and a final pass/no record grade determination.

- **Reading Efficiency (RS102):** This course develops flexible reading strategies. Increasing one's base reading rate while maintaining comprehension is accomplished through the use of computer programs, textbook reading and recreational reading. Various pacing techniques and supervised practice lead to the increase of both reading rate and comprehension but most of all to the development of a reader who has a variety of strategies to use depending upon the type of reading required.
- **First Year and Beyond (FYB) Program:** The FYB program is intended to assist select cadets who, based on their performance after 6-week grades in first-term academic courses, are having difficulty adapting to the rigors of the academic program. In addition to the immediate relief and assistance provided during the first term, FYB helps these cadets develop as self-directed learners by continuing to provide educational scaffolding as they move beyond their initial academic term. This scaffolding is deliberately reduced over the cadets' 47-month experience. Please see a CEP counselor to learn more about the FYB program.

## ACADEMIC AWARDS AND RECOGNITION

Excellence in academic pursuits has long been the measure of an individual's self-discipline and self-growth.

Recognition of excellence has been the keystone of West Point's educational philosophy for over 200 years. The academic excellence of cadets is recognized throughout their four years at the Military Academy and is expressed in more than 100 awards. Just as such awards reflect an individual commitment to academic excellence in undergraduate study, they also reflect a strong foundation for graduate and post graduate work.

### RECOGNITION

**Distinguished Cadets:** Recognition occurs in the privilege of wearing gold stars to reflect distinguished academic achievement. Cadets must earn a QPA of 3.67 or better either for the year or cumulatively. Additional criteria include, full academic load, no failures, N/C (except an N/C in physical education for medical reasons), or W in any course taken during the year.

**Dean's List:** Selected cadets are recognized for academic achievement on the Dean's List. Dean's List criteria is a TQPA of 3.00 or better considering all courses in the academic program taken during the semester including military science and physical education. Cadets who are under-loaded (take less than the minimum five academic courses) or receive a W, F, or N/C (except an N/C in physical education for medical reasons) in any course taken that term are ineligible for Dean's List recognition. The cadet's academic transcripts will contain the notation "Dean's List" for all those so designated.

**Superintendent's Award:** The Superintendent's Award is a prestigious award given to cadets who prove themselves to be outstanding simultaneously in all three programs (Academic, Military, and Physical). It is based on the Cadet Award Score (CAS) which is a combination of the three program scores (APS, MPS, and PPS) applying equal weight to each. It has two levels of recognition both of which are based on demonstrated performance: achievement and excellence. The insignia for the Superintendent's Award for Excellence is a gold star encircled by a gold wreath; it is presented to the top 5% of cadets in each class based on CAS.

The insignia for the Superintendent's Award for Achievement is a gold wreath; it is presented to the next 15% of the cadets in each class based on CAS. As with other individual awards, additional criteria apply.

**Dean's Company Award:** The Dean's Company Award recognizes academic achievement by company during the fall and spring terms. Performance in the academic program is determined by the company Academic Program Score (APS). The company with the highest APS in each regiment receives a gold streamer to be attached to the company guidon. A silver streamer is awarded to any company with a company APS of 3.0 or higher.

**Thayer Honor Designation:** The Thayer Honor designation is awarded to Cadets who are selected for and complete the requirements of the Thayer Honor Program (THP). The purpose of the THP is to provide the most academically gifted Cadets the opportunity to achieve their highest intellectual potential while contributing to the intellectual engagement and development of the United States Corps of Cadets. Cadets are briefed on the program by

the THP Program Director and Office of the Dean during Cadet Basic Training. Cadets may apply for the program at the invitation of the THP Committee beginning in their first semester of their Fourth Class year. THP scholars are selected by the THP Committee based on their previous academic accomplishments and potential to perform scholarly work while at the Academy. The THP Committee is made up of representatives from each academic department and the Office of the Dean. In order to be awarded the Thayer Honor designation, Cadets must be selected for the program by the THP Committee maintain an APS of at least 3.5, an MPS and PPS of at least 3.0 (waiverable for one semester); participate in core course cohorting and additional academic enrichment opportunities offered during the academic year; achieve honors designation in their major program (if offered) and perform undergraduate scholarship reviewed and accepted by the THP Committee.

## GRADUATE SCHOOLING

### ADMINISTRATIVE INFORMATION

**Transcripts:** Before transcripts will be released permission must be given in writing. Transcripts of academic records are available at Academic Affairs and Registrar Services (AARS), Office of the Dean. There is no charge for transcripts required in connection with official requirements, but a nominal charge will be made for all others.

**Academic Evaluations:** Upon request, faculty members will provide cadets with academic evaluations using USMA Form 3-230 which is available in the Office of the Dean. These forms permit the Office of the Dean with a cadet's authorization under the provisions of the Privacy Act to provide selected information to designated institutions, agencies, or individuals. In most cases, the Office of the Dean will use these and other information in the cadet file as a basis for an official assessment of graduate school potential. Cadets are encouraged to seek academic evaluation by instructors during the Second and First Class years.

**Qualifying Examinations:** Most graduate or professional schools require that prospective students report their score on a nationally recognized qualifying examination before acceptance is granted. Cadets are responsible for arranging to take any of the examinations which may be required for admission to a graduate or professional program.

### GRADUATE SCHOOLING OPPORTUNITIES

**Medical School:** The Medical Program Advisory Committee (MPAC) is responsible for the evaluation of cadet applicants and selection of up to two percent of each graduating class to be recommended by the Academic Board to the Surgeon General to begin medical school in the fall after graduation from USMA. Cadets applying to medical school are screened by the MPAC during First Class year. Selection is based upon academic records, successful completion of the Medical College Admissions Test (MCAT), interviews, recommendations, and acceptance into an approved medical school. Those selected may attend either the Uniformed Services University of the Health Sciences or a civilian medical school. Those choosing a civilian medical school will receive a Health Professions Scholarship.

**Law School:** After two years of active duty, USMA graduates may apply to attend law school under the provisions of the Judge Advocate General's Fully Funded Legal Program. Selection for the program is contingent upon successful completion of the Law School Admissions Test, favorable consideration by the Judge Advocate General selection board, and acceptance into an approved law school.

**Other Graduate School Opportunities:** Other graduate school opportunities may be available to cadets in specific disciplines and branches. Please see the appropriate Department Academic Counselors and branch representatives to learn more.

### SCHOLARSHIPS AND FELLOWSHIPS

Cadets are encouraged to compete for a number of nationally recognized graduate scholarships and fellowships. The USMA Graduate Scholarship Committee serves as the Dean's executive agent for the scholarship programs and fellowships for which selected cadets may compete. All academic departments have a representative on this Committee. The list of opportunities for cadets may vary from year to year, and includes programs that cadets begin immediately upon graduation, are deferred until later, or are opportunities that exist only after graduation.

In a typical year, cadets who are selected into the XH (Critical Thought) program may compete for the Rhodes Scholarship, Marshall Scholarship, Schwarzman Scholarship, Gates-Cambridge Scholarship, and Mitchell Scholarship. Cadets not in XH, but approved by the Scholarship Committee, may also compete for East-West Degree Fellowships, Yenching Scholarships, Rotary Global Grants, and Fulbright Scholarships. STEM students selected into the XE program may also compete for the Hertz Foundation Scholarship, Churchill Scholarships, and select STEM-specific programs. Additionally, cadets from underrepresented communities may also compete for GEM

Fellowships in the fields of applied science and engineering. All of these programs begin after graduation.

Selected cadets may also compete for the Truman Scholarship and the National Science Foundation Graduate Fellowship, both of which are deferred until mid-career. Mid-career graduates may also compete for the George Olmstead Foundation Scholarship. The USMA Scholarship Committee maintains the current list of scholarship and fellowship opportunities.

## **VALIDATION AND ADVANCED COURSE ENROLLMENT**

Advanced Placement test scores and previous high school or college academic records are reviewed by the academic departments to determine whether a cadet is eligible for validation of certain courses. Many academic departments use examinations and personal interviews, in addition to screening academic records, to assist in their evaluation.

When the process is completed, a cadet may be offered the opportunity to validate a course. The decision is entirely the cadet's to make; cadets should keep in mind, however, that they may have to replace the validated course with another course. The significant aspects of validation are that it is voluntary, and that, while it excuses a cadet from taking a course, it does not reduce graduation course requirements. Validated courses will be reflected without credit hours on the transcript. However, the credit hour content of validated courses, as published in the Academic Program, is recognized as contributing appropriate disciplinary content towards meeting programmatic rigor for accreditation purposes.

## **ACADEMIC COURSE LOADS**

The minimum load that all cadets must carry under normal circumstances is five academic courses which are equal to or greater than 15 semester hours of credit. Cadets may elect to take six academic courses in the pursuit of certain academic majors. In addition, cadets will meet established requirements for physical education courses and military science core curriculum during a regular academic semester.

## **OVERLOADING**

Cadets are considered overloading when they are carrying seven academic courses in a term. Overload courses offer the means of adapting an academic program to capitalize upon a cadet's abilities and to satisfy a particular interest. During the Third, Second and First Class years, cadets may wish to enroll in one overload course for each term.

Approval will depend upon demonstrated ability and motivation. Specifically, Dean's List recognition in the preceding term is required. Cadets with a Cumulative Quality Point Average (CQPA) of 2.30 or higher may overload in their First Class year. Only elective courses may be overloaded.

A cadet who enrolls in an overload course and finds it unsuited to his or her needs may request withdrawal from the overload course through the Academic Affairs and Registrar Services (AARS), Office of the Dean, any time after the first month of the term and up until the beginning of Term End Examinations (TEE). Cadets are required to designate which of their electives is the overload. No change in this designation will be permitted after the term begins. The Dean may remove a cadet from an overload course for poor performance in that course or in any other courses.

## **CHOOSING A MAJOR**

Choosing an area of academic specialization deserves special mention. Without exaggeration, it is the most important academic decision a cadet will make at the Military Academy. Without exaggeration, it is the most important academic decision a cadet will make at the Military Academy. Much of the rationale for the presentation of core topics before the selection of a major is to ensure that cadets have the best information available upon which to make that decision.

Currently a major requires the commitment of a minimum of 13 courses. Once a cadet starts taking courses to support a major, it is very difficult and, in many cases, impossible to change to another major. Cadets are encouraged to seek guidance in arriving at this decision and to take the necessary time and effort to make that decision a good one.

Once a Fourth Class cadet designates a major, the cadet is passed from the company academic counselor to a counselor in the department that sponsors the chosen discipline. Departmental counselors then help the cadet plan the remaining six terms of his or her academic program, providing guidance on the sequencing of courses best designed to facilitate study of the discipline.

A minimum of 13 courses must be designated to fill the course requirements for the baseline area of academic specialization, arranged in semesters of five academic courses each. Cadets who choose an area requiring more than thirteen courses may need to complete additional academic courses (six or more) in future terms. The Military Academy provides opportunities to pursue Academic Individual Advanced Development (AIAD) during the summer

which, under some circumstances, may be used to reduce a course load during the academic year to five courses per term.

Through validation, advanced placement, or overload, it is possible for a cadet to meet the requirements for more than a single major. Each cadet must officially pursue and gain credit for one major. Beyond that requirement a cadet is free to pursue and gain transcript credit for additional majors provided he or she meets the following guidelines:

- In pursuing two majors, a cadet must meet all curricular requirements including student learning outcomes for each major and double-count no more than seven total courses, with no more than four being study-in-depth courses, one of which may be the integrative experience.
- Department counselors in both fields must grant approval.
- The graduation transcript will reflect academic majors that have been satisfied.
- Cadets are warned that USMA will not guarantee the completion of additional majors, even though that cadet may have already completed courses towards that goal. Scheduling and resource constraints may prohibit the completion of additional majors.

## ACADEMIC MINORS

Academic minors are designed to encourage and reward intellectual curiosity by allowing cadets to pursue an area of interest beyond their chosen major. Academic minors are not a USMA graduation requirement. USMA offers a variety of academic minors that focus on: (1) depth-of-study that is not quite as intensive as a major in the discipline, (2) depth-of-study in a field that is not offered as a major, or (3) interdisciplinary knowledge and skills in a field of study that warrants this approach.

The following guidelines apply to academic minors:

- An Academic Minor consists of a minimum of five academic courses of 3.0 credit hours or higher.
- In pursuing a major and one or more minors, a cadet must meet all curricular requirements for the major and each minor. Double-counting practices (counting one course to meet a course requirement in two different curricular components [e.g., core curriculum and a minor, two minors, a major and a minor]) are permitted. However, for any given cadet, at least three courses in any academic minor must be unique to that minor to gain official recognition.
- A department counselor in the academic minor must grant approval for all double counting requests.
- The graduation transcript will reflect all minors that have been satisfied.

Cadets are warned that USMA will not guarantee that they will be able to complete a minor, even though the cadet may have already completed courses towards that goal. Scheduling and resource constraints may prohibit availability of the courses.





# **PART I: THE ACADEMIC PROGRAM - CLASS GRADUATION REQUIREMENTS**



OFFICE OF THE SUPERINTENDENT  
**UNITED STATES MILITARY ACADEMY**  
WEST POINT, NEW YORK 10996-5000

MADN

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Class of 2019 - 2020 Graduation Requirements

1. A cadet must successfully complete the course of instruction in the academic, military and physical programs and satisfy the institutional (non-program) requirements to meet baseline graduation requirements.
2. The Cumulative Quality Point Average (CQPA) minimum value cannot be waived. Only the Academic Board can recommend a waiver for any other graduation requirement listed in this document.
3. The following are the graduation requirements for the Classes of 2019-2020:
  - a. Institutional Requirements (non-program)
    - (1) Achieve a Cumulative Quality Point Average (CQPA) of 2.00 (non-waiverable).
    - (2) Successfully complete one of the following broadening experiences: a Military Individual Advanced Development (MIAD), a Physical Individual Advanced Development (PIAD) or an Academic Individual Advanced Development (AIAD).
    - (3) Meet the height/weight standards of Army Regulation 600-9.
    - (4) Meet the physical fitness standards in paragraph 1-24 of Army Regulation 350-1 and Appendix A of Army Training Circular 3-22.20. As of March 2010, all references to FM 21-20 in AR 350-1 are to be understood as references to TC 3-22.20.
    - (5) Complete a minimum of eight semesters as a full-time cadet, either at the Academy or as a part of an Academic Board sanctioned exchange program.
  - b. Academic Program.
    - (1) Successfully complete or validate each course in the core curriculum, including the common core courses and a core engineering sequence equivalent.
    - (2) Satisfy the requirements of at least one major.
    - (3) Successfully complete 40 academic courses of at least 3.0 credit hours each. Validated and remedial courses cannot count towards this requirement.
    - (4) Achieve an Academic Program Score Cumulative (APSC) of 2.00.
  - c. Military Program.

- (1) Successfully complete all required Military Science, Military Lab and Military Development course work.
  - (2) Successfully complete Cadet Basic Training (CBT) and Cadet Field Training (CFT).
  - (3) Successfully complete Cadet Leader Development Training (CLDT) or an Academic Board-approved CLDT constructive credit experience.
  - (4) Successfully complete a West Point detail as a chain of command member during Second or First Class summer.
  - (5) Successfully complete Cadet Troop Leader Training (CTLT) or an Academic Board approved CTLT experience.
  - (6) Achieve a Military Program Score Cumulative (MPSC) of 2.00 or greater.
- d. Physical Program.
- (1) Successfully complete all required Physical Education course work.
  - (2) Successfully complete the Indoor Obstacle Course Test (IOCT) during the Second or First Class year.
  - (3) Achieve a Physical Program Score Cumulative (PPSC) of 2.00.
  - (4) Participate in a competitive athletic activity at the Intercollegiate, Club, or Company Athletic level during each academic semester unless excused for medical or other approved reasons.
4. The Academic Board approved these graduation requirements on 5 August 2016.



ROBERT L. CASLEN, JR.  
Lieutenant General, US Army  
Superintendent

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OFFICE OF THE SUPERINTENDENT  
**UNITED STATES MILITARY ACADEMY**  
WEST POINT, NEW YORK 10996-5000

MADN

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Class of 2021 Graduation Requirements

1. A cadet must successfully complete the course of instruction in the academic, military and physical programs and satisfy the institutional (non-program) requirements to meet baseline graduation requirements.
2. The Cumulative Quality Point Average (CQPA) minimum value cannot be waived. Only the Academic Board can recommend a waiver for any other graduation requirement listed in this document.
3. The following are the graduation requirements for the Class of 2021:
  - a. Institutional Requirements (non-program)
    - (1) Achieve a Cumulative Quality Point Average (CQPA) of 2.00 (non-waiverable).
    - (2) Successfully complete one of the following broadening experiences: a Military Individual Advanced Development (MIAD), a Physical Individual Advanced Development (PIAD) or an Academic Individual Advanced Development (AIAD).
    - (3) Meet the height/weight standards of Army Regulation 600-9.
    - (4) Meet the physical fitness standards in paragraph 1-23 of Army Regulation 350-1 and Appendix A of Field Manual 7-22.
    - (5) Complete a minimum of eight semesters as a full-time cadet, either at the Academy or as a part of an Academic Board sanctioned exchange program.
  - b. Academic Program.
    - (1) Successfully complete or validate each course in the core curriculum, including the common core courses and a core engineering sequence equivalent.
    - (2) Satisfy the requirements of at least one major.
    - (3) Successfully complete the academic requirements prescribed in the Redbook for their respective graduation year.
    - (4) Achieve an Academic Program Score Cumulative (APSC) of 2.00.
  - c. Military Program.
    - (1) Successfully complete all required Military Science and Military Development course work.
    - (2) Successfully complete Cadet Basic Training (CBT) and Cadet Field Training (CFT).

- (3) Successfully complete Cadet Leader Development Training (CLDT) or an Academic Board-approved CLDT constructive credit experience.
  - (4) Successfully complete a West Point detail as a chain of command member during Second or First Class summer.
  - (5) Successfully complete Cadet Troop Leader Training (CTLT) or an Academic Board approved CTLT experience.
  - (6) Achieve a Military Program Score Cumulative (MPSC) of 2.00 or greater.
- d. Physical Program.
- (1) Successfully complete all required Physical Education course work.
  - (2) Successfully complete the Indoor Obstacle Course Test (IOCT) during the Second or First Class year.
  - (3) Achieve a Physical Program Score Cumulative (PPSC) of 2.00.
  - (4) Participate in a competitive athletic activity at the Intercollegiate, Club, or Company Athletic level during each academic semester unless excused for medical or other approved reasons.
4. The Academic Board approved these graduation requirements on 1 November 2017.



ROBERT L. CASLEN, JR.  
Lieutenant General, US Army  
Superintendent

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# **PART I: THE ACADEMIC PROGRAM - CPS CALCULATION**





## **1. Computing the CPS.**

The CPS is computed in a way that provides a measure of a cadet's performance relative to his or her peers. This is meant to adjust for variations in grading systems within and among the three programs.

- a. The APSC, MPSC, and PPSC are standardized so they each have a mean of zero and standard deviation of one.

$$APS^* = \frac{APSC - APSC_{\text{Class Mean}}}{\sigma_{APSC}}$$

$$MPS^* = \frac{MPSC - MPSC_{\text{Class Mean}}}{\sigma_{MPSC}}$$

$$PPS^* = \frac{PPSC - PPSC_{\text{Class Mean}}}{\sigma_{PPSC}}$$

where  $\sigma_{APSC}$ ,  $\sigma_{MPSC}$ ,  $\sigma_{PPSC}$  are the standard deviations of the class's respective scores.

- b. Standardizing the APSC, MPSC, and PPSC ensures that all cadets are evaluated based on their performance relative to their class. It accounts for the deviation of their score from the class average (mean) score. It rewards those who are further above the mean and penalizes those who are further below the mean.
- c. Standardizing does affect determination of Honor Graduates ( $CPS \geq 3.50$ ). This award is meant to be given to cadets based on their performance relative to their peers, not based on an absolute number. Normalizing ensures that only those cadets who truly performed significantly better than their peers become the honor graduates.
- d. The CPS is based on the weighted average of the cumulative program scores. The APSC contributes 55%, the MPSC contributes 30%, and the PPSC contributes 15%.

$$CPS^* = 0.55(APS^*) + 0.30(MPS^*) + 0.15(PPS^*)$$

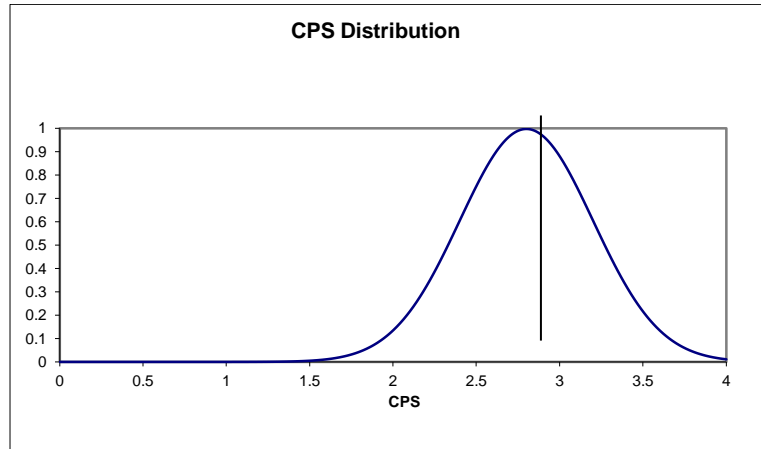
- e. The weighted average of the standardized program scores,  $CPS^*$ , is a normally-distributed random variable with a mean equal to zero. To calculate a representative score on a 4.0 scale,  $CPS^*$  is standardized as follows ( $Z$  is the number of standard deviations above or below the class average):

$$Z = \frac{CPS^* - 0.0}{\sigma_{CPS^*}} = \frac{CPS^*}{\sigma_{CPS^*}}$$

f. Based on this result, the CPS is calculated to conform to a distribution with a mean of 2.8 and standard deviation of 0.40:

$$CPS = 0.40Z + 2.80$$

Using this mean and standard deviation ensures that 95% of cadets will have a CPS between 2.0 and 3.6 and 99.7% will be between 1.6 and 4.0. The top 4% of the class will have a  $CPS \geq 3.5$  and be designated as *Honor Graduates*.



## **2. Examples.**

To illustrate why the program scores must be standardized, consider the following examples. Suppose the following situation exists:

<b>Program scores</b>				
	<b>Class Mean</b>	<b>Class Standard Deviation</b>	<b>Cadet A</b>	<b>Cadet B</b>
<b>APS</b>	3.006	.513	3.006	3.326
<b>MPS</b>	3.017	.423	3.017	2.878
<b>PPS</b>	3.063	.340	3.063	3.454

a. **Example 1.** Cadet A is clearly average since his/her program scores are the same as the graduating class' program score averages. Without standardizing, Cadet A's CPS would be

$$CPS = .55(3.006) + .30(3.017) + .15(3.063) = 3.02$$

Cadet A's CPS should be the CPS class mean. In this case, it won't be because each program score has a different standard deviation. Without standardizing, the MPSC and PPSC scores were allowed to carry more weight than intended and allowed Cadet A to be considered above average. Cadet A's CPS after standardizing the program scores is:

$$CPS^* = .55(0.00) + .30(0.00) + .15(0.00) = 0.00$$

$$CPS = 0.40(0.00) + 2.8 = 2.8$$

In this case, Cadet A's CPS is the class average (mean).

- b. **Example 2.** Cadet B's CPS is computed as follows:

$$\begin{aligned} APS^* &= \frac{3.326 - 3.006}{.513} = 0.624 \\ MPS^* &= \frac{2.878 - 3.017}{.423} = -0.329 \\ PPS^* &= \frac{3.454 - 3.063}{.340} = 1.150 \\ CPS^* &= 0.55(0.624) + 0.30(-0.329) + 0.15(1.150) = 0.417 \end{aligned}$$

Using each cadet's CPS\*, we can compute and verify that the class mean CPS\* is zero and the standard deviation is 0.825. Cadet B's CPS\* score is 0.417, which is clearly above average. Standardize CPS\* and convert it to the 4.0 scale to find the CPS.

$$\begin{aligned} Z &= \frac{0.417}{0.825} \approx 0.506 \\ CPS &= 0.40(0.506) + 2.80 = 3.002 \end{aligned}$$

Cadet B is above average ( $3.00 > 2.80$ ).

- c. **Example 3** (Are you really an Honor Graduate?). Suppose the following situation exists:

Program scores			
	Class Mean	Class Standard Deviation	Cadet C
APS	3.183	.597	4.000
MPS	3.218	.404	2.895
PPS	3.089	.280	2.873

Cadet C appears to be very bright. Does well academically, but performs below average in the physical and military programs. Determine Cadet C's CPS without standardizing the program scores.

$$CPS = .55(4.000) + .30(2.895) + .15(2.873) = 3.50$$

In this case, Cadet C did so well academically that he/she is considered an Honor Graduate. However, this cadet did not truly perform significantly better than his/her peers. The Graduate Outcome Goal requires cadets to excel in all three programs. Now, compute the actual CPS

$$\begin{aligned} APS^* &= \frac{4.000 - 3.183}{.597} = 1.369 \\ MPS^* &= \frac{2.895 - 3.218}{.404} = -0.800 \\ PPS^* &= \frac{2.873 - 3.089}{.340} = -0.635 \\ CPS^* &= 0.55(1.369) + 0.30(-0.800) + 0.15(-0.635) = 0.418 \end{aligned}$$

$$Z = \frac{0.418}{0.825} \approx 0.507$$
$$CPS = 0.40(0.507) + 2.80 = 3.00$$

Cadet C is above average ( $3.00 > 2.80$ ), but not worthy of being an Honor Graduate.

# **PART II: DISCIPLINARY OFFERINGS**



## PART 2: DISCIPLINARY OFFERINGS

This section of the Academic Program (Redbook) presents descriptions of the academic disciplines and specific learning outcomes of all USMA academic majors and minors. A complete listing of the Military Academy's majors and minors appears in Part 4.

### ACADEMIC DISCIPLINE DESCRIPTIONS

#### Chemical Engineering (CEN1 )

Chemical engineering is perhaps the broadest and most diverse field in all of engineering. Any commercial process or product that uses or contains molecules probably involved a chemical engineer at some stage of development. This includes all materials used by the military, including such basic items as food, clothing, fuel, water, explosives, metals, polymers, ceramics, semiconductors, medicines, artificial organs, and prostheses, just to name a few. Chemical engineers design these materials at the molecular level, optimize the design for specific applications, and develop efficient methods for production, packaging, and distribution. Chemical engineers are also very concerned with the conversion between matter and energy, particularly since almost all chemical reactions require or produce energy. In terms of contemporary societal problems, chemical engineers are at the forefront of the effort to design new and more efficient fuels, and we are critical to efforts at environmental remediation, including waste recycling and remediation. Within the military, chemical engineers are uniquely qualified to address problems in fuel and water production and distribution, power generation, as well as detection, decontamination, and protection against chemical and biological agents.

The mission of the chemical engineering program is to prepare commissioned leaders of character who are proficient in applying chemical and engineering principles to solve problems in a complex operational environment.

During a career as commissioned officers in the United States Army and beyond, program graduates:

- (1) Demonstrate effective leadership and chemical engineering expertise.
- (2) Contribute to the solution of infrastructure or operational problems in a complex operational environment.
- (3) Succeed in graduate school or other advanced study programs.
- (4) Advance their careers through clear and precise technical communication.

On completion of the chemical engineering program, our graduates demonstrate an ability to:

##### Student Learning Outcome 1

Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.

##### Student Learning Outcome 2

Apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.

##### Student Learning Outcome 3

Communicate effectively with a range of audiences.

##### Student Learning Outcome 4

Recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.

##### Student Learning Outcome 5

Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.

##### Student Learning Outcome 6

Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.

##### Student Learning Outcome 7

Acquire and apply new knowledge as needed, using appropriate learning strategies.

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**Student Learning Outcome 8**

Understand the chemical engineering curriculum, including chemistry, material and energy balances, safety and environmental factors, thermodynamics of physical and chemical equilibria, heat, mass, and momentum transfer, chemical reaction engineering, continuous and staged separation processes, process dynamics and control, modern experimental and computing techniques, and process design.

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**Chemistry (CHM1 )**

Chemistry is the branch of sciences that studies the composition, structure, properties, changes and interactions of matter. Every material thing - from the foods we eat, to the medicine we take, to the air we breathe - is a chemical or a mixture of chemicals. Therefore, it is truly the central science and underpins much of the efforts of scientists and engineers to improve life for humankind. Since chemistry is the molecular science, military applications of chemistry rely on the understanding of the structure and changes at the molecular level. These application areas can include the synthesis and development of advanced materials and explosives, solving environmental problems, creating innovative biotechnology solutions, and chemical or biological sensing.

The Chemistry Major includes all the courses recommended by the American Chemical Society and are designed to provide cadets with basic instruction with comparable emphasis on the areas of analytical chemistry, biochemistry, inorganic chemistry, organic chemistry and physical chemistry. Cadets are required to complete a core sequence. In addition, cadets must complete a three-course engineering sequence and may choose from any of the sequences offered. Ten courses are required to complete the major. Thus, the Chemistry Major requires a total of 40 courses to be taken or validated. Cadets choosing this program will complete an integrative experience (CH487 Advanced Chemistry Laboratory) that will examine the social, economic, political, and technological aspects of chemistry. The Chemistry Major with ACS Certification includes one elective course and two research courses (CH489 and CH490). The Chemistry Major with ACS Certification and Honors requires cadets to complete the course requirements for the CHM1A major while attaining a minimum APSC of 3.0 in the core curriculum and 3.5 in the major.

Graduates who complete a Chemistry Major will be able to:

**Student Learning Outcome 1**

- Use information resources to gather, organize, and understand scientific material.

**Student Learning Outcome 2**

- Design and execute experiments to address a problem or question.

**Student Learning Outcome 3**

- Analyze and assess scientific data gathered in the laboratory.

**Student Learning Outcome 4**

- Effectively and clearly communicate scientific information in written and oral form to a variety of audiences.

**Student Learning Outcome 5**

- Understand the applications of chemistry in the Army and society.

**Student Learning Outcome 6**

- Recognize the relationship between the properties of a substance, its molecular structure, and its reactivity.

**Student Learning Outcome 7**

- Understand and apply the physical concepts of chemistry.
- 

**Civil Engineering (CVN1 )**

Civil engineers are engaged in the planning, analysis, design, construction, and maintenance of a wide variety of structures and facilities, including buildings, bridges, highways, railroads, airports, dams, canals, ports, water and wastewater treatment systems, and storm water and sanitary sewer systems. The Civil Engineering program at USMA offers a Civil Engineering major accredited by the Engineering Accreditation Commission of ABET, <http://www.abet.org> that requires courses in basic mechanics, structural analysis, structural steel design, and reinforced concrete design as the foundation of the program. In addition, courses in infrastructure engineering, site civil engineering, geotechnical engineering, hydrology and hydraulic engineering, and construction management provide breadth to the program. The Civil Engineering major also includes a capstone design course, in which cadets develop a comprehensive design of a



Civil Engineering system, including the functional layout, structure, foundation, and site considerations to include utilities, drainage and environmental concerns. Design is emphasized throughout the program, as is the use of the personal computer as a tool for analysis, design, and decision-making. The program includes an extensive offering of enrichment electives, as well as an Advanced Individual Study in Civil Engineering, for selected cadets wishing to pursue a particular subject in depth. The Civil Engineering program serves as excellent preparation for initial Army troop assignments in combat and construction engineering as well as later jobs in civil works and facilities engineering. The program additionally provides a sound basis for graduate schooling in Civil Engineering and related fields, and for registration as a professional engineer. Cadets who maintain good standing in the Civil Engineering major take the Fundamentals of Engineering (FE) exam during the spring semester of their First Class year. Passing the FE exam is the essential first step in becoming a registered professional engineer.

Graduates who major in Civil Engineering will achieve the following Civil Engineering Program Educational Objectives:

A few years after graduation, Civil Engineering Program graduates:

1. As Army leaders, solve complex, multi-disciplinary problems effectively, to include:
  - a. recognizing and fully defining the physical, technological, social, political, business and ethical aspects of a complex problem;
  - b. using a methodical process to solve the problem; demonstrating creativity in the formulation of alternative solutions;
  - c. using appropriate techniques and tools to enhance the problem-solving process;
  - d. working effectively on teams; and
  - e. developing high-quality solutions that consider all dimensions of the problem.
2. Provide appropriate Civil Engineering expertise to the Army, when called upon to do so.
3. Communicate effectively.
4. Continue to grow intellectually and professionally - as Army officers and as engineers.

To achieve these objectives, cadets will demonstrate the following Civil Engineering Student Outcomes:

At graduation, Civil Engineering Program graduates:

**Student Learning Outcome 1**

Design Civil Engineering components and systems.

**Student Learning Outcome 2**

Demonstrate creativity, in the context of engineering problem-solving.

**Student Learning Outcome 3**

Solve problems in the structural, construction management, hydraulic, and geotechnical discipline areas of Civil Engineering.

**Student Learning Outcome 4**

Solve problems in mathematics through differential equations, calculus-based physics, and general chemistry.

**Student Learning Outcome 5**

Design and conduct experiments, and analyze and interpret data.

**Student Learning Outcome 6**

Function effectively on multidisciplinary teams.

**Student Learning Outcome 7**

Describe the roles and responsibilities of Civil Engineers and analyze the issues they face in professional practice.

**Student Learning Outcome 8**

Use modern engineering tools to solve problems.

**Student Learning Outcome 9**

Write effectively.

**Student Learning Outcome 10**

Speak effectively.

**Student Learning Outcome 11**

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Incorporate knowledge of contemporary issues into the solution of engineering problems.

**Student Learning Outcome 12**

Draw upon a broad education necessary to anticipate the impact of engineering solutions in a global and societal context.

**Student Learning Outcome 13**

Are prepared and motivated to pursue continued intellectual and professional growth—as Army officers and engineers.

**Student Learning Outcome 14**

Explain the basic concepts of management.

**Student Learning Outcome 15**

Explain the basic concepts of business and public policy.

**Student Learning Outcome 16**

Are leaders of character.

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**Computer Science (CSC1 )**

Computer scientists analyze, plan, design, and build computer systems. Within this broad area of computer system design, the computer science program at USMA provides cadets the opportunity to focus on the design of computer software components and the implementation software systems. The program provides a solid introduction to the general field of computer science, including computer theory, computer programming, algorithm analysis, data structures, software testing and development, computer organization, programming languages, operating systems, and the design of large software systems. According to your interests, you may pursue further study in artificial intelligence, computer graphics, computer networks, cyber security, and other topics. The opportunity to accomplish advanced individual study under the direction of a faculty member is available to those who are interested and qualified. Whether operating a remote sensor network from a fire base in Afghanistan, managing logistics from a Brigade Support Area in Kuwait, pattern matching events for intelligence purposes in Iraq, or simply understanding the computational feasibility of solving a complex problem, the Computer Science major prepares you to succeed as a leader in any branch of the Army and is a superb foundation for advanced civil schooling. The USMA Computer Science major is accredited by the Computing Accreditation Commission of ABET, <http://www.abet.org>.

The Program Educational Objectives (PEO) for Computer Science are that, five to seven years after graduation, cadets who major in Computer Science will have been successful Army officers who have:

- A. Initiated and completed tasks that identify aspects of a complex situation that can be enhanced by using computing technology.
- B. Applied computing knowledge and skills while using an engineering process individually or in diverse teams to develop computing technology applications.
- C. Used effective communication to explain new computing technology to war fighters in support of current and emerging Army war fighting doctrine.
- D. Grown professionally through self-study, continuing education and professional development.

To support these objectives, Computer Science graduates demonstrate the following student learning outcomes at the time of graduation:

**Student Learning Outcome 1**

An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices

**Student Learning Outcome 2**

An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution

**Student Learning Outcome 3**

An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs

**Student Learning Outcome 4**

An ability to function effectively on teams to accomplish a common goal

**Student Learning Outcome 5**

An understanding of professional, ethical, legal, security, social, political, and economic issues and responsibilities

**Student Learning Outcome 6**

An ability to communicate effectively with a range of audiences

#### **Student Learning Outcome 7**

An ability to analyze the local and global impact of computing on individuals, organizations, and society

#### **Student Learning Outcome 8**

Recognition of the need for and an ability to engage in continuing professional development

#### **Student Learning Outcome 9**

An ability to use current techniques, skills, and tools necessary for computing practice

#### **Student Learning Outcome 10**

An ability to apply design and development principles in the construction of software systems of varying complexity

## **Defense and Strategic Studies (DSS2 )**

The Defense & Strategic Studies (DSS) academic major will continue to reach the Academy's overarching goal through a multidisciplinary approach in its program structure and an interdisciplinary approach within its courses. The program will continue to draw upon military science, history, economics, political science, geography, leadership, information technology and law to understand the nature of war and the military instrument of national power.

### **DSS Major Student Learning Outcomes and Supporting Objectives**

#### **Student Learning Outcome 1**

Evaluate military strategic decision-making by applying appropriate theoretical, historical, policy and interdisciplinary knowledge.

- a. Cadets can develop a diverse and appropriate base of knowledge to effectively evaluate strategic choices, to include formal strategies and military systems, using a holistic approach.
- b. Cadets can explain the relationship between tactics, operations and strategy with an emphasis on the strategic effect of tactical action.

#### **Student Learning Outcome 2**

Cadets can frame complex, multifaceted strategic problems relating to the military component of national power and the potential use of force.

- a. Cadets can deconstruct the problem into its essential components and describe how they interrelate by effectively examining the political and military context.
- b. Cadets can identify relevant stakeholders, interests and policy objectives for state and non-state actors.
- c. Cadets can explain the influence that state and non-state actors' organizations, capabilities and systems have on the problem definition.

#### **Student Learning Outcome 3**

Cadets can apply theoretical frameworks, strategic planning models and critical thinking to construct viable and innovative ways to solve strategic problems.

- a. Cadets can identify and apply relevant theories and models to forming viable and innovative solutions.
- b. Cadets can translate well researched, reliable evidence into useful conclusions.

#### **Student Learning Outcome 4**

Cadets can Communicate and connect with a diverse range of audiences in order to frame and deliver an insightful strategic analyses.

- a. Cadets can formulate a clear, direct message that communicates the fundamental conclusion(s) up front.
- b. Cadets can persuasively communicate the necessary evidence and reasoning by logically organizing the information or argument.
- c. Cadets can effectively communicate through oral presentation by keeping the audience engaged with creativity, poise and competence.
- d. Cadets can effectively communicate through writing by being precise, concise and clear.

## **Diversity and Inclusion Studies Minor (DIS0N)**

Diversity and Inclusion Studies is an interdisciplinary minor centered in the Department of Behavioral Sciences and Leadership that crosses and consists of humanities and social science courses. America is a multicultural polity and demands knowledgeable and pragmatic thinkers who understand the range of human experiences. The Diversity and Inclusion Studies Minor (DISM) exposes cadets to varied perspectives and methodologies for understanding and

studying from the humanities, social, and behavioral sciences. By carefully drawing from already existing courses in multiple departments, the DISM complements and enhances the core curriculum, academic majors, and several West Point Centers and committees. The DISM not only addresses the Superintendent's vision for diversity and inclusion at West Point, but also enhances the efforts of the newly established diversity offices at West Point and throughout the Department of Defense. Moreover, the DISM at West Point offers cadets a framework for critically and creatively thinking about the broader impact of diversity and inclusion at the individual, organizational, societal, and/or global levels as well as provides opportunities to pursue diversity and inclusion in intra-, multi- and interdisciplinary ways. Cadets interested in this minor should contact the DISM DAC in the Department of Behavioral Sciences and Leadership.

Graduates with a minor in Diversity and Inclusion Studies should be able to:

**Student Learning Outcome 1**

Analyze, apply, and synthesize a broad range of methodologies for and theories of the critical study of diversity and inclusion, including how diversity and inclusion change in varied historical and social contexts.

**Student Learning Outcome 2**

Discuss and demonstrate an understanding of difference and empathy for others.

**Student Learning Outcome 3**

Conduct directed study of the core theoretical, legal, literary, geographical, historical, social, psychological, environmental, and/or policy topics related to diversity and inclusion.

**Student Learning Outcome 4**

Identify and critically assess explanations for construction of specific categories/groups such as sex/gender; race/ethnicity/nation; socio-economic class; religious affiliation; age; (dis)ability; sexual orientation; and cultures. Critically analyze the relation between constructed groups and access to power.

**Student Learning Outcome 5**

Describe the various ways in which different types of social actors have experienced diversity, inclusion, and exclusion over the course of history; explain and critically analyze the causes of these social actors' successes, struggles, transformations, and failures.

**Student Learning Outcome 6**

Analyze and integrate inclusion in multiple contexts, cultures and historical periods.

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**Economics (ECN2 )**

The Economics major provides critical thinking skills applied to human behavior and answers the questions: "What is produced?; How is it produced?; and To whom is it allocated?" Mathematical models are used to develop and test optimal resource allocation mechanisms. These models also provide the necessary foundation to analyze policy regimes within individual markets as well as aggregate economies. These skills are directly applicable to decision makers in tactical command positions who must achieve desirable outcomes with personnel and equipment constraints as well as national strategic decision makers who face similar aggregate constraints. The Economics major also provides deep proficiency in quantitative methods, particularly nonlinear optimization, for more specialized areas such as Operations Research, Resource Management, and Strategist.

**Economics Major Student Learning Outcomes****Student Learning Outcome 1**

Constrained Optimization: Cadets can derive the objective functions and resource constraints facing individuals, firms, and governments, and then solve the relevant optimization problems to describe and predict the behavior of economic agents.

**Student Learning Outcome 2**

Market Analysis: Using the outcomes derived from optimization, Cadets can explain how markets and the aggregate economy achieve equilibrium, and then predict how changes in the economic environment impact individual markets and the aggregate economy.

**Student Learning Outcome 3**

Market Efficiency: Cadets can apply economic models of individual, firm, and government behavior to evaluate whether equilibrium in a market achieves economic efficiency (the maximization of total surplus).

**Student Learning Outcome 4**

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Marginal Analysis: Cadets can apply the concept of equalization at the margin to explain and evaluate individual, firm, and government behavior, as well as perform cost-benefit analyses of government policies.

**Student Learning Outcome 5**

Incentives: Cadets can explain the central role of incentives in shaping the behavior of economic agents and design incentive structures that promote efficient outcomes.

**Student Learning Outcome 6**

Strategic Decision Making: Cadets can model and evaluate economic environments in which the actions of economic agents are interdependent.

**Student Learning Outcome 7**

Risk and Uncertainty: Cadets can model and evaluate the impact of uncertain economic outcomes due to either random shocks or the strategic behavior of economic agents, and explain how differential aversion to risk across individuals, firms, and governments affects market outcomes.

**Student Learning Outcome 8**

Information: Cadets can model and evaluate the effects of costly, limited, and asymmetric information on economic decision making, and derive policies to mitigate the efficiency losses arising from imperfect and incomplete information.

**Student Learning Outcome 9**

Global Economic Linkages: Cadets can model economic interactions of individual consumers, investors, firms and governments in international goods, capital, and currency markets, and evaluate the efficiency costs of government policies that restrain economic exchange among nations.

**Student Learning Outcome 10**

Political Economy: Cadets can apply economic models to understand behaviors of agents in political and other "non-economic" settings, and use models drawn from allied social science fields (Political Science, Psychology, Sociology, and Geography) to derive richer explanations of the behavior of individuals, firms and organizations (including governments).

**Student Learning Outcome 11**

Government Intervention in Markets: Cadets can use economic models to evaluate the impact(s) of government regulations and policies on market outcomes, as well as design interventions that improve economic efficiency or minimize efficiency losses.

**Student Learning Outcome 12**

Macroeconomic Stabilization: Cadets can use economic models to explain and predict fluctuations in key macroeconomic variables, and design fiscal and monetary policies to dampen these fluctuations.

**Student Learning Outcome 13**

Economic Growth: Cadets can build models that explain and predict the determinants of economic growth in the long-run, evaluate the impact(s) of government policies on growth, and design policies to promote economic growth.

**Student Learning Outcome 14**

Empirical Methods: Cadets can: apply economic theory to identify testable hypotheses; collect the requisite data and use appropriate empirical methods to test hypotheses; develop empirical models that can identify the causal effect of an economic variable of interest on an outcome of interest; and interpret the findings from statistical and empirical analyses as well as explain their relevance to policy making.

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**Electrical Engineering (EEN1 )**

The impact of the electronics revolution on our daily lives may exceed that of the industrial revolution. The advent of the integrated circuit and the microprocessor have made possible phenomenal advances in such varied fields as medicine, communications, manufacturing, computation, education, energy conversion, and weapons systems. Electrical engineers are at the forefront of this revolution, using the principles of physics, mathematics and the engineering sciences to develop new and innovative applications of electronics. Regardless of branch, officers will surely be involved with electronic systems in military hardware. The courses in the electrical engineering curriculum are directly applicable to the Army you will lead. As a student of electrical engineering you will develop a mastery of the fundamental elements of circuit theory, electromagnetic fields and waves, electronics, digital computer logic and electromechanical energy conversion. You will then study in greater depth subjects selected from the areas of robotics, communications, opto-electronics, alternative energy and cyber engineering. The program emphasizes practical design, hands-on laboratory and computer experience, teamwork, and interdisciplinary projects. The program additionally provides a sound basis for graduate schooling in electrical engineering and related fields as well as fulfilling the disciplinary depth component of the USMA curriculum. The Electrical Engineering Program is accredited by the Engineering Accreditation Commission of ABET, <http://www.abet.org>.

The Electrical Engineering Program objectives are that five to seven years after graduation cadets who major in

Electrical Engineering will have been successful Army officers who have:

- Applied their engineering, management, and leadership skills in service of their country.
- Demonstrated intellectual growth through self-study, continuing education, and professional development in the Army.
- Provided technical leadership and disciplinary knowledge as Army officers with a broad understanding of the potential ethical and societal impacts of technology.
- Applied engineering methodology and creativity to Army problems while effectively communicating across mediums and cultures.

Expected Student Outcomes for graduating cadets in the Electrical Engineering major are to:-

**Student Learning Outcome 1**

Apply knowledge of mathematics, probability, statistics, physical science, engineering, and computer science to the solution of problems. [ABET Criterion 3 Outcome (a)]

**Student Learning Outcome 2**

Identify, formulate, and solve electrical engineering problems. [ABET Criterion 3 Outcome (e)]

**Student Learning Outcome 3**

Apply techniques, simulations, information and computing technology, and disciplinary knowledge in solving engineering problems. [ABET Criterion 3 Outcome (k)]

**Student Learning Outcome 4**

Design and conduct experiments to collect, analyze, and interpret data with modern engineering tools and techniques. [ABET Criterion 3 outcomes (b) and (k)]

**Student Learning Outcome 5**

Communicate solutions clearly, both orally and in writing. [ABET Criterion 3 Outcome (g)]

**Student Learning Outcome 6**

Work effectively in diverse teams. [ABET Criterion 3 Outcome (d)]

**Student Learning Outcome 7**

Apply professional and ethical considerations to engineering problems. [ABET Criterion 3 Outcome (f)]

**Student Learning Outcome 8**

Incorporate understanding and knowledge of societal, global and other contemporary issues in the development of engineering solutions that meet realistic constraints. [ABET Criterion 3 outcomes (c), (h) and (j)]

**Student Learning Outcome 9**

Demonstrate the ability to learn on their own. [ABET Criterion 3 Outcome (i)]

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## Engineering Management (ENM1 )

Engineering Management majors study the engineering relationships among the management tasks of staffing, organizing, planning, financing, and the human element in production, research, engineering, and service organizations. By emphasizing leadership in a technical setting, the program builds on the traditional roles of the basic and applied sciences for engineering and technology management. Engineering managers must understand the interaction of organizational, technical, and behavioral variables in order to build a productive engineering team. Majors get a technical foundation in a specific engineering field of their choice: civil, mechanical, nuclear, electrical, environmental or general engineering. The program also provides a solid base of courses in personnel management, finance and accounting, engineering economy, production operations management, quantitative business analysis, project management, and computer modeling in order to prepare graduates to lead in a technical environment. The program culminates with a capstone design experience for a real client. The Engineering Management program at West Point is one of the top undergraduate programs in the nation and provides the academic foundations for a wide variety of activities important to Army officers of all branches. The Engineering Management Program is accredited by the Engineering Accreditation Commission of ABET, <http://www.abet.org>.

Engineering Management Program Educational Objectives: The Engineering Management program seeks to prepare future Army officers for productive and rewarding careers in the engineering or related profession for service to the Nation. Five to seven years after graduation, cadets who majored in Engineering Management will have been successful Army officers who:

1. Successfully lead and participate as a member of multi-disciplinary teams in a diverse cultural environment.
2. Apply critical thinking to their engineering, management, and leadership skills to design solutions to complex problems.
3. Demonstrate intellectual growth and continuous self-improvement through selfstudy, continuing education, and professional development.
4. Demonstrate effective communicating skills across a variety of mediums and cultures.
5. Act responsibly by upholding strict ethical and moral standards and considering impacts of decisions on social, political, economic, and technological issues.

To achieve these objectives, cadets will demonstrate the following Engineering Management Student Outcomes at the time of graduation:

**Student Learning Outcome 1**

Lead and work effectively as a contributing member of multidisciplinary engineering teams.

**Student Learning Outcome 2**

Lead the design or re-engineer of a system, process, or organization within realistic environmental constraints such as cultural, historical, legal, moral/ethical, economic, environmental, organizational, emotional, social, political, and technological.

**Student Learning Outcome 3**

Use the techniques, skills, modern engineering tools and technology necessary for engineering management practice.

**Student Learning Outcome 4**

Use systems thinking and engineering management techniques to identify, define, solve, recommend and implement the solution to a client's problem.

**Student Learning Outcome 5**

Monitor, assess and manage the broad global and societal impacts of engineering management problems, solutions and management decisions throughout the system lifecycle.

**Student Learning Outcome 6**

Use stakeholder analysis to identify contemporary issues in engineering management.

**Student Learning Outcome 7**

Apply knowledge of mathematics, science, and engineering appropriate for Army officers and practicing engineering managers.

**Student Learning Outcome 8**

Design and conduct system experiments, including the ability to collect, analyze, and interpret system input and output data.

**Student Learning Outcome 9**

Accurately, clearly, and concisely report engineering findings, conclusions, and recommendations to clients and stakeholders to support decision making.

**Student Learning Outcome 10**

Demonstrate the skills necessary to support continued intellectual growth and learning for a career of professional excellence and service to the Nation as an officer in the United States Army.

**Student Learning Outcome 11**

Act professionally and ethically as a leader of character.

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**Engineering Psychology (EPS0 )**

Engineering Psychology is one of four majors available through the Department of Behavioral Sciences and Leadership. It bridges the disciplines of experimental psychology and engineering by providing cadets with a strong foundational knowledge of the psychology of human performance and how these principles of behavior can be used to engineer and evaluate more effective systems. In the Yearling and Cow years, Engineering Psychology majors enroll in courses designed to teach research and statistical skills, and a series of courses that teach them about the scientific foundation of human behavior. In their Firstie year, they learn to apply this knowledge in the design and evaluation of complex systems.

Engineering Psychology Major Student Learning Outcomes and Supporting Objectives

**Student Learning Outcome 1**

Apply knowledge of human performance to operational readiness and total system design.

- Objective 1: Relate principles of the human nervous and endocrine systems to human performance
- Objective 2: Analyze the characteristics of human perceptual processes in the design of complex systems and work environments
- Objective 3: Apply understanding of human cognitive structure to system design
- Objective 4: Illustrate the limitations of the human body and biomechanics on human performance

**Student Learning Outcome 2**

Design, conduct, and analyze research in human performance in person/system interaction.

- Objective 1: Apply descriptive and inferential statistics in analyzing data in research projects
- Objective 2: Synthesize scientific literature in deriving an experimental hypothesis
- Objective 3: Design appropriate research methods to answer a scientific question

**Student Learning Outcome 3**

Evaluate research in human performance and person/system interaction.

- Objective 1: Analyze the validity of research methods used in published studies
- Objective 2: Contrast different empirical approaches to a given human performance research question
- Objective 3: Synthesize different research findings into an structured new whole
- Objective 4: Analyze and existing system and design and alternative and more functional system

**Student Learning Outcome 4**

Report and defend scientific findings in oral and written format.

- Objective 1: Describe scientific data and theories orally and in writing
- Objective 2: Apply the American Psychological Association's style in preparing written research reports
- Objective 3: Infer extrapolations from research findings to related phenomenon

**English Major (ENL1 )**

Cadets who major in English refine skills of analysis and creativity and enrich their imaginative capacities by studying the literary and artistic expressions of primarily Anglo-American and, to a lesser extent, global cultures. Exposed to a range of literary genres and modes of cultural expression, English majors graduate with a broader and deeper understanding of the history of ideas and of the ways in which imaginative literature has influenced human behavior and shaped cultural norms. By exploring the full spectrum of human behaviors and circumstances and by laying the groundwork for the cultivation of emotional intelligence and sympathetic imagination, the study of literature equips graduates to engage the world's intellectual, moral, and emotional complexities with insight and the potential for empathy. English majors refine their listening, speaking, reading, and writing skills in a variety of analytic and creative situations from the textual analysis of poetry and prose to the study of literary history to dramatic performance. The English major with Honors further challenges Cadets to compose a lengthy academic research project in close consultation with a member of the doctoral faculty. With an English major, a Cadet graduates from West Point with the capacity to analyze textual evidence, to account for cultural context and complexity, to communicate precisely, and to imagine creative solutions to difficult problems—attributes that, taken together, constitute excellent preparation for Army service in the twenty-first century and for life more broadly.

**Student Learning Outcome 1**

English majors will possess a body of knowledge specific to the study of literature.

Cadets will

- (1) Understand important conventions of literary scholarship, including critical vocabulary, terminology, and research methods.
- (2) Receive a strong foundation in Anglo-American literary history.
- (3) Be exposed to significant works of world literature and to global perspectives.

**Student Learning Outcome 2**

English majors will communicate effectively within the discipline, observing audience, vocabulary, conventions, and methodology.

Cadets will

- (1) Learn to recognize the difference between rational and emotional responses to texts.
- (2) Speak about literature and culture with depth, nuance, clarity, and precision.
- (3) Practice standard skills of literary scholarship, including close reading, analysis in context, and the application of various critical and theoretical lenses.
- (4) Write effective academic and creative texts that display an appropriate understanding of subject, audience, and purpose.
- (5) Write an extended literary research paper that incorporates secondary sources.

**Student Learning Outcome 3**



English majors will apply knowledge of literature within and across disciplinary boundaries

Cadets will

- (1) Gain a knowledge of literature's historical, social, cultural, and political contexts.
- (2) Gain an understanding of the influence of literary models and archetypes on human behavior, especially on the behavior of military professionals; and an awareness of the role of literature within the cultures of other countries and regions.
- (3) Draw meaningful connections between literature and other disciplines in discussion and writing.

#### **Student Learning Outcome 4**

English majors will demonstrate the capability and the desire to pursue continued intellectual development.

Cadets will

- (1) Value the continuing study of literature and other intellectual pursuits.
- (2) Be able to work independently and collaboratively in literary studies or other intellectual fields.

#### **Student Learning Outcome 5**

English majors will cultivate particular habits of mind exercised through literary study.

Cadets will

- (1) Acknowledge and reckon with ambiguity.
- (2) Cultivate patience and the faculty of deep attention.
- (3) Take intellectual and imaginative risks in creative projects.
- (4) Learn to approach problems with resilience, resourcefulness, and invention.

## **Environmental Engineering (EVE1 )**

The environmental engineering program is designed for those cadets who are interested in not only what environmental issues we face today, but how we clean-up our past environmental problems and prevent future ones. Environmental engineers use chemical, biological, and physical processes to engineer systems that address these issues. This discipline is evolving to face new challenges resulting from rapid growth in human population and technology. Environmental engineers work in multinational teams to develop methods to combat global climate change; find alternative sources of energy; and to recover materials from discarded products. Our program provides you with an active learning experience designed to develop your knowledge of math, science, and engineering science and your ability to use this knowledge to be an active problem solver for complex environmental issues. This skill has been invaluable to our graduates in the Army as they work environmental projects in Iraq and Afghanistan and improve the welfare of their Soldiers. The Environmental Engineering Program is accredited by the Engineering Accreditation Commission of ABET, [www.abet.org](http://www.abet.org).

The Program Educational Objectives of the Environmental Engineering Program identify what our graduates can accomplish within four to seven years after graduation.

Within four to seven years, environmental engineering graduates are expected to attain:

1. leadership responsibility involving
  - a. solving complex cross-disciplinary problems
  - b. managing resources
  - c. minimizing environmental impacts
  - d. executing projects within constraints
2. professional skills including
  - a. communicating pertinent information to stakeholders
  - b. building consensus when presented with diverse viewpoints
  - c. evaluating, mitigating and communicating risk
3. self-development through activities including
  - a. achieving professional licensure and certification
  - b. pursuing continuing education
  - c. seeking formal and informal enrichment experiences including community outreach
4. an internalized professional value set that guides you to
  - a. uphold Army values (Loyalty, Duty, Respect, Selfless Service, Honor, Integrity, Personal Courage)
  - b. analyze an environmental engineering challenge involving conflicting ethical and professional interests to determine an appropriate course of action

The Student Outcomes of the Environmental Engineering Program identify what our graduates can accomplish upon graduation.

Upon graduation, Environmental Engineering majors will demonstrate the following Environmental Engineering Student Outcomes:

**Student Learning Outcome 1**

an ability to apply knowledge of mathematics, science, and engineering

**Student Learning Outcome 2**

an ability to design and conduct experiments, as well as to analyze and interpret data

**Student Learning Outcome 3**

an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability

**Student Learning Outcome 4**

an ability to function on multidisciplinary teams

**Student Learning Outcome 5**

an ability to identify, formulate, and solve engineering problems

**Student Learning Outcome 6**

an understanding of professional and ethical responsibility

**Student Learning Outcome 7**

an ability to communicate effectively

**Student Learning Outcome 8**

the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context

**Student Learning Outcome 9**

a recognition of the need for, and an ability to engage in life-long learning

**Student Learning Outcome 10**

a knowledge of contemporary issues

**Student Learning Outcome 11**

an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice

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**Environmental Science (ESC1 )**

Environmental science is a broad, integrative, science-based discipline which focuses on the interrelationships between people and the environment. Environmental scientists conduct investigations to analyze these interrelationships and to identify, abate, or eliminate human-caused pressures on the environment. The ultimate goal of these investigations is to create a sustainable balance between humans and the natural world that minimizes environmental degradation. This major develops expertise into the processes that sustain our environment by expanding upon the West Point core science education by adding studies in the natural sciences such as biology, ecology, geology, and meteorology, and in the integrative studies of environmental decision making and environmental security. This broad academic background is excellent preparation for challenges faced by a military leader who must balance resource and human requirements. The program seeks to (1) enhance your curiosity about natural processes and your ability to study such processes as a scientist and (2) deepen your knowledge of human influences on the environment and foster evaluation of our individual and collective responsibilities as environmental stewards.

The Environmental Science Student Learning Outcomes are designed to:

**Student Learning Outcome 1**

Enhance curiosity about natural processes and one's ability to study such processes as a scientist.

**Student Learning Outcome 2**

Deepen knowledge of human influences on the environment and foster evaluation of our individual and collective responsibilities as environmental stewards.

**Student Learning Outcome 3**

Develop one's ability to evaluate the connections between the environment and individual, national, and global security.

**Student Learning Outcome 4**

Improve one's facility with the tools of environmental science by developing proficiency in collecting and analyzing lab and field data, deducing patterns, and formulating the next step in an on-going study.

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**Student Learning Outcome 5**

Provide a solid foundation in earth, air, water and life sciences and their interconnections.

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**Foreign Area Studies: Africa (FSI1 )**

This description and outcomes apply to all Foreign Area Studies Majors, not just Foreign Area Studies: Africa.

A Foreign Area Studies Major is offered to Cadets interested in pursuing an interdisciplinary study of Africa, East Asia, Eurasia, Europe, Latin America, or the Middle East. Cadets choosing one of these area programs will study the peoples, societies, languages, cultures, geography, history, foreign relations, politics, and economics of a particular region. Cadets will have the opportunity to study in depth the factors that frequently determine national objectives and influence the formulation of governmental policy.

**Student Learning Outcome 1**

Foreign Area Studies Majors will be proficient in their respective languages.

Cadets will be able to

- (1) Demonstrate foreign language proficiency in listening, speaking, reading, and writing.
- (2) Combine linguistic skills and critical thinking to perform research and conduct analysis.
- (3) Deliver research findings to diverse audiences.

**Student Learning Outcome 2**

Foreign Area Studies Majors will develop the cultural competence needed to interact effectively with members of the target community.

Cadets will be able to

- (1) Describe and explain crucial figures and events in the history of the target region.
- (2) Discuss significant recent cultural developments.
- (3) Analyze contemporary issues, guided by knowledge of the region's history.
- (4) Account for limitations in existing conceptual frameworks as applied to cultural studies.

**Student Learning Outcome 3**

Foreign Area Studies Majors will be knowledgeable of the regional dynamics of LX-speaking countries.

Cadets will be able to

- (1) Describe the target region's armed forces.
- (2) Analyze the impact of the physical and human geography on contemporary society.
- (3) Apply concepts of cross-cultural inquiry to evaluate regional change.
- (4) Identify and explain sources of intercultural conflicts.
- (5) Summarize US policies related to the LX-speaking region.

**Student Learning Outcome 4**

Foreign Area Studies Majors will be critical thinkers.

Cadets will be able to

- (1) Integrate acquired knowledge in area studies and foreign languages with other humanities and social sciences disciplines.
  - (2) Transfer language proficiency and intercultural capabilities to the study of and engagement with other language communities.
  - (3) Navigate successfully the challenges of living in another culture.
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**Foreign Language: Arabic (FLA1 )**

This description and outcomes apply to all foreign language majors and dual language majors, not just Foreign Language: Arabic

The ability to understand and speak a foreign language is a window into the thinking and values of another people. Cadets majoring in foreign languages develop operational proficiency in the foreign language and attain an informed understanding of the culture and regional dynamics of the country or countries where the language is used. These capabilities are invaluable assets to future officers in a globally committed US Army. Majors may focus on the study of a single language: Arabic, Chinese, French, German, Portuguese, Russian or Spanish; or they may pursue the Dual Foreign Language Major by combining studies of any two of the seven languages or Persian. Advanced level study in all languages includes courses in literature, civilization, military readings, and media.

**Student Learning Outcome 1**

Foreign Language Majors will be proficient in their respective languages.

Cadets will be able to

- (1) Comprehend and analyze language-based cultural products.
- (2) Read critically and analyze texts in the target language.
- (3) Communicate effectively using culturally appropriate forms in the target language.

### **Student Learning Outcome 2**

Foreign Language Majors will develop the cultural competence needed to interact effectively with members of the target community.

Cadets will be able to

- (1) Describe and explain crucial figures and events in the history of the target region.
- (2) Discuss significant recent cultural developments.
- (3) Analyze contemporary issues, guided by knowledge of the region's history.
- (4) Account for limitations in existing conceptual frameworks as applied to cultural studies.

### **Student Learning Outcome 3**

Foreign Language Majors will be knowledgeable of the regional dynamics of LX-speaking countries.

Cadets will be able to

- (1) Describe the target region's armed forces.
- (2) State attitudes and beliefs of the LX-speaking population about the culture/policies of the US.
- (3) Summarize US policies related to the LX-speaking region.
- (4) Identify and explain sources of intercultural conflicts.

### **Student Learning Outcome 4**

Foreign Language Majors will be critical thinkers.

Cadets will be able to

- (1) Combine linguistic skills and critical thinking to perform research, conduct analysis, and deliver findings to diverse audiences.
- (2) Integrate acquired knowledge in foreign language studies with other humanities and social sciences disciplines.
- (3) Transfer language proficiency and intercultural capabilities to the study of and engagement with other language communities.
- (4) Recognize the inherent challenges of translation and literary analysis.
- (5) Navigate successfully the challenges of living in another culture.

## **Geography: Human (GEH0 )**

Geography: Human (GEH0), Human-Environment (GEE0), Physical (GEP0)

This description and outcomes apply to all three tracks within the Geography major.

Geography is the study of people, places, and the environment and is an ideal major for Cadets interested in the outdoors, global cultures, and the natural world. More specifically, Geographers examine spatial patterns, geographic processes, and natural and human landscapes. Geography is a broad, integrating discipline with methodologies and analytical foundations that span engineering, science, and the humanities. Majoring in geography requires persistent curiosity and inquiry into human-land-environment interactions including an examination of how natural systems function, how physical landscapes evolve, how human populations adapt, and how humans shape the environment. Three tracks allow Cadets to explore geography through the major subfields of the discipline: Human Geography, Physical Geography, or Human-Environment Interaction. The Human Geography track provides a social science perspective that enables Cadets to explore cultural diversity, population trends, and political, economic, and social systems from a global and regional perspective. The Physical Geography track falls within the natural sciences and allows Cadets to develop a greater depth of knowledge on the physical processes that shape the Earth. The Human-Environment Geography track emphasizes the interaction between humans and their environment by delineating the regional challenges inherent with environmental change and natural hazards, identifying anthropogenic pressures on natural resources and the role these resources play in economic wellbeing, and understanding the environments role in regional instability. The major integrates the use of geographic skills such as computer cartography, remote sensing, and geographic information systems. Geography is the ideal discipline for an Army officer in a changing world.

Graduates with a major in Geography should be able to:

### **Student Learning Outcome 1**

Describe the development of geography and discuss the discipline's unique place within the social and natural sciences.

### **Student Learning Outcome 2**

Explain how geography connects both physical and human geographic principles in order to understand the interactions between people and the natural environment.

### **Student Learning Outcome 3**

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Explain the fundamental concepts (place, space, scale, location, region, landscape) and theories that underlie modern thinking in geography.

**Student Learning Outcome 4**

Explain the basic physical geography processes that affect human patterns & systems on the earth's surface.

**Student Learning Outcome 5**

Demonstrate a basic competence in a technical skill of value to geographers, such as foreign language, research methodologies, or geospatial technologies.

**Student Learning Outcome 6**

Use geospatial information sciences to inform understanding of geographic issues.

**Student Learning Outcome 7**

Identify global cultural patterns and processes and summarize the regional geography of at least one world realm.

**Student Learning Outcome 8**

Synthesize and apply knowledge of geography to better understand real world issues, including, but not limited to, topics of concern to the Army.

**Student Learning Outcome 9**

Conduct basic geographic research, analyze the findings, and professionally communicate the results orally and in writing.

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**Geospatial Information Science (GIS1 )**

Fundamental to understanding our environment and the geography of the earth is our ability to locate, measure, and quantify geographic phenomena. The discipline of Geospatial Information Science is concerned with the measurement of the earth and all that is on it, natural and man-made. Cadets develop expertise in subjects ranging from traditional methods of land surveying to satellite imaging and positioning systems. The Geospatial Information Science curriculum builds on a firm math science, and geography foundation with specialized courses in land surveying, cartography, photogrammetry, remote sensing, and geographic information systems. Both the civil and military sectors of our society are placing an ever-increasing reliance on the ability to build and query GIS to support a myriad of social/economic and engineering issues. The cadet at the USMA has a rare opportunity to pursue an integrated field of study that is commonly spread over several separate disciplines at other institutions. This major has applicability for the future military officer regardless of branch. Cadets majoring in GIS receive a 3Y (Space Activities) Skill Identifier on their official military record. Additionally, cadets who branch Engineers will qualify for the Geospatial Engineer Officer Identifier. Cadets majoring in GIS also qualify for the United States Geospatial Intelligence Foundations Geospatial Intelligence Certificate.

**GIS Major Student Learning Outcomes and Supporting Objectives****Student Learning Outcome 1**

Graduates will understand the fundamentals of geospatial data.

- Graduates will have an understanding of datums.
- Graduates will have an understanding of map projections.
- Graduates will have an understanding of map coordinate systems.

**Student Learning Outcome 2**

Graduates will be able to acquire geospatial data.

- Graduates will be able to plan a geospatial data collection or acquisition.
- Graduates will be familiar with the sources of geospatial data.
- Graduates will be able to collect geospatial data using traditional surveying techniques.
- Graduates will be able to collect geospatial data using GPS technologies.
- Graduates will be able to convert geospatial data to effectively meet project requirements.
- Graduates will be able to assess the quality of geospatial data.

**Student Learning Outcome 3**

Graduates will be able to effectively manage geospatial data.

- Graduates will be able to design a geospatial database that meets user requirements.
- Graduates will be able to build a geospatial database based upon design specifications.
- Graduates will be able to critically assess the utility of a geospatial database.
- Graduates will be able to modify the design and content of a geospatial database as necessary.

**Student Learning Outcome 4**

Graduates will be able to conduct geospatial analysis.

- a. Graduates will be able to generate digital elevation models.
- b. Graduates will be able to extract thematic data layers from remotely sensed imagery.
- c. Graduates will be able to conduct geospatial queries.
- d. Graduates will be able to take measurements of geospatial features.
- e. Graduates will be able to conduct basic geospatial analytical operations and methods.
- f. Graduates will be able to analyze geospatial surfaces.
- g. Graduates will be able to conduct basic network analysis.

#### **Student Learning Outcome 5**

Graduates will be able to effectively communicate with geospatial information.

- a. Graduates will understand and be able to use the principles of cartographic design.
- b. Graduates will be able to effectively employ geo-visualization techniques.
- c. Graduates will be able to communicate geospatial information in a non-graphic manner such as briefings and reports.

#### **Student Learning Outcome 6**

Graduates will understand the profession and responsibilities of the discipline.

- a. Graduates will have an understanding of legal, ethical, and security aspects of geospatial data and information.
- b. Graduates will be familiar with geospatial organizations with an emphasis on the Department of Defense and the U. S. Army.

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## **History Major: International (HNT2 )**

This description and the outcomes apply to all history majors, not just History: International.

As Army officers, West Point graduates will perform a broad spectrum of missions vitally important to our nation's security and interests. They must be intellectually and professionally prepared to face these challenges in an uncertain and dangerous world inhabited by peoples of different languages, religions, and cultures. The Department of History contributes to cadets' intellectual and professional development by imparting historical knowledge, an appreciation of history, and critical thinking and communication skills.

Broad historical knowledge is central to developing informed citizens and soldiers. It helps cadets place their service as future Army officers in the context of U.S., Western, and world history. Additionally, it provides the cultural and historical literacy necessary for officers to serve effectively wherever in the world they may find themselves. This is particularly true in the case of counterinsurgency warfare, where victory depends on achieving legitimacy in the eyes of the indigenous population.

Officers with an appreciation of history recognize that every situation is historically unique. They understand that history is of value not in divining answers about the future but in asking the right questions. History is the means of putting human activities and ideas in context, avoiding false analogies, lending a sense of scope and scale, assessing moral implications, anticipating unintended consequences, and judging the feasibility and suitability of possible courses of action. Consulting history on these issues helps officers arrive at thoughtful, appropriate, and humane solutions to the problems they will face in their careers.

Officers who are critical thinkers challenge accepted wisdom in the search for truth and justice. They are open-minded and able to make independent and informed decisions. They reject simplistic answers that suggest the existence of a black-and-white world; rather, they accept the ambiguity associated with most human endeavors and seek the best solution rather than a single "correct" one. The study of history encourages critical thinking by requiring cadets to:

- formulate critical questions;
- conduct research by gathering and prioritizing information; analyze information within the broad context in which it appears; interpret and synthesize information;
- derive reasoned, evidence-based conclusions;
- assess and adjust their conclusions as conditions change or new information becomes available.

Finally, officers must be able to communicate effectively, both orally and in writing, to influence others. It is of no use to know and appreciate history and to be able to think critically if the officer is incapable of communicating his or her thoughts. The Department of History develops cadets' communication skills through frequent practice in and out of the classroom. Our principal evaluative concern is the content of the message, but we also devote great energy to enabling cadets to communicate with grammatical correctness, stylistic grace, and acceptable format. Cadets may pursue a major in one of three fields: American History, International History, or Military History. Each offers flexibility, permitting cadets to develop a foundation of historical perspective as well as pursue specialized studies in regional areas, languages, or other disciplines.

**Student Learning Outcome 1**

Communicate effectively in speaking and writing.

1. Demonstrate ability to read and understand information and arguments.
2. Demonstrate ability to understand and respond in verbal debate and discussion.
3. Convey ideas clearly, using conventions of format, structure, voice, tone, and level of formality appropriate to the rhetorical situation and audience in an organized way both orally and in writing.

**Student Learning Outcome 2**

Understand how individuals, organizations, cultures, and societies behaved and met challenges in the past.

1. Identify and analyze the development of different cultures and civilizations and understand the historical foundations of their ethical development.
2. Analyze the interactions of political, social, economic, ethical, military, and cultural components in the development of civilizations.
3. Analyze and evaluate the role of historical insight in informing the decisions of political and military leaders.

**Student Learning Outcome 3**

Understand the complexity and ambiguity of change over time. Evaluate complex evidence critically and establish appropriate links between cause and effect.

1. Use historical evidence to assess given situations both preceding and following historical change and describe the limits of that change, identify and analyze ethical components of historical events, identify conflicting points of view, analyze conflicting or ambiguous historical perspectives and evidence, establish causal relationships between facts, and identify points of tension.
2. Apply historical knowledge, critical thinking and research skills to inform their own professional decision-making.

**Student Learning Outcome 4**

Demonstrate critical thinking and research skills:

1. Engage in independent research.
2. Identify the essential aspects of historical situations and ask relevant questions.
3. Reflect on and evaluate evidence and sources, question assumptions, synthesize and draw informed conclusions on the basis of critical analysis.
4. Employ historical thinking and analysis to explain historical patterns, developments and events.
5. Analyze various approaches to historical research and different historical frameworks.

**Information Technology (ITE1 )**

The Information Technology (IT) program builds on the USMA Academic Program Goal for Science, Technology, Engineering and Mathematics: "Graduates apply science, technology, engineering, and mathematics concepts and processes to solve complex problems." Information technologists play a critical role in the specification, design, acquisition, deployment, and management of information technologies for the Army and society. They address the development and evolution of IT infrastructure and systems in organizations. In the Army, information technologists design, install, and modify information systems and networks in tactical and strategic environments.

**The Information Technology Major**

The primary goal of the IT major is to teach cadets to systematically identify critical information requirements and then design, build, and test complex information systems from hardware and software components to meet individual client and Army organizational needs. The Information Technology program is accredited by the Computing Accreditation Commission (CAC) of the Accreditation Board for Engineering and Technology (ABET), <http://www.abet.org>.

The Information Technology Program objectives are that, five to seven years after graduation, cadets who major in Information Technology will have been successful Army officers who have:

- Identified and exploited opportunities to improve Army operations by applying best practices in information technology.
- Effectively communicated information technology to a range of audiences.
- Grown professionally through self-study, continuing education, and professional development.

The Information Technology Program enables students to attain, by the time of graduation:

**Student Learning Outcome 1**

An ability to apply knowledge of computing and mathematics appropriate to the discipline

**Student Learning Outcome 2**

An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution

**Student Learning Outcome 3**

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An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs

**Student Learning Outcome 4**

An ability to function effectively on teams to accomplish a common goal

**Student Learning Outcome 5**

An understanding of professional, ethical, legal, security, social, political, and economic issues and responsibilities

**Student Learning Outcome 6**

An ability to communicate effectively with a range of audiences

**Student Learning Outcome 7**

An ability to analyze the local and global impact of computing on individuals, organizations, and society

**Student Learning Outcome 8**

Recognition of the need for and an ability to engage in continuing professional development

**Student Learning Outcome 9**

An ability to use current techniques, skills, and tools necessary for computing practice

**Student Learning Outcome 10**

An ability to use and apply current technical concepts and practices in the core information technologies of human computer interaction, information management, programming, networking, web systems and technologies

**Student Learning Outcome 11**

An ability to identify and analyze user needs and take them into account in the selection, creation, evaluation and administration of computer-based systems

**Student Learning Outcome 12**

An ability to effectively integrate IT-based solutions into the user environment

**Student Learning Outcome 13**

An understanding of best practices and standards and their application

**Student Learning Outcome 14**

An ability to assist in the creation of an effective project plan

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**Interdisciplinary Science - Astronautics Track (ISA0 )**

This description and outcomes apply to all tracks of the Interdisciplinary Science major, not just Interdisciplinary Science - Astronautics Track.

The program in Interdisciplinary Science consists of study selected from the disciplines of physics, chemistry, life sciences, and astronautics. This major offers cadets an opportunity to acquire a comprehensive grasp of their physical environment and, more importantly, an understanding of human thought in seeking out successful methods of increasing our insight and knowledge. This area of inquiry will enable cadets to analyze and understand future developments in our society as they relate to such critical issues as medical and health science research, the energy crisis, the nuclear power controversy, the space program, and the development of sophisticated weapon systems. The program provides cadets with a sound basis for graduate study not only in basic sciences but also in applied sciences, engineering, medicine or life science. Additionally, the program prepares cadets for entry into the majority of the technically oriented officer career branches and several of the functional areas.

**Interdisciplinary Science Major Student Learning Outcomes****Student Learning Outcome 1**

Cadets can apply disciplinary tools, methods of inquiry, and theoretical approaches from multiple scientific disciplines to model natural systems, solve problems, and apply solutions to hypothetical and real world situations.

**Student Learning Outcome 2**

Cadets can apply interdisciplinary scientific principles to formulate and test hypotheses in an experimental setting.

**Student Learning Outcome 3**

Cadets can complete academic assignments and perform research using accepted ethical and scientific standards



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**Student Learning Outcome 4**

Cadets can communicate logical solutions to scientific and technical problems in oral or written form that is easily comprehended by superiors, peers and subordinates.

**Student Learning Outcome 5**

Cadets are prepared for graduate education in technical disciplines.

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**Kinesiology (KIN1 )**

Kinesiology is the scientific study of human movement and is generally divided into the physiological, psychological, and mechanical aspects of movement. The physiological aspects of kinesiology encompass the study of the short-term responses and long-term adaptations of organisms and systems to the challenge of exercise, physical activity, or movement. From a neuromuscular perspective, kinesiology relates to how humans learn and control movements. The psychological aspects of kinesiology relate to the effects of human behavior on physical activity levels and performance. The mechanical aspects of kinesiology encompass the biodynamics of human movements as they relate to exercise and human performance.

Kinesiology is a broad, interdisciplinary field of study that includes diverse specialties such as exercise physiology, biomechanics, nutrition, exercise psychology, and motor control. Areas of inquiry range in scope from the study of the molecular response of cells to the response and adaptation of the whole body. The kinesiology major encompasses a wide spectrum of performance-related issues involving muscular and cardiovascular physiology, energy balance, exercise adherence, skill acquisition, and fitness testing and prescription.

Upon completion, students will be able to:

**Student Learning Outcome 1**

Identify the anatomical structures that help determine physical competency and human movement

**Student Learning Outcome 2**

Describe the principles of human physical development and adaptation

**Student Learning Outcome 3**

Describe the musculoskeletal principles of work capacity

**Student Learning Outcome 4**

Identify the principles of the mechanics of human movement

**Student Learning Outcome 5**

Describe the principles of exercise psychology and their application to fitness

**Student Learning Outcome 6**

Apply the principles of fitness assessment and exercise prescription

**Student Learning Outcome 7**

Describe the nutritional concepts supporting the energy demands of physical training

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**Law and Legal Studies (LLS2 )**

Law is the study of the means of maintaining social order, balancing individual interests against the interest of society, resolving disputes, and addressing social concerns. The study of law sharpens analytical and problem-solving abilities while developing an appreciation of law as a basic foundation of society. A Law and Legal Studies major will equip cadets with the means to understand conflicting issues, to analyze problems, and then to choose the most appropriate solution. The legal system major is not intended to train lawyers. Rather, it will prepare cadets for success in command or in any other position in which effective analytical, problem solving, and communications skills are essential. From this understanding cadets can expand their breadth of experience and gain insight into current social problems or future challenges. A Legal System major will enhance the ability to think critically, conduct research, and persuasively express oneself orally and in writing. Law provides an excellent preparation for subsequent graduate study in public policy and administration, politics, government, business management, and international relations.

## Law and Legal Studies Major Student Learning Outcomes and Supporting Objectives

### Student Learning Outcome 1

Cadets understand how individuals and organizations use and react to law in the pursuit of social, political, and economic goals

- Cadets will learn how to read and understand primary sources of American, foreign, and international law, including constitutions, codes, statutes, cases, regulations, and treaties.

- Cadets will learn to analyze critically legal commentaries, including news reports, editorials, commentaries, documents, and law review articles.

### Student Learning Outcome 2

Cadets communicate in correct and appropriate legal language when writing and speaking to evince clear and critical thinking.

- Cadets will develop the oral and written skills to communicate concisely, persuasively, and logically to support or oppose a given decision or course of action.

- Cadets will learn to apply legal texts and principles when analyzing specific problems and cases in order to reach legally and logically supportable conclusions and decisions.

### Student Learning Outcome 3

Cadets identify the relationship between legal, ethical, and moral issues, and apply the law properly in decision-making. Cadets will be able to distinguish between the ethical, moral, policy, and legal components of social, political, and economic issues.

### Student Learning Outcome 4

Cadets know how law affects and reflects diverse groups within American society to shape behavior, achievement, and ideas.

Cadets will acquire a basic understanding of the substantive and procedural rules of law that underpin the American Legal System.

### Student Learning Outcome 5

Cadets know how law is understood and applied in diverse global societies and cultures. Cadets will understand and internalize the values inherent in the principle of the rule of law as it is applied, or not applied, in a variety of cultures and circumstances.

### Student Learning Outcome 6

Cadets think and act logically and creatively when acting within the framework and constraints of legal requirements. Students will acquire the legal knowledge and tools to function effectively as a military professional at all levels.

## Life Science (LSC1 )

The Life Science Major focuses on the evolution, structure, and processes of living organisms. Advances in molecular biology and biotechnology are providing significant improvements in the quality of our lives even as they alter the fundamental way we view life itself. Evolution, genetic engineering, recombinant DNA research, medical treatment, ecology, and emerging diseases are just a few of today's research areas under the life sciences heading. The Life Science Major includes courses that give cadets an in-depth understanding of biology which when combined with math, chemistry and physics can be applied to Army needs. The major focuses on broader understanding of biology and biotechnology. In addition to the core course requirements and three-course engineering sequence (any of the sequences offered) cadets will complete an integrative experience (CH479 Methods and Applications of Biotechnology). This course examines the social, economic, political, ethical, and technological aspects of biotechnology. The Life Science Major includes all the courses needed for cadets pursuing the Medical School Option as well as other post-graduate choices.

Applications of the life sciences involve all facets of our lives and are very important to our careers as military officers.

A better understanding of biotechnology will allow us to use biosensors to detect weapons of bioterrorism.

Biomolecular engineering will make possible the use of cells to manufacture novel biomaterials with specific properties and functions.

Biotechnology and biomedical engineering will improve the medical treatment of battlefield casualties.

The most important "system" in the future Army will continue to be the human soldier. Because the soldier is a biological system, biotechnology offers unique potential for enhancing the performance of this most complex, critical, and costly of the Army's systems.

Graduates who complete a Life Science Major will be able to:

### Student Learning Outcome 1

Understand and apply the Scientific Method.

### Student Learning Outcome 2

Gather, analyze, organize, and present scientific information.

### Student Learning Outcome 3

Understand the basic principles of life science and chemistry, and their applications to the Army and Society.

**Student Learning Outcome 4**

Understand and apply basic instrumental methods of biological and chemical analysis.

**Student Learning Outcome 5**

Recognize the structure and understand the functions of biomolecules.

**Student Learning Outcome 6**

Know the structures and functions of eukaryotic and prokaryotic cells.

**Student Learning Outcome 7**

Understand the principles of bioenergetics and metabolism.

**Student Learning Outcome 8**

Understand the structure-function relationships at all levels of organization of living organisms.

**Student Learning Outcome 9**

Understand evolutionary biology and its importance.

**Student Learning Outcome 10**

Understand ecology (organization, diversity, and interdependence of living organisms).

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**Management (MNG0 )**

Management is one of four majors available through the Department of Behavioral Sciences and Leadership. Management is arguably one of the most applicable majors for future Army officers. Graduates gain specialized skills and knowledge related to managing both human and physical resources, making them uniquely prepared to understand and ultimately lead people. The Management Major in the D/BS&L equips young officers with the skills necessary to manage and lead in today's complex Army. Our majors are designed to provide students with the ability to understand, analyze, and improve any organization. The skills student develop are extremely important for Army officers as well as future community leaders. Depending on their focus, Management Majors study traditional business topics such as accounting, finance, human resource management, marketing, production & operations, information systems, strategy, operations research, systems engineering and other aspects of management.

The Management major provides cadets a choice of three concentrations:

The Business Management concentration is focused on applying knowledge of management to improve the development, performance, and well-being of individuals (Soldiers) and their organizations. Management emphasizes forecasting, planning and control, allocating resources, the appraisal of competition, and implementation strategies.

The Social Enterprise Management concentration is focused on applying skills and tools to manage and improve organizations effectively. This concentration examines organizational management efforts through a Social Enterprise lens, so that cadets gain mastery in their understanding of the science of managing in this challenging context. Additionally, cadets will learn how to influence organizational member behavior to optimize performance. It explores both interpersonal and group behavior and how these dynamics influence an organization's structure, performance and mission accomplishment.

The Public Administration Concentration is focused on providing skills and insights that are useful to future Army Officers. Specifically, the concentration combines elements of economic and political analysis in order to understand the interactions between market and political processes (political economy) and the positive and normative aspects of government activity (public policy and management).

Management Major Student Learning Outcomes and Supporting Objectives:

**Student Learning Outcome 1**

Technological Application: Graduates understand and apply information technology concepts to acquire, manage, communicate and defend information, solve problems and adapt to technological change.

- a. Students demonstrate the ability to effectively use information technology to solve management problems and make effective management decisions.
- b. Students are required to demonstrate proficiency in application programs such as Microsoft Office.

**Student Learning Outcome 2**

Cultural and Social Awareness: Graduates draw from culture and history to understand human behavior, achievement and ideas in a global context.

- a. Students will demonstrate an ability to evaluate the global market potential for products as well as the most appropriate entry strategy for those products.
- b. Students will demonstrate an understanding of cultural differences among various regions in the global business community and an ability to apply this understanding to management problems.

**Student Learning Outcome 3**

Graduates understand patterns of human behavior, particularly how individuals, organizations and societies pursue social, political and economic goals.

- a. Students will demonstrate the ability to understand and apply theories of individual and group behavior.
- b. Students will complete coursework in psychology, economics and leadership prior to/concurrent with beginning coursework in management.
- c. Students will have adopted a set of effective individual, group and organizational leadership skills and abilities and be able to demonstrate self-awareness of their own leadership style.

**Student Learning Outcome 4**

Scientific Inquiry and Critical Thinking: Graduates understand the full range of management concepts and are capable of applying change management, human resource management, marketing, leadership, financial, accounting, production management and strategic modes of thought to management problems.

- a. Students will satisfactorily complete courses in introduction to management, human resources management, marketing, finance, accounting, international management, leadership of org change and strategic management.
- b. Students will be able to create and implement effective strategies for leading or managing change.
- c. Students will complete a capstone project in the strategic management course that demonstrates their ability to integrate management knowledge across fields.
- d. Students will leverage concentration specific knowledge to develop management skills aimed at successfully managing in either the business management, social enterprise, or public admin arenas.

**Student Learning Outcome 5**

Communication: Graduates listen, read, speak and write effectively.

- a. Students will demonstrate the ability to summarize complex lectures.
- b. Students demonstrate the ability to summarize and discuss complex readings in the management literature.
- c. Students demonstrate effective speaking skills and are capable of producing a professional quality presentation using style, vocabulary and organization that is appropriate to the audience.
- d. Students develop effective writing skills necessary to produce clear, comprehensive and persuasive analysis.

**Student Learning Outcome 6**

Moral and Ethical Reasoning: Graduates recognize moral issues and apply ethical considerations in decision making.

- a. Students will be able to recognize and analyze ethical problems, work through the ethical decision-making process and defend a solution.
- b. Students will identify the activities/issues in leadership that may present ethical challenges and will articulate the consequences associated with unethical behavior.

**Student Learning Outcome 7**

Team Dynamics: Graduates demonstrate the ability to manage teams effectively.

- a. Students will work on team projects and evaluate other team members' work in the majority of required courses in the management major.
- b. Students develop and implement leader actions and integrate management functions that maximize group/team effectiveness and organizational outcomes.
- c. Students use their understanding of group processes to make themselves and members of their teams more cooperative and productive.

**Student Learning Outcome 8**

Contribution: Graduates understand how the management major contributes to their effectiveness as Army officers.

- a. Student projects and discussions connect course material to their role as an Army Officer.
- b. Student AIADs and trip sections experiences are linked to their role as an Army Officer through discussion and summary papers.
- c. Lesson objectives are linked to the management of military organizations.

**Mathematical Sciences (MSC1 )**

The mathematical sciences embody those areas of mathematics which have strong interdependence with other disciplines. Their purpose is to clarify concepts and describe scientific phenomena through symbolic language and the

rules for its use. Its scope spans the total breadth of knowledge that is capable of being quantified. The full process of the mathematical sciences has expanded from their historical ties with the physical sciences to now include areas such as: the biological, sociological, behavioral, and computer sciences; operations research; and all engineering fields. The Department of Mathematical Sciences offers abundant opportunities for study in a broad range of mathematical subjects. Courses such as differential equations, algebra, mathematical modeling, analysis, numerical computation, statistics, and linear optimization provide a sound mathematical foundation in the science and engineering fields. In addition, follow-on courses such as algebra, analysis, combinatorics, and advanced individual study provide both depth in understanding the foundations of mathematical theory, as well as opportunity for study and research in a selected subject. Whenever possible, the use of technology is emphasized to extend the knowledge required for the consideration of realistic and challenging problems found in today's world. Cadets who major in Mathematical Sciences are required to take a seven-course core mathematics sequence, a statistics elective, an integrative experience course designed to explore real world problems pulled from many disciplines, and two additional mathematics electives for a total of eleven courses in the major. Mathematical Sciences majors are also required to take a three-course engineering sequence of their choice. Cadets will take MA205 - Calculus II as their STEM Depth choice in the core curriculum unless it is validated. Further, cadets will take a three-course Complementary Support sequence that provides breadth to their mathematical understanding (one of the three courses must be IT305 - Theory and Practice of Military IT Systems). Thus, Mathematical Sciences majors will take 41 courses while successfully completing their major and core curriculum requirements. The Mathematical Sciences with Honors major requires two semesters of directed research under senior faculty advisement that replaces the one semester research requirement, and culminates in a written thesis and presentation during the second semester. In order to receive the Mathematical Science with Honors Major, cadets will need to attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major curriculum.

Graduates who complete a Mathematical Sciences major will be able to:

**Student Learning Outcome 1**

Demonstrate competence in modeling physical, informational, and social phenomena by

- a. Identifying and articulating assumptions, metrics and constraints
- b. Applying appropriate solutions techniques
- c. Interpreting results within the appropriate context

**Student Learning Outcome 2**

Argue and inquire soundly and rigorously; become independent questioners and learners

**Student Learning Outcome 3**

Achieve mathematical proficiency in breadth and depth

- a. Understand and apply theorems and algorithms
- b. Understand and apply analytical methods
- c. Understand and apply numerical methods
- d. Understand and apply graphical methods
- e. Understand discrete and continuous structures and processes

**Student Learning Outcome 4**

Communicate mathematics, both orally and in writing

**Student Learning Outcome 5**

Use technology to model, visualize, and solve complex problems

**Student Learning Outcome 6**

Develop attitudes - habits of mind

- a. Creative and curious
- b. Experimental disposition
- c. Critical thinking and reasoning
- d. Commitment to life-long learning

**Student Learning Outcome 7**

Understand the role of mathematical sciences (in our world) by analyzing applied problems through disciplinary, multidisciplinary, and interdisciplinary approaches

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**Mechanical Engineering (MEN1 )**

Mechanical Engineering is one of the broadest and most diverse of the engineering fields. It deals with devices and systems for energy conversion, for material transport and for control of motion and forces. A sampling of the topics addressed by the discipline include air, ground, and sea vehicles; power plants; control systems; machinery; machine

tools; conventional and nuclear-powered power production facilities; biomedical devices; space vehicles; pollution control; new energy sources; energy conversion; transportation systems; and, military weapons systems. These modern weapons systems are used as vehicles of instruction in many of the courses, making mechanical engineering particularly appropriate for those considering service in most branches of the Army as well as specialties such as engineers, aviation, research and development, project management and logistics. The Department of Civil and Mechanical Engineering offers a major in Mechanical Engineering that is accredited by the Engineering Accreditation Commission of ABET, <http://www.abet.org>. All cadets experience the same core mechanical engineering program and choose three electives for depth of study. The goal of the Mechanical Engineering program is to provide high quality instruction in a positive learning environment leading to a degree recognized as being among the best in the nation. The Mechanical Engineering program stresses engineering fundamentals so that graduates are well equipped to understand complex technical problems in a rapidly changing, technology-intensive Army. Once completed, the graduate is well-prepared to excel as an officer and an engineer. The practice-oriented degree is strengthened by the complete integration of design and laboratory experience throughout the curriculum.

To meet this goal, the Program Educational Objectives of the Mechanical Engineering program are:

Within a few years after graduation, mechanical engineering majors are expected to attain:

1. multiple positions of responsibility in which they:
  - a. drive outcomes
  - b. inform and influence others
  - c. build teams
2. personal and professional growth through formal and informal learning opportunities while being a role model to inspire others
3. experience in providing engineering expertise to the Army and Nation to design solutions and innovate for winning in a complex world

To achieve these Program Educational Objectives, cadets who qualify for graduation with a mechanical engineering major from USMA will demonstrate the following Mechanical Engineering Student Outcomes:

**Student Learning Outcome 1**

an ability to apply knowledge of mathematics, science, and engineering

**Student Learning Outcome 2**

an ability to design and conduct experiments, as well as to analyze and interpret data

**Student Learning Outcome 3**

an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability

**Student Learning Outcome 4**

an ability to function on multidisciplinary teams

**Student Learning Outcome 5**

an ability to identify, formulate, and solve engineering problems

**Student Learning Outcome 6**

an understanding of professional and ethical responsibility

**Student Learning Outcome 7**

an ability to communicate effectively

**Student Learning Outcome 8**

the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context

**Student Learning Outcome 9**

a recognition of the need for, and an ability to engage in life-long learning

**Student Learning Outcome 10**

a knowledge of contemporary issues

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**Student Learning Outcome 11**

an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice

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**Nuclear Engineering (NEN1 )**

Nuclear engineering makes practical use of the energy that is released by the atomic nucleus. Applications extend into the fields of electric power, medicine, nuclear weapons, and nuclear weapons effects. At USMA the vehicle for learning the concepts of the field is the commercial nuclear power plant. The approach is interdisciplinary; it draws widely upon mathematics, physics, and mechanics, with special emphasis on applied physics and the thermal-hydraulic aspects of mechanical engineering. The management of engineering is also addressed through decision analysis and economic analysis. The Nuclear Engineering major is designed to provide depth of knowledge in the application of nuclear energy to include power production, radiation health physics, nuclear weapons, and weapons effects. The major is taught through multiple departments and includes interdisciplinary electives from physics, mathematics, mechanical engineering, civil engineering, electrical engineering, and nuclear engineering. The Nuclear Engineering student will gain a broad background for further study in graduate school and Army assignments requiring expertise in mechanical engineering, applied radiation physics, nuclear weapons and weapons effects, or any of a variety of related topics. The Nuclear Engineering program is accredited by the Engineering Accreditation Commission of ABET, <http://www.abet.org>.

The Nuclear Engineering Program Educational Objectives are broad statements that describe what graduates are expected to attain within a few years after graduation. Program educational objectives are based on the needs of the Nuclear Engineering Program's constituencies.

- As Army leaders, graduates solve complex, multi-disciplinary problems for the Army and the Nation.
- Graduates demonstrate the necessary leadership and teamwork skills to work in multi-disciplinary team environments.
- Graduates are prepared to provide appropriate nuclear and radiological engineering expertise to the Army.
- Graduates communicate effectively, orally and in writing.
- Graduates continue to grow intellectually and professionally -- as Army officers and as engineers.

To achieve these Program Educational Objectives, cadets must attain or possess at graduation:

**Student Learning Outcome 1**

an ability to apply knowledge of mathematics, science, and engineering

**Student Learning Outcome 2**

an ability to design and conduct experiments, as well as to analyze and interpret data

**Student Learning Outcome 3**

an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability

**Student Learning Outcome 4**

an ability to function on multi-disciplinary teams

**Student Learning Outcome 5**

an ability to identify, formulate, and solve engineering problems

**Student Learning Outcome 6**

an understanding of professional and ethical responsibility

**Student Learning Outcome 7**

an ability to communicate effectively

**Student Learning Outcome 8**

the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context

**Student Learning Outcome 9**

a recognition of the need for, and an ability to engage in life-long learning

**Student Learning Outcome 10**

a knowledge of contemporary issues

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**Student Learning Outcome 11**

an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

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**Operations Research (ORE1 )**

Operations Research (OR) is a specific approach to decision making with a focus on how best to design and operate systems, usually under conditions requiring the allocation of scarce resources. However, whether one means the term to be a professional designation, a label for a body of methods, or an approach to problem solving, OR is inextricably linked to the direction and management of large systems for people, machines, materials, and money in government, industry, business, and defense. Since its inception during WWII, the interdisciplinary field of OR has set itself apart as an applied mathematical science and engineering discipline with a diverse range of applications. Because of the increased demand for OR analysis within the Army, the OR specialty (FA49) continues to enjoy steady growth in membership, and is associated with superb educational and promotion opportunities throughout an officer's military career. West Point remains the single largest source of FA49 officers for the Army. Graduates of the OR program at USMA are well prepared to tackle some of the Army's most challenging problems and to pursue graduate study in support of the FA49 career field. Cadets who major in Operations Research are required to take a six-course core sequence, a simulation elective, and three additional discipline electives for a total of ten courses in the major. Operations Research majors are also required to take a three-course Systems Engineering sequence in order to create the necessary integration between the Math and Systems Engineering departments. Cadets will take MA205 - Calculus II as their STEM Depth choice in the core curriculum unless it is validated. Cadets will take a three-course Complementary Support Course sequence that provides breadth to their analytical understanding while incorporating an integrative experience through a year-long capstone project designed to explore real world problems from multiple disciplines. Further, IT305 - Theory and Practice of Military IT Systems is required for Operations Research majors as a Complementary Support Course (CSC). Thus, Operations Research majors will take 40 courses while successfully completing their major and core curriculum requirements. The Operations Research with Honors major requires a two-course sequence that requires two semesters of directed research under senior faculty advisement and culminates in a written thesis and presentation during the second semester. In order to receive the Operations Research with Honors Major, cadets will need to attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major curriculum.

Graduates who complete an Operations Research major will be able to:

**Student Learning Outcome 1**

Demonstrate competence in modeling physical, informational, and social phenomena by:

- a. Identifying and articulating assumptions, metrics, and constraints
- b. Applying appropriate solution techniques
- c. Interpreting results within the appropriate context

**Student Learning Outcome 2**

Argue and inquire soundly and rigorously; become independent questioners and learners

**Student Learning Outcome 3**

Achieve proficiency in Operations Research - in breadth and depth:

- a. Understand and apply probabilistic and statistical models and methods
- b. Understand and apply simulation methods
- c. Understand and apply optimization methods

**Student Learning Outcome 4**

Communicate effectively - orally and in writing

**Student Learning Outcome 5**

Use technology to model, visualize, and solve complex problems

**Student Learning Outcome 6**

Develop attitudes - habits of mind

- a. Creative and curious
- b. Experimental disposition
- c. Critical thinking and reasoning
- d. Commitment to life-long learning

**Student Learning Outcome 7**

Understand the role of operations research in interdisciplinary problem solving

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## Philosophy Major (PYL1 )

The scope of Philosophy is much wider than the areas of Ethics and Just War theory studied in PY201. Besides Ethics, Philosophy investigates the very nature of human knowledge; the relationship between mind and matter; and fundamental principles of the kind that underlie religion, science, and politics. The study of Philosophy also has a significant cultural dimension. It challenges us to understand attitudes, beliefs and arguments from societies more or less remote from our own: the Greek and Roman world; the classical age of Asian thought; 17th-century European thought in its adjustment to modern science; and American contributions to our understanding of philosophical method. Doing Philosophy is a superior example of Critical Thinking at work, thanks to the high value it places in all its courses on systematic investigation, conceptual analysis, and cogent reasoning. West Point's Philosophy major is designed to ensure breadth and to encourage depth. It also provides opportunities to pursue further study in the ethics of war. The intellectual skills and experience that DEP's Philosophy major fosters are beneficial to the Army. The future officer in whom these skills take root will be an asset to any branch.

Cadets who major in Philosophy will be able to: analyze and construct philosophical arguments; show competency in logic and other core areas of philosophy; be familiar with major historical areas, figures, and problems of philosophy; understand philosophical ideas within their historical and cultural contexts; think and write in a rigorous and precise manner; use their critical thinking skills to provide original or innovative approaches to philosophical problems; apply philosophical methods in a variety of contexts at the personal and social levels; apply philosophical methods across disciplinary boundaries to a broad range of issues in the modern world.

### Student Learning Outcome 1

Philosophy majors will be able to analyze and construct philosophical arguments, advancing reasoned solutions for problems.

### Student Learning Outcome 2

Philosophy majors will have the ability to understand philosophical ideas within their historical and cultural contexts.

### Student Learning Outcome 3

Philosophy majors will be able to apply philosophical methods within the discipline and across disciplinary boundaries to issues and problems that individuals, communities, or governments face in the modern world.

### Student Learning Outcome 4

Philosophy majors will be familiar with major historical areas, figures, and problems of philosophy.

### Student Learning Outcome 5

Philosophy majors will demonstrate the ability to think and write in a logically rigorous and conceptually precise manner about complex philosophical issues.

### Student Learning Outcome 6

Philosophy majors will demonstrate competency in logic and other core areas of philosophy.

### Student Learning Outcome 7

Philosophy majors will develop the disposition to apply philosophical methods in a variety of contexts at the personal, interpersonal, and social levels.

### Student Learning Outcome 8

Philosophy majors will use their critical thinking skills to provide original or innovative approaches to philosophical problems.

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## Physics (PHY1 )

Our modern lives have been overwhelmingly affected by the discoveries of physics in the twentieth century, for it is through physics that we have come to understand the fundamentals of nuclear energy, semiconductors, lasers, fiber optics, the interaction of radiation with matter, and even the workings of the universe. It is through this basic understanding that applied scientists and engineers have developed and assembled the myriad technical devices that are so much a part of modern life. The program in physics integrates all these phases of modern technology to develop a fundamental knowledge that can support a variety of technical interests and activities in future years. The major is designed to provide the Cadet a solid foundation in the essential pillars of theoretical physics-classical mechanics, electrodynamics, statistical physics, and quantum mechanics. Additionally, a strong experimental component emphasizes the skills necessary to design and build experimental apparatus and applies these skills to modern physics, lasers and optics. Opportunities are available to perform research at Army and national laboratories during the

summer.

## Physics Major Student Learning Outcomes and Supporting Objectives

### Student Learning Outcome 1

Cadets can apply the laws of physics to formulate mathematical models of physical systems, solve the resulting equations, and apply the solutions to hypothetical and real-world problems.

- a. Cadets can use advanced mathematical methods to solve physics problems.
- b. Cadets can identify situations in which relativistic effects are important and apply special relativity to solve mechanics problems.
- c. Cadets can apply Newtonian and Lagrangian mechanics to solve problems in classical physics.
- d. Cadets can solve problems involving electro- and magnetostatics.
- e. Cadets can solve problems involving electrodynamics in vacuum and in homogeneous linear media.
- f. Cadets can identify phenomena and solve problems involving thermodynamics and quantum statistical mechanics.
- g. Cadets can identify situations in which quantum mechanics is necessary and solve problems involving non-relativistic quantum mechanics.

### Student Learning Outcome 2

Cadets can apply the laws of physics to formulate and test hypotheses in an experimental setting.

- a. Cadets can plan and perform experiments.
- b. Cadets can analyze experimental data.

### Student Learning Outcome 3

Cadets can complete academic assignments and perform research using accepted ethical and scientific standards.

- a. Cadets provide sufficient citations and notes to clearly distinguish the Cadet's work from the work of others.
- b. Cadets avoid using or obscuring fallacious reasoning in the presentation of solutions to technical problems.
- c. Cadets are aware of acceptable scientific standards and the professional and/or personal consequences of not following them.

### Student Learning Outcome 4

Cadets can communicate logical solutions to scientific and technical problems to superiors, peers, and subordinates.

- a. Cadets can prepare written submissions, posters, laboratory reports, and oral briefings using the style, format, organization, and procedures common to standard scientific presentations.
- b. Cadets can use sound mathematical reasoning, appropriate computational techniques, and statistical methods to explore, represent, and communicate solutions to problems.
- c. Cadets use precise and accepted scientific language in all technical communications.
- d. Cadets read and understand the content of general scientific publications such as Scientific American and Physics Today. They are able to follow citations to obtain background information on the material in the articles and summarize orally and in writing the strengths and weaknesses of the arguments presented in such publications to non-technical audiences.

### Student Learning Outcome 5

Cadets are prepared for graduate education in physics, engineering or related fields.

- a. Cadets demonstrate proficiency across the range of skills and knowledge expected of entering graduate students in reputable physics programs.
- b. USMA graduates gain admission to graduate programs in technical fields at leading colleges and universities.
- c. USMA graduates successfully earn advanced degrees from leading colleges and universities.

## Political Science: American Politics (PAP2 )

The American Politics program provides students with the ability to explain political outcomes. The program traces the founding and evolution of our American political institutions, emphasizing how philosophical principles influenced the structure and behavior of the nation's governing apparatus. Students receive instruction in political science methods, enabling them to identify and critique methodological approaches to answering political science questions and select an appropriate method of answering their own research questions. Cadets are afforded an opportunity to study contemporary topics in public policy in depth and explain outcomes based on the actions of formal and informal political actors. The American Politics program emphasizes the role of the US military in society, its constitutional roles and responsibilities, and the shifting tenor of civil-military relations across time and levels of policy implementation. Cadets explore the military profession in the context of American political society.

## American Politics Student Learning Outcomes and Supporting Objectives:

### Student Learning Outcome 1

Analyze the constitutional origins and historical development of formal institutions (Legislative, Executive, Judicial branches, bureaucracy) and informal actors (media, political parties, interest groups) in American politics.

- a) Identify the fundamental principles of the U.S. Constitution that influence relevant decisions - such as power, conflict, civil rights, and civil liberties - within the American political system.
- b) Examine the political behavior of individuals, actors, and institutions within American politics and the policymaking process.

**Student Learning Outcome 2**

Summarize the origins and development of the American political tradition, distinguishing how the historical and philosophical roots of the Republic inform and explain contemporary American politics.

- a) Demonstrate critical understanding of the ancient and modern foundations of Western political thought.
- b) Contrast the Western tradition with a non-Western tradition of political thought.
- c) Identify the tension between liberty and security.

**Student Learning Outcome 3**

Describe the methods by which political scientists research, critically analyze, and explain American politics.

- a) Distinguish research questions appropriate to political science.
- b) Critically evaluate scholarly research based on the merits of research design.
- c) Apply the scientific method using qualitative, quantitative, or experimental methods.
- d) Demonstrate the ability to communicate ideas and provide critical evaluation clearly and effectively.
- e) Demonstrate an appreciation for intellectual pluralism by applying more than one theoretical perspective to a particular phenomenon and assessing the relative value of alternative explanations.

**Student Learning Outcome 4**

Characterize U.S. civil-military relations by emphasizing the roles, responsibilities, and culture of the military profession.

- a) Describe the roles and responsibilities of the military, both as a profession and as a bureaucratic entity, as established in the U.S. Constitution and through norms developed over time.
- b) Discuss the major theories of modern U.S. civil-military relations.
- c) Understand the challenges officers face in civil-military relations at the strategic (agenda-setting), operational (formulation and legitimization), and tactical (implementation) levels.

**Student Learning Outcome 5**

Describe the U.S. policy-making process.

- a) Compare the strengths and limitations of the different theoretical frameworks - normative and empirical, qualitative and quantitative - in evaluating the domestic policy-making process.
- b) Describe the influences of formal and informal actors on the development and implementation of U.S. foreign and domestic policy.
- c) Explain the theoretical foundations, American principles, and values that influence U.S. foreign and domestic policy.

**Political Science: Comparative Politics (PCP2 )**

Cadets pursuing the study of Comparative Politics have the opportunity to examine and analyze the conduct of politics in diverse settings, ranging from Latin America, Europe, the Middle East, Asia, and Africa, as well as the United States. Students consider sources of stability or instability in political regimes, and examine the conditions that promote democratic or authoritarian rule. The primary interests in Comparative Politics are political culture, political institutions, social structure, economics, and interstate relationships. Not only do students examine state regimes and policies, but they also explore the meanings and sources of change that may spring from the ballot box or the barrel of a rifle.

**Comparative Politics Major Student Learning Outcomes and Supporting Objectives**

Comparative Politics graduates are able to:

**Student Learning Outcome 1**

Develop the ability to critically analyze diverse political systems through the use of theory and concepts.

- a) Evaluate the impact of Regime Model concepts (including command, consent, interests, rights, political culture, social and economic structure, political institutions, and external variables) on a state's regime type and stability.
- b) Understand and critique theories regarding the relationship between economics and regime type.
- c) Understand how to formulate a hypothesis that examines a specific element of the state-societal relationship.

**Student Learning Outcome 2**

Learn and apply comparative methods to analyze the stability of political regimes and the efficacy of their institutions.

- a) Understand the various methods social scientists use to compare regimes.
- b) Understand the value of institutional comparisons across time, and of Western and non-Western comparisons.
- c) Identify appropriate research question comparing two or more countries.

**Student Learning Outcome 3**

Understand and apply alternative perspectives when seeking to describe, explain, or predict developments in the state-societal relationship.

- a) Understand theories and ideas that explain conditions for democratization.
- b) Explain how external developmental aid and assistance impacts the internal dynamics of a regime.
- c) Understand the differences between empirical and normative perspectives on questions of regime type.
- d) Understand the importance of societal and political norms, and explain regime decisions from a non-U.S. perspective.

**Student Learning Outcome 4**

Apply comparative political concepts and social scientific methods to the study of a specific country, region or thematic interest.

- a) Understand the social, political, and economic variables that shape the political institutions, values and interests of a particular country or region.
- b) Analyze the distribution of power and patterns of political interaction to determine the unique aspects of the security situation within a region.
- c) Understand the theories and issues relevant to explaining nationalism, democratization, pre- and post-conflict stability, and conflict resolution. Appreciate the importance of cultural anthropology in each of these processes.

#### **Student Learning Outcome 5**

Integrate the study of theory and policy to analyze a country's internal structure and how that structure impacts its security policy. Conduct this analysis from the viewpoint of the state and from a non-U.S. perspective.

- a) Recognize individual and group biases through the study of non-Western countries and their cultures.
- b) Analyze the relationship between security and defense planning in non-Western states.
- c) Understand foreign perspectives on issues related to state security.

## **Political Science: International Relations (PIR2 )**

Students majoring in International Relations (IR) study issues of conflict and cooperation in the international system. This involves examination of domestic influences on state behavior, the foreign relations of states, characteristics of the international system, and the role of non-state actors. Central concerns in IR include power, strategy, war, international cooperation, trade, and economic development. International Relations majors think critically about complex political issues, they will learn how to test hypotheses using reliable methods and evidence, evaluate the moral dimension of issues in international relations, appreciate the problem of uncertainty and its significance, and see important events and issues from multiple perspectives. As a social science, IR is organized around alternative theoretical schools of thought that seek to explain international phenomena and that can provide policy makers with the tools necessary to anticipate future developments in the international system and create policies that advance state goals. The ability to understand, anticipate and shape the complex dynamics of the international system is of direct relevance to U.S. Army officers, whose careers will be defined by the problems and opportunities that emerge within this system.

#### **Student Learning Outcome 1**

Graduates understand and are able to employ alternative theoretical approaches in order to describe, explain, or predict events or developments in international relations.

Supporting Objectives:

- a. Articulate the foundational assumptions, central concepts, logical claims, and dominant criticisms of the realist, liberal, and constructivist schools of thought in international relations.
- b. Use international relations theory and concepts to describe, explain, or predict an event or development in international affairs.
- c. Demonstrate an appreciation for intellectual pluralism by applying more than one theoretical perspective to a particular phenomenon and assessing the relative value of alternative explanations.
- d. Understand the prescriptive, policy-relevant implications of international relations theories and concepts.

#### **Student Learning Outcome 2**

Graduates are familiar with the variety of actors in international affairs and appreciate their incentives as well as the roles that they play in shaping international events and developments.

Supporting Objectives:

- a. Understand the role of the international system in shaping the incentives and behavior of actors in international affairs.
- b. Understand the possible domestic sources of foreign policy behavior.
- c. Understand the roles non-state actors may play in international affairs.
- d. Understand the ancient and modern foundations of Western political thought.

#### **Student Learning Outcome 3**

Graduates understand the key elements of social science research as the basis of a rigorous approach to developing and evaluating alternative explanations for international relations phenomena.

Supporting Objectives:

- a. Can apply standards of causal logic and evidence from the social sciences to critically examine the written work of others.
- b. Can apply the basic writing conventions of the social sciences, with an emphasis on sound structure, logical argumentation, and proper use of valid evidence in their own written work.
- c. Understand the differences between and potential value of empirical and normative approaches to important questions of political life.

#### **Student Learning Outcome 4**

Graduates obtain in-depth understanding of a particular region or international relations issue.

Supporting Objectives:

- a. Apply international relations theories, political science concepts, and the standards of social science research and writing to the study of specific regional or thematic issues.
- b. Refine intellectual interests and develop a commitment to lifelong learning through exploration of thematic and regional issues.

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**Student Learning Outcome 5**

Graduates appreciate the relevance and value of international relations theories and concepts to issues of central concern to Army officers and national security professionals.

Supporting Objectives:

- a. Apply international relations theories and political science concepts to analyze and assess current international events and developments relevant to U.S. national security.
  - b. Integrate the study of theory and policy through analysis of the international, domestic, organizational, and technological influences on U.S. national security policy.
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**Psychology (PSY1 )**

Psychology is one of four majors available through the Department of Behavioral Sciences and Leadership.

Psychology is arguably one of the most applicable majors for future Army officers. Graduates gain specialized skills and knowledge related to understanding human behavior, making them uniquely prepared to understand and ultimately lead people. The study of psychology investigates human behavior, cognition, and emotion by analyzing the complex interactions between environmental, social, cultural, and biological influences. Opportunities are available during the summer to apply the lessons learned in the classroom in a variety of settings.

The Psychology major provides cadets a choice of two tracks:

- The Applied General Psychology track is focused on applying knowledge of psychology to improve the development, performance, and well-being of individuals (soldiers).
- The Organizational Psychology and Leadership track is focused on applying knowledge of psychology to select and develop leaders, and improve the effectiveness of groups, teams, and organizations.

Psychology Major Student Learning Outcomes and Supporting Objectives:

**Student Learning Outcome 1**

Graduates demonstrate fundamental knowledge and comprehension of the major concepts, theoretical perspectives, historical trends, and empirical findings; and demonstrate the ability to apply their knowledge to address behavioral issues.

- a. Describe key concepts, principles, and overarching themes in psychology.
- b. Demonstrate a working knowledge of psychology's content domains.
- c. In the Applied General Psychology Track, the emphasis is on applying knowledge of individual and social psychology to address issues relevant to the development, performance, and well-being of people (soldiers).
- d. In the Organizational Psychology and Leadership Track, the emphasis is on applying knowledge of human behavior in organizations to: a) select and develop leaders/leadership, and b) enhance organizational effectiveness.

**Student Learning Outcome 2**

Graduates demonstrate scientific reasoning and problem solving skills, including effective research methods.

- a. Graduates demonstrate psychology information literacy; and use scientific reasoning to design and conduct basic psychological research, interpret data, and draw appropriate conclusions about psychological phenomena.
- b. Graduates engage in innovative and integrative thinking and problem solving.
- c. Graduates incorporate sociocultural factors in scientific inquiry.
- d. In the AGP Track, the emphasis is on critical thinking in the application of psychological research; and on conducting empirical research studying issues pertinent to the development, performance, and wellbeing of people.
- e. In the OPL Track, the emphasis is on critical thinking in the application of research and other writings pertinent to human behavior in organizations; and on conducting empirical research studying issues pertinent to leadership and organizational effectiveness.

**Student Learning Outcome 3**

Graduates demonstrate ethically and socially responsible behaviors for professional and personal settings in a landscape that involves increasing diversity.

- a. Graduates apply ethical standards to evaluate psychological science and practice.
- b. Graduates build and enhance interpersonal relationships
- c. Graduates embrace values consistent with the professional military ethic, which contribute to positive outcomes in work settings and in building a society responsive to multicultural and global concerns.

**Student Learning Outcome 4**

Graduates demonstrate competent written, oral, and interpersonal communication skills.

- a. Graduates demonstrate effective writing and presentation skills for different purposes (e.g., they can produce a research study; and present information to a professional audience or decision maker).
- b. Graduates interact effectively with others for different purposes (e.g. they demonstrate relevant skills such as counseling, coaching, and/or negotiations).

## Student Learning Outcome 5

Graduates apply psychology-specific content and skills, effective self-reflection, project-management skills, teamwork skills, and career preparation.

- a. Graduates apply psychological content and skills to career goals.
- b. Graduates exhibit self-efficacy and self-regulation.
- c. Graduates effectively manage individual and team projects and professional requirements.
- d. Graduates are inspired to life-long learning in disciplines pertinent to psychology and leadership.

## Sociology Major (SOC1 )

Sociology is one of four majors available through the Department of Behavioral Sciences and Leadership. Sociology is arguably one of the most applicable majors for future Army officers. Graduates gain specialized skills and knowledge related to understanding human behavior, making them uniquely prepared to understand and ultimately lead people. The study of sociology investigates human behavior, cognition, group dynamics, and social institutions by analyzing the complex interactions between environmental, social, and cultural influences.

Sociology Major Student Learning Outcomes and Supporting Objectives:

### Student Learning Outcome 1

(COMMUNICATION): Graduates listen, read, write, and speak effectively.

- (a) Objective 1.1 (Speaking/Oral): Express ideas in a clear and coherent manner in oral presentations in group settings.
- (b) Objective 1.2 (Written): Express ideas in a clear and coherent manner in written correspondence.
  - (1) 1.2a: Be able to write a clear, grammatical, well-organized report of the findings from sociological data analysis.
- (2) 1.2b: Write a clear and concise sociological analysis account of a social event, topic, issue, or problem.
- (c) Objective 1.3 (Listening): Be able to read or listen to professional-level sociological reports with sufficient understanding to summarize and provide an accurate overview.
- (d) Objective 1.4 (Reading): Be able to comprehend, analyze, evaluate, and apply scholarly research reports and literature.

### Student Learning Outcome 2

(INNOVATIVE): Graduates are creative and critical thinkers. They can frame a problem from multiple perspectives; identify underlying assumptions; understand central concepts relevant to the situation; use evidence to make well-reasoned decisions; understand the consequences of their decisions and actions; and communicate their decisions clearly.

- (a) Objective 2.1: Creative thinking
  - (1) 2.1a: Be able to identify the structure of an argument presented in written form (conclusion, assumptions, premises, supporting evidence, and weaknesses).
  - (2) 2.1b: Be able to identify the basic fallacies in reasoning such as appeal to ignorance, the gambler's fallacy, hasty generalization, false dilemma, slippery slope, ad hominem arguments, the straw man fallacy, and other fallacies and flaws in reasoning.
- (b) Objective 2.2: Define a Problem

### Student Learning Outcome 3

(CROSS-CULTURAL COMPETENCE): Graduates are both cross-culturally and interculturally competent. They understand patterns of human behavior and can use this knowledge to analyze and understand situations where people and groups from different cultures are in contact, and consequently find effective solutions to the problems they will face as officers.

- (a) Objective 3.1: Knowledge of one's own and other cultures
  - (1) 3.1a: Recognize and discuss the impact of inequality, race, ethnicity, gender, sexual orientation, and other social factors and structures on different groups in society.
  - (2) 3.1b: Discuss the social factors (including institutional factors) that create and perpetuate inequality.
  - (3) 3.1c: Describe the social processes that create and perpetuate prejudice and discrimination, including ethnocentrism and xenophobia.
  - (4) 3.1d: Be able to understand, analyze, and interact effectively in foreign cultures.

### Student Learning Outcome 4

(ADAPTABLE): Graduates are adaptable and mentally agile. They anticipate and respond effectively to the problems they will face as Army officers by willingly engaging in new environments even in the face of considerable ambiguity in a changing and dynamic world.

- (a) Objective 4.1: Problem Solving
  - (1) 4.1a: quantitative and qualitative data
  - (2) 4.1b: policies and programs
  - (3) 4.1c: solve problems

- (b) Objective 4.2: Transfer of knowledge
  - (1) 4.2a: Identify ethical issues
  - (2) 4.2b: Understand professional codes of ethics
- (3) 4.2c: Identify studies
  - (4) 4.2d: Define theory and describe its role in sociology.
- (c) Objective 4.3: Analytical reasoning
  - (1) 4.3a: Understand how to collect and analyze data
  - (2) 4.3b: Understand how to identify and communicate limitations
  - (3) 4.3c: Use databases
  - (4) 4.3d: Use digital resources

#### **Student Learning Outcome 5**

(EMPOWERED) Graduates are self-directed (empowered). They demonstrate the capability and desire to pursue progressive and lifelong intellectual development. They are aware of their own abilities and limitations, and are independent learners with the competence and confidence to try new activities and engage new ideas.

- (a) Objective 5.1: Intellectual development and improvement
  - (1) 5.1a: describe and apply the sociological perspective and imagination.
  - (2) 5.1b: Develop citizenship skills.
- (b) Objective 5.2: Self-awareness
  - (1) 5.2a: Explain how structural, cultural, and group factors influence interactions and the development of the self.
  - (2) 5.2b: social interaction and the self
  - (3) 5.2c: "personal troubles" and "public issues."
  - (4) 5.2d: individual and group processes
- (c) Objective 5.3: Independent Learning
- (d) Objective 5.4: Confidence

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### **Systems and Decision Sciences (SDS0 )**

The Systems and Decision Sciences (SDS) discipline is concerned with system design, management, and decision analysis of tangible and abstract systems in accordance with performance requirements, budget, and schedules. The program combines elements of traditional engineering, systems engineering, finance, decision analysis, and organizational management courses. Cadets will learn the methods, processes, and tools (MPTs) needed to understand and conduct meaningful decision analysis in support of complex systems. These large systems require an interdisciplinary approach rooted in technical, management, and leadership skills. Industry and domain based concentrations are available, to include Project Management, Logistics Management, Personnel Management, Defense Systems, Financial Systems, Cyber Security, Management Science, International Affairs, and Mathematical Modeling. Systems and Decision Sciences graduates are ready to lead multidisciplinary teams, perform systems thinking, and understand the MPTs needed to model complex, ill-defined, and interdisciplinary problems characterized by global, political, social, military, economic, and technological challenges. A culminating real-world, year-long capstone is required to employ the MPTs associated with complex systems and address issues, such as stakeholder analysis, analytical methods, project and cost management, and the political, social, and environmental, etc., realities of working on large, ill-defined, interdisciplinary problems. This major will produce graduates with technical, high-level business and management skills, and engineering depth to prepare them for future academic and professional opportunities in a society increasingly dominated by technological change.

Each graduate will be able to:

#### **Student Learning Outcome 1**

Use systems and decision science methods, processes, and tools (MPTs) to solve diverse problems in engineering and non-engineering domains, while considering moral and ethical standards specific to the locale.

#### **Student Learning Outcome 2**

Employ systems thinking to identify, scope, understand, analyze problems, and specify the needs of multiple stakeholders.

#### **Student Learning Outcome 3**

Develop innovative system solutions based upon sound decision science techniques and clearly articulate the results to all stakeholders.

#### **Student Learning Outcome 4**

Perform systems decision-making that considers qualitative and quantitative aspects of the problem.

#### **Student Learning Outcome 5**

Accurately, clearly, concisely, and persuasively report findings, conclusions, and recommendations to the stakeholders in a multicultural context.

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**Student Learning Outcome 6**

Lead interdisciplinary teams to implement effective and efficient solutions by melding traditional and non-traditional engineering domains.

**Student Learning Outcome 7**

Demonstrate the skills and interest for intellectual growth and learning for a career of professional excellence and service to the nation as an officer in the United States Army.

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**Systems Engineering (SEN1 )**

Systems Engineers innovatively solve large, complex problems in a technologically advanced environment by engineering solutions which provide significant value to clients and their organizations. Systems Engineers also lead interdisciplinary teams of engineers and others in the development and implementation of technical solutions to complex issues facing organizations. Systems Engineering majors learn to think systematically, engineer systematically, and approach decisions systematically. The Systems Engineering Program is accredited by the Engineering Accreditation Commission of ABET, <http://www.abet.org>.

Thinking systematically involves understanding the entire environment in which the system operates and includes the needs, wants and desires of all the stakeholders of the system. Engineering systematically involves identifying and understanding the required system functions, developing alternative system solutions, and applying the basic modeling and simulation tools required to analyze the system from an engineering perspective. Approaching decisions systematically involves leading and participating in multi-disciplinary teams to innovate and implement visionary solutions to these complex problems.

The recent rapid growth and success of systems engineering can be attributed to advances in technology and the transition of society to a highly networked, globally-oriented information age which results in a dramatic increase in the complexity of problems. These problems require systems thinking and a holistic approach to problem solving that is at the heart of the systems engineering discipline. It is the challenge of systems engineers to harness and direct technology toward solving problems most often related to processes and operations. Ultimately, the study and application of systems engineering principles involve innovation and the creative application of analytical models to facilitate sound decision making.

Systems Engineering Program Educational Objectives: Within 5-7 years of graduation each graduate of the Systems Engineering Program will have:

- Effectively led interdisciplinary teams to solve complex problems while continuing intellectual growth and fostering an organizational ethos that promotes the professional, moral, ethical, and respectful treatment of all.
- Analyzed, designed, implemented, and maintained systems throughout their lifecycles.
- Approached problems holistically while recognizing each system as a whole, with its fit and relationship with the environment being primary concerns.
- Convincingly communicated engineering analysis and recommended solutions to leaders to enable sound decision-making in the presence of uncertain, biased, or confounding influences.

Systems Engineering Student Outcomes: To achieve these objectives, cadets will demonstrate the following Systems Engineering Student Outcomes at the time of graduation:

**Student Learning Outcome 1**

An ability to apply knowledge of mathematics, science, and engineering

**Student Learning Outcome 2**

An ability to design and conduct experiments, as well as to analyze and interpret data

**Student Learning Outcome 3**

An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability

**Student Learning Outcome 4**

An ability to function on multidisciplinary teams

**Student Learning Outcome 5**

An ability to communicate effectively

**Student Learning Outcome 6**



An ability to identify, formulate, and solve engineering problems

**Student Learning Outcome 7**

An understanding of professional and ethical responsibility

**Student Learning Outcome 8**

The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context

**Student Learning Outcome 9**

A recognition of the need for, and an ability to engage in life-long learning

**Student Learning Outcome 10**

A knowledge of contemporary issues

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# **PART III: COURSE DESCRIPTIONS**



## Brigade Tactical Dept

### 16 Courses

<b>MD100</b>	<b>CADET BASIC TRAINING</b>	<b>0.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2014-0	<b>Offerings:</b>
New Cadets negotiate a demanding training regimen in soldiering and cadetship. The New Cadet makes the transition into the Corps of Cadets and learns the standards of behavior and values consistent with the mission of the United States Military Academy. The New Cadet is evaluated by the cadet chain of command and summer Tactical Officer during each of two details and receives a grade for MD100, which is a numerically weighted average of the submitted grades.		2019-0 2020-0 2021-0
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>MD101</b>	<b>4TH CLASS MILITARY PERF I</b>	<b>0.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2014-1	<b>Offerings:</b>
Fourth Class cadets learn to be a follower and to support the chain of command and to develop understanding of and commitment to the duty concept. Fourth Class cadets serve as members of a squad in their assigned companies. The Fourth Class cadet's primary task is to strive for individual excellence in academic, military, and physical activities while developing teamwork among their classmates. The Fourth Class cadet is evaluated by the cadet chain of command and company Tactical Officer and receives a grade for MD101, which is a numerically weighted average of the submitted grades.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>MD102</b>	<b>4TH CLASS MILITARY PERF II</b>	<b>0.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2014-2	<b>Offerings:</b>
Fourth Class cadets learn to be a follower and to support the chain of command and to develop understanding of and commitment to the duty concept. Fourth Class cadets serve as members of a squad in their assigned companies. The Fourth Class cadet's primary task is to strive for increased individual excellence in academic, military, and physical activities while optimizing the teamwork among their classmates. The Fourth Class cadet is evaluated by the cadet chain of command and company Tactical Officer and receives a grade for MD102, which is a numerically weighted average of the submitted grades.		2019-2 2020-2 2021-2
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>MD200</b>	<b>CADET FIELD TRAINING</b>	<b>0.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2014-0	<b>Offerings:</b>
Third Class cadets participate in a demanding training program which further develops proficiency in Pre-Commissioning Tasks and exposes the Third Class cadet to tactical tasks that require teamwork. Various training situations provide opportunities for Third Class cadets to serve as leaders where they are observed by the cadet chain of command and officers. The Third Class cadet is evaluated by the cadet chain of command and summer Tactical Officer during each of two details and receives a grade for MD200, which is a numerically weighted average of the submitted grades.		2019-0 2020-0 2021-0
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>MD201</b>	<b>3RD CLASS MILITARY PERF I</b>	<b>0.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2008-1	<b>Offerings:</b>

Third Class cadets serve as team leaders. They learn to lead others by exercising responsibility for the professional development of one or two subordinates, while serving as a member of a larger military unit. Drawing on recent experiences as Fourth Class cadets, Third Class cadets offer expertise and counsel which facilitates the transition process and development of cadet privates. The Third Class cadet is evaluated by the cadet chain of command and company Tactical Officers and receives a grade for MD201, which is a numerically weighted average of the submitted grades.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>MD202</b>	<b>3RD CLASS MILITARY PERF II</b>	<b>0.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2014-1	<b>Offerings:</b>
Third Class cadets serve as team leaders. They learn to lead others by exercising responsibility for the professional development of one or two subordinates, while serving as a member of a larger military unit. Drawing on recent experiences as Fourth Class cadets, Third Class cadets offer expertise and counsel which further facilitates the transition process and development of cadet privates. The Third Class cadet is evaluated by the cadet chain of command and company Tactical Officers and receives a grade for MD202, which is a numerically weighted average of the submitted grades.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>MD300</b>	<b>WEST POINT DETAIL CHAIN OF CMD</b>	<b>0.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2014-0	<b>Offerings:</b>
First and Second Class cadets will serve as members of the cadet Chain of Command for a West Point Leader Detail. First Class cadets, as Senior NCOs or officers, learn the basic duties and responsibilities of a commissioned officer by leading in a cadet summer training assignment. They set the example for all subordinates by establishing and attaining sound goals, maintaining standards of behavior, and demonstrating values within the organization. They develop subordinates in such a fashion as to foster teamwork, cohesion, and the desire to excel in all areas of endeavor. Second Class cadets serve as cadet noncommissioned officers. This affords them the opportunity to learn and experience the roles and functions of non-commissioned officers in military units while training and leading their subordinates in both individual and collective training. First and Second Class cadets are evaluated by the cadet chain of command and company Tactical Officer and receive a grade for MD300, which is a numerically weighted average of the submitted grades.		2019-0 2020-0 2021-0
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>MD301</b>	<b>2ND CLASS MILITARY PERF I</b>	<b>0.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2008-1	<b>Offerings:</b>
Second Class cadets serve in cadet NCO leadership and staff positions in the Corps of Cadets. Second Class cadets lead through subordinate leaders; that is, they lead small military units in which they exercise responsibility for other members through their influence upon subordinate leaders. The Second Class cadet is evaluated by the cadet chain of command and company Tactical Officer and receives a grade for MD301, which is a numerically weighted average of the submitted grades.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>MD302</b>	<b>2ND CLASS MILITARY PERF II</b>	<b>0.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2008-2	<b>Offerings:</b>
Second Class cadets serve in cadet NCO leadership and staff positions in the Corps of Cadets. Second Class cadets lead through subordinate leaders; they lead small military units in which they exercise responsibility for other members through their influence upon subordinate leaders. The Second Class cadet is evaluated by the cadet chain of command and company Tactical Officer and receives a grade for MD302, which is a numerically weighted average of the submitted grades.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	

<b>Special Requirements:</b>	None	
<b>MD400</b>	<b>CDT TRP LEADERSHIP TNG (CTLT)</b>	<b>0.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2014-0	<b>Offerings:</b>
First and second class cadets learn the basic duties and responsibilities of a commissioned and noncommissioned officer by leading in an active Army unit during CTLT. CTLT provides first and second class cadets with a realistic leadership environment to observe, while performing duties normally given newly assigned second lieutenants in the active Army. In CTLT, the cadet is evaluated by the officer chain of command in his/her unit and receives a MD400 grade of Pass/Fail.		2019-0 2020-0 2021-0
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>MD401</b>	<b>1ST CLASS MILITARY PERF I</b>	<b>0.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2014-1	<b>Offerings:</b>
First Class cadets serve in First Sergeant, Command Sergeant Major or officer leadership positions from platoon through brigade level and learn to lead through their personal influence upon both a chain of command and staff. They learn that success as a leader is based on the performance of the unit and demonstrate their capacity to exercise personal self-discipline in the absence of close supervision. The First Class cadet is evaluated by the cadet chain of command and company Tactical Officer and receives a grade for MD401, which is a numerically weighted average of the submitted grades.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>MD402</b>	<b>1ST CLASS MILITARY PERF II</b>	<b>0.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2014-2	<b>Offerings:</b>
First Class cadets serve in First Sergeant, Command Sergeant Major or officer leadership positions from platoon through brigade level and learn to lead through their personal influence upon both a chain of command and staff. They learn that success as a leader is based on the performance of the unit. They demonstrate their capacity to exercise personal self-discipline in the absence of close supervision. The First Class cadet is evaluated by the cadet chain of command and company Tactical Officer and receives a grade for MD402, which is a numerically weighted average of the submitted grades.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>MD403</b>	<b>CBT/CFT CADRE</b>	<b>0.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2014-1	<b>Offerings:</b>
MD403 is for First Class cadets who fail MD402 and are therefore placed in a conditioned status at the end of their First Class year. First Class cadets enrolled in MD403 will serve two consecutive details in either Cadet Basic Training or Cadet Field Training. The requirements outlined for MD300 apply to MD403; evaluation is conducted in the same fashion. The grades from each detail are each equally weighted and combined to derive an overall MD403 grade.		2019-0 2019-1 2020-0 2020-1 2021-0 2021-1
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>MD404</b>	<b>1ST CL MILITARY PERF-DEC GR</b>	<b>0.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2008-1	<b>Offerings:</b>
MD404 is offered to cadets who remain at the Academy beyond eight semesters and have participated in all previous military development courses. Cadet officers in MD404 will receive a grade based on performance and requirements specified in MD402. Evaluation is conducted in the same fashion as in MD402.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	

**Special Requirements:** None

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<b>MD410</b>	<b>CADET LEADER DEVELOPMENT TNG</b>	<b>0.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2010-0

**Offerings:**

Cadet Leadership Development Training (CLDT) trains, mentors, and assesses basic leadership skills focusing on Troop Leading Procedures (TLPs), communication, and tactical decision-making in order to develop competent and confident small unit leaders capable of operating in an uncertain and rapidly changing environment. In a series of tactical scenarios that mirror the Common Operational Environment (COE), cadets experience a minimum of two assessed leadership positions that provide the First Class cadet with a common experience to further enhance his/her leadership ability to solve tactical problems. Trainer Teams coach, teach, mentor, and assess a cadet's leadership ability and provide formal and constructive feedback in the form of AAR's and written assessments. Success is measured by the cadet's demonstrated ability to improve through the course of evaluations, and understand the areas requiring improvement and sustainment to successfully perform as a leader.

**Lessons:** 0 @ 0 min (0.000 Att/wk)

**Labs:** 0 @ 0 min

**Special Requirements:** None

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<b>PME2</b>	<b>PROFESSIONAL MILITARY ETHIC ED</b>	<b>0.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2009-1

**Offerings:**

The purpose of Professional Military Ethic Education (PME2) is to provide cadet instruction that reinforces current academy programs to assist in developing the self-concept of Officership, the ethos of the American Military Profession and attributes outlined by the CLDS Character Development Domains. This is presently the only unifying course of instruction identical for each of the members of the Corps of Cadets that occurs throughout the 47 month experience. The course is intended to reinforce important points of education covered in the other program areas and for discovery on unique topics geared toward developing leaders with the attributes consistent with the CLDS outcome goals that are not addressed elsewhere at the Academy. The program curriculum is organized along the lines of three areas of fundamental importance to developing leaders of character; Army Values (Realization of the moral and ethical requirements of Officership), Officership (Realization of what is required to serve as an American Commissioned Officer) and Leadership (Application of our values and learned attributes to enable graduates to create a great command climate). THIS COURSE IS NEEDED TO ADMINISTOR THE PURCHASE OF BOOKS. THERE ARE NO ENROLLMENTS.

**Lessons:** 0 @ 0 min (0.000 Att/wk)

**Labs:** 0 @ 0 min

**Special Requirements:**

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## Center for Enhanced Performance

### 5 Courses

<b>RS100</b>	<b>STUDENT SUCCESS COURSE, PREP</b>	<b>0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2009-1	<b>Offerings:</b>
<p>This course is designed to improve cadet academic performance and mental agility. Mastery of a variety of these strategies leads to development of a more self-regulated leader of character. Strategies presented include: help seeking (AI, Library, tutors), organization and time management, class preparation (text study system), test preparation, overcoming nerves, learned optimism and importance of attitude. The strategies mastered are implemented immediately into the cadets' present life at USMA and contribute to life-long learning. The course has no graded assignments. A final pass/fail grade determination is recorded on the cadet transcript.</p>		2019-1 2020-1 2021-1
<b>Lessons:</b>	10 @ 55 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	None	
<b>RS101</b>	<b>STUDENT SUCCESS COURSE</b>	<b>0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	1985-1	<b>Offerings:</b>
<p>This course is designed to improve cadet academic, physical, and leadership performance at USMA. Mastery of a variety of strategies leads to this goal. Strategies presented include: effective thinking, goal setting, time management, textbook study system, concentration, test taking, visualization, memory, note taking, stress management, and others. The strategies mastered are implemented immediately into the cadets' present life at USMA and contribute to life-long learning. The course has graded assignments, a complete student success plan and a course portfolio. A final pass/no-credit grade determination is recorded on the cadet transcript.</p>		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b>	20 @ 55 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	None	
<b>RS101I</b>	<b>STUDENT SUCCESS COURSE</b>	<b>0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2015-1	<b>Offerings:</b>
<p>This course is designed to improve cadet academic, physical, and leadership performance at USMA. Mastery of a variety of strategies leads to this goal. Strategies presented include: effective thinking, goal setting, time management, textbook study system, concentration, test taking, visualization, memory, note taking, stress management, and others. The strategies mastered are implemented immediately into the cadets' present life at USMA and contribute to life-long learning. The course has graded assignments, a complete student success plan and a course portfolio. A final pass/no-credit grade determination is recorded on the cadet transcript. This course is for scheduling purposes only, and will be merged into RS101 before the first graded event. It is intended for international students only</p>		2019-1 2020-1 2021-1
<b>Lessons:</b>	20 @ 55 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	none	
<b>RS102</b>	<b>READING EFFICIENCY</b>	<b>0.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	1985-1	<b>Offerings:</b>
<p>This course develops flexible reading strategies. Increasing one's base reading rate while maintaining comprehension is accomplished through the use of computer programs, textbook reading, and recreational reading. Various pacing techniques and supervised practice lead to the increase of both reading rate and comprehension, but most of all to the development of a reader who has a variety of strategies to use depending upon the type of reading required.</p>		2019-1 2020-1 2021-1
<b>Lessons:</b>	10 @ 55 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	None	
<b>RS103</b>	<b>INFO LITERACY &amp; CRIT THINKING</b>	<b>0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2003-1	<b>Offerings:</b>

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This course is designed to improve cadet information literacy and critical thinking performance at USMA. Mastery of a variety of strategies leads to this goal. Strategies presented include: effective thinking, goal setting, time management, understanding of the research process, academic/library research skills, evaluation of information sources, critical reading and reasoning. The strategies mastered are implemented immediately into the cadets' present life at USMA and contribute to life-long learning. The course has no graded assignments. A final pass/no-credit grade determination is recorded on the cadet transcript.

**Lessons:** 20 @ 55 min (0.000 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

**Corequisite(s):** EN101  
-Or-  
HI108

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## Department of Behavioral Sciences and Leadership

### 59 Courses

MG379	LEADING TEAMS	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2012-1	<b>Offerings:</b>
This course is designed to improve cadets' understanding of human behavior in small group/team settings. Course content includes structural characteristics of teams such as size, status, roles and norms in addition to the effects of task and environment. Cadets then use their understanding of these constructs to analyze team phenomena such as cohesion, performance, decision making, problem solving and conflict resolution. We also devote a number of lessons to current issues such as electronic and virtual groups, high performance work teams and shared leadership in a team environment. The course is particularly relevant to professional development in that cadets gain a comprehensive understanding of the dynamics of small group and team interaction. This allows them to develop and implement creative leader actions that will maximize unit/team effectiveness.		2019-1 2020-1 2021-1
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	PL100 -Or- PL150	
<b>Disqualifier(s):</b>	PL379	
MG380	MARKETING	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2011-2	<b>Offerings:</b>
The objective of this course is to introduce students to the concepts, analyses, and activities that comprise marketing management, and to provide practice in assessing and solving marketing problems through the use of case studies and real world projects in both the military and civilian realms. Topics include competitive analysis, marketing strategy, customer behavior, segmentation and targeting, market research, pricing and promotion. Graded requirements include a combination of WPRs, written projects and student led discussions. This course is required for cadets pursuing the Management major"		2019-2 2020-2 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
MG381	INTRODUCTION TO MANAGEMENT	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2010-1	<b>Offerings:</b>
This course serves a dual purpose. It is an introduction to the concept of management as well as an introduction to the multidisciplinary nature of the management field of study. This course focuses on the managerial activities that organizational leaders use to effectively and efficiently direct the resources of organizations. As a result, the course is structured around the primary concepts of planning and decision-making, organizing, leading and controlling. In addition, cadets will examine the concepts of ethical and global management as they learn to analyze operating environments, assess organizational capabilities and develop feasible courses of action.		2019-1 2020-1 2021-1
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	One individual paper (2-3 pages) and individual presentation (10-15 minutes). One group paper (15 pages) and group presentation (30 minutes) based on integration and synthesis of course material through a managerial assessment of an organization.	
MG382	HUMAN RESOURCE MANAGEMENT	3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)
<b>Scope:</b>	2008-1	<b>Offerings:</b>

This course begins with the premise that people are a firm's most important resource; and that the management of this critical resource ultimately determines the success or failure of the organization. The course examines the behavioral science principles used to foster the creation of effective work environments -- environments specifically designed to elicit motivation, commitment, productivity and satisfaction. The course gives special attention to how human resource management (HRM) practices can give a firm a Competitive Advantage by using High Performance Work Systems, tending to Stakeholders' needs (customers, employees, stockholders, and the community) and through strategic Globalization. By analyzing HRM practices in terms of these three critical organizational outcomes, students learn how to apply HRM concepts to positively influence the success of the organization.

2019-1 2019-2 2020-1  
2021-1

**Lessons:** 40 @ 55 min (2.500 Att/wk)

**Labs:** 0 @ 0 min

**Special Requirements:**

PL381 includes a semester-long project which focuses on sustaining and/or improving a real-world firm by applying the course material to a situation.

**MG390**

**NEGOTIATION FOR LEADERS**

**3.0 Credit Hours**  
(BS=0.0,ET=0.0,MA=0.0)

**Scope:**

2007-1

**Offerings:**

This course immerses cadets in fundamental-level Negotiations and Bargaining theory and application. The course progresses from dual-party, single-issue, distributive scenarios to multi-party/multi-issue/integrative scenarios. Cadets learn and practice systematic ways to devise an effective strategy prior to entering a negotiation and then actually apply bargaining tools and tactics during the Negotiation in order to accomplish their individual and organizational goals. Cadets learn concepts and frameworks that help them analyze and understand human behavior so that they have a perspective from all parties involved in a negotiation. Examinations are behavioral and written. Emphasis is placed on applying the behavioral principles learned to real-world issues and their impacts on functioning as future Army officers.

2019-2 2020-1 2020-2  
2021-1 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)

**Labs:** 0 @ 0 min

**Special Requirements:**

None

**MG395**

**FUNDAMENTALS OF ACCOUNTING**

**3.0 Credit Hours**  
(BS=0.0,ET=0.0,MA=0.0)

**Scope:**

2009-2

**Offerings:**

The purpose of MG395 is to provide and integrate the analytical tools learned in this and other courses in a management setting. Specifically, this course will provide the fundamentals of understanding, developing, and analyzing financial statements (income statement, statement of retained earnings, balance sheet, and statement of cash flows), using accounting ratio analysis, analyzing inventory, understanding costing systems and budgeting. By applying the various accounting techniques in a managerial setting, cadets will be better prepared to quantitatively support their managerial decisions. This course is required for cadets pursuing the Management major.

2019-2 2020-2 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)

**Labs:** 0 @ 0 min

**Special Requirements:**

None

**MG410**

**MANAGERIAL FINANCE**

**3.0 Credit Hours**  
(BS=0.0,ET=0.0,MA=0.0)

**Scope:**

2011-1

**Offerings:**

The purpose of MG410 is to provide Management Majors with the basic principles of managerial finance, and then to apply these principles in the context of managerial decision-making. Specifically, this course will cover: the fundamentals of the time value of money; the meaning and measurement of risk and return; valuation techniques for stocks and bonds; and standard techniques for financial analysis, to include capital budgeting, discounted cash flow valuation, and weighted average cost of capital. Cadets will leave this course with a solid understanding of how financial managers at the corporate level balance risk and return, and thus manage everyday financial decision-making. This course is required for all management majors.

2019-1 2020-1 2021-1

**Lessons:** 40 @ 55 min (2.500 Att/wk)

**Labs:** 0 @ 0 min

**Special Requirements:**

None

**MG420**

**OPERATIONS MANAGEMENT**

**3.0 Credit Hours**  
(BS=0.0,ET=0.0,MA=0.0)

**Scope:**

2010-1

**Offerings:**

The purpose of MG420 is to provide cadets with the tools to deal with the quantitative aspects of design and analysis of operations management. Emphasis is on identification, analysis, and solution of production problems using applied quantitative techniques using the case study technique. In addition to case studies, simulations reinforce the problem-solving techniques necessary for today's successful managers. Specific methods and techniques taught and applied are operations strategy, product design and selection, supply chain management, total quality management, forecasting, capacity planning, facility location, facility layout, work system design, inventory management, material requirements planning, and scheduling. This course is required for cadets pursuing the Management major.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

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<b>MG421</b>	<b>STRATEGIC MANAGEMENT</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2010-2

**Offerings:**

This capstone course for management majors emphasizes the integration of concepts and principles found in all previous management courses as they relate to the strategic management of public, private and military organizations. This course focuses on all aspects of the strategic management process to include: the identification of opportunities and threats in a competitive environment, the development of organizational core competencies and the strategic alternatives available to organizations as they seek to achieve their goals in a highly dynamic operating environment filled with complexity, uncertainty and risk. MG 421 uses the case study method that requires comprehensive, in-depth analysis of realistic management situations.

No Course Offerings

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** One individual paper (2-3 pages) and individual presentation (10-15 minutes) on a current strategic management issue. Small teams conduct semester long capstone project. Results are reported in written and oral format.

**Prerequisite(s):** MG420

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<b>MG421</b>	<b>STRATEGIC MANAGEMENT</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2019-2

**Offerings:**

This capstone course for management majors emphasizes the integration of concepts and principles found in all previous management courses as they relate to the strategic management of public, private and military organizations. This course focuses on all aspects of the strategic management process to include: the identification of opportunities and threats in a competitive environment, the development of organizational core competencies and the strategic alternatives available to organizations as they seek to achieve their goals in a highly dynamic operating environment filled with complexity, uncertainty and risk. MG 421 uses the case study method that requires comprehensive, in-depth analysis of realistic management situations.

2019-2 2020-2 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** One individual paper (2-3 pages) and individual presentation (10-15 minutes) on a current strategic management issue. Small teams conduct semester long capstone project. Results are reported in written and oral format.

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<b>MG472</b>	<b>INTERNATIONAL MANAGEMENT</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2013-2

**Offerings:**

This course examines the individual, group and organizational level influences on human behavior in the international arena. Cadets will gain an understanding of these influences and use the insights gained to formulate leader actions to effectively motivate and manage in a global environment. The course emphasizes the practical application of management theories and research findings in the international situations that cadets encounter in their personal lives and in the field Army with an increasing emphasis on the global environment. Course content includes foundations of individual behavior, diversity, motivation, decision making, rewards, feedback and power and influence in an international setting. We will also examine organizational influences on ethical behavior in the global arena with an emphasis on creating ethical climates in the organizations we belong to.

No Course Offerings

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

**Corequisite(s):** PL300

**Disqualifier(s):** PL472

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<b>MG472</b>	<b>INTERNATIONAL MANAGEMENT</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2019-2	<b>Offerings:</b>
This course examines the individual, group and organizational level influences on human behavior in the international arena. Cadets will gain an understanding of these influences and use the insights gained to formulate leader actions to effectively motivate and manage in a global environment. The course emphasizes the practical application of management theories and research findings in the international situations that cadets encounter in their personal lives and in the field Army with an increasing emphasis on the global environment. Course content includes foundations of individual behavior, diversity, motivation, decision making, rewards, feedback and power and influence in an international setting. We will also examine organizational influences on ethical behavior in the global arena with an emphasis on creating ethical climates in the organizations we belong to.		2019-2 2020-2 2021-2
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	None	
<b>Disqualifier(s):</b>	PL472	
<b>PL100</b>	<b>GENERAL PSYCHOLOGY FOR LEADERS</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2016-1	<b>Offerings:</b>
Psychology as a discipline is both a natural and social science that involves the study of the brain, mind, and behavior. General Psychology for Leaders is a course that involves a multidisciplinary study of the human dimension, behavioral sciences, and leadership development. The course examines the cognitive, physical, and social components of the human dimension using the scientific method to promote reflection, development, ethical reasoning, and critical and creative thinking. The learning outcome is that each cadet will be more ethical and effective leader because of a scientific understanding of human behavior. Emphasis is placed on applying the behavioral principals learned to the cadets' current lives and their functioning as future officers. The two course goals are that cadets apply the scientific method to investigate causes or correlates of human behavior, and that they use this scientific understanding of human behavior to explain, predict, and change behavior to become an effective leader of character.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b>	39 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 1 @ 55 min
<b>Special Requirements:</b>	None	
<b>PL150</b>	<b>ADV GEN PSYCHOLOGY FOR LEADERS</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2016-1	<b>Offerings:</b>
Psychology as a discipline is both a natural and social science that involves the study of the brain, mind, and behavior. Advanced General Psychology for Leaders is a course that involves an advanced multidisciplinary study of the human dimension, behavioral sciences, and leadership development. The course examines the cognitive, physical, and social components of the human dimension using the scientific method to promote reflection, development, ethical reasoning, and critical and creative thinking. The learning outcome is that each cadet will be a more ethical and effective leader because of a scientific understanding of human behavior. With even more leader development application than PL100, emphasis is placed on applying the behavioral principles learned to the cadets' current lives and their functioning as future officers. The two course goals are that cadets apply the scientific method to investigate causes or correlates of human behavior, and that they use this scientific understanding of human behavior to explain, predict, and change behavior to become an effective leader of character. This course goes beyond PL100 (General Psychology for Leaders) in that students are asked to apply material at a higher level via reading and incorporating significant peer-reviewed research to address real-world Army issues. Students must also communicate their understanding of psychology and how it informs their roles as leaders of character via formal and informal presentations.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	None	
<b>Disqualifier(s):</b>	PL100	
<b>PL250</b>	<b>NEUROCOG FNDTNS OF BEHAVIOR</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2017-1	<b>Offerings:</b>
This is a course in Cognitive Neuroscience that examines the relationship between brain and cognition through the use of methods from various research fields such as psychology and neuroscience. This course is intended to give the student a strong basic knowledge of the field of cognitive neuroscience. In the course, we will present the key methods in the field and discuss their contribution to understanding the neural basis of cognition. An overview of the latest theories and findings in various topics associated with cognition, including perception, attention, memory, language, and executive functions, will be covered. The goal is to understand how complex mental processes such as attention, memory, language, emotion, and high-level thought are enabled by the functioning of the brain.		2019-1 2020-1 2021-1

<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	Two short analysis papers and team projects.
<b>Prerequisite(s):</b>	PL100 -Or- PL150

<b>PL300</b>	<b>MILITARY LEADERSHIP</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2018-1	<b>Offerings:</b>
<p>PL300 (Military Leadership) is a multidisciplinary study of leadership in organizations. Cadets gain a pragmatic understanding of the behavioral, organizational, and sociological sciences, and apply that knowledge to become better leaders, develop better leaders, and make their organizations more effective. The course surveys a carefully selected set of the most relevant and useful ideas, concepts, theories and knowledge from these sciences. A representative list of topics explored includes: leader and leadership development, character and its development, perceptions and biases, decision making, motivation, power and influence, multiple leadership theories, counseling, negotiations, team dynamics, cohesion and group development, conflict management, organizational justice, organizational culture, organizational change, socialization, and leadership in extremis. In addition to applying knowledge of these topics, cadets develop a leadership portfolio which helps refine and inform their personal approach to leading. The portfolio includes a 'Journey Line' reflection paper, an individual developmental plan, and a theoretically sound leadership philosophy. PL300 is designed to maximize direct application for cadets in their roles as leaders in the Corps of Cadets and as future Army officers.</p>		2018-4 2018-5 2019-1 2019-2 2019-4 2019-5 2020-1 2020-2 2020-4 2020-5 2021-1 2021-2 2091-5

<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	None
<b>Prerequisite(s):</b>	PL100 -Or- PL150
<b>Disqualifier(s):</b>	PL350

<b>PL350</b>	<b>ADVANCED MILITARY LEADERSHIP</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2005-1	<b>Offerings:</b>
<p>This course is an advanced multidisciplinary study of leadership in an organizational context that focuses on the integration of theory and practice. The cadet studies the leader's direct influence on individual motivation and group processes through the application of leadership theories, skills, and attributes. The cadet also learns how to influence subordinates indirectly through organizational systems and procedures, organizational culture, and ethical climate. Cadets apply the knowledge gained in the classroom to their experiences as cadet leaders in the Corps of Cadets. The cadet will also develop a detailed and theoretically sound leadership philosophy, which will have direct application to their roles as leaders in the Corps of Cadets and as future Army officers.</p>		No Course Offerings

<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	None
<b>Prerequisite(s):</b>	PL100 -Or- PL150
<b>Disqualifier(s):</b>	PL300

<b>PL360</b>	<b>PSYCH ELITE PERFORMANCE</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2004-2	<b>Offerings:</b>
<p>This course focuses on the psychological theories and applied techniques that enhance elite performance. In every performance endeavor, human beings have consistently exceeded our wildest expectations. While this has been significantly affected by the technological advances physical training, an equally, if not more significant part of these advances has been the systematic approach to psychological skills training. This approach makes performance enhancement a reality to all who are seeking to perform to their full potential, regardless of the arena in which they perform. This course reviews the current theories that underlie performance enhancement training techniques and relates them to all areas of elite level performance (academic, physical, athletic, and specific areas of military training.) Topics include the development and maintenance of self-confidence, goal setting, attention and concentration, energy management, cognitive and somatic coping strategies, visualization, leadership, and team cohesion. Students will not only understand the theoretical bases underlying these topics, but apply them, through a series of individual projects, a semester-long group research project, and weekly individual instruction, to personal areas of importance.</p>		2019-2 2020-2 2021-2

<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	PL100 -Or- PL150	
<b>PL361</b>	<b>RESEARCH METHODS I</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2004-1	<b>Offerings:</b>
This course provides cadets with detailed practical knowledge and skills in the scientific analysis of human behavior. The course content begins with a review of the terms and philosophy of the scientific method as well as basic research concepts. Several research designs, primarily non-experimental methods, provide cadets with a better understanding of research techniques and how they affect the results of a study. Basic methods of data analysis, to include descriptive and inferential statistics, will be covered. Groups of cadets will conduct research projects on a topic of their choice using naturalistic observation.		2019-1 2020-1 2021-1
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	Several design and statistics assignments, several writing assignments and two group oral presentations related to the semester-long group research project.	
<b>Prerequisite(s):</b>	PL100 -Or- PL150	
<b>PL363</b>	<b>QUALITATIVE RESEARCH METHODS</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2017-1	<b>Offerings:</b>
Qualitative Research Methods facilitates discussion, awareness, and understanding of social research methodology. In this course we seek to understand the basics of social research with a specific focus on qualitative social research methods. This objective is met via discussions and applications and demonstrating the capacity to social problem solve through viable social research?specifically the development, design, and application of four modest analysis papers and culminating in a written methods intensive research proposal and oral presentation. Methods covered include ethnography, interviewing, content analysis, (un)obtrusive measures, visual analysis, and ethics.		2019-1 2020-1 2021-1
<b>Lessons:</b> 40 @ 55 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	Some data gathering fieldwork required.	
<b>Prerequisite(s):</b>	PL100 -Or- PL150	
<b>PL371</b>	<b>INTRODUCTORY SOCIOLOGY</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2004-1	<b>Offerings:</b>
Sociology is the scientific study of society and the interactions among humans. The goal of Introductory Sociology is to provide a survey of the field of sociology and educate and inspire cadets to examine contemporary situations that involve social interaction and use sociological concepts, theories, and research to explain what is taking place, identify social threads and patterns across the situations, and determine the personal as well as the social significance of their analysis. Sociology demands that the student transcend the taken-for-granted, subjective world view and develop a sociological imagination by revealing the linkages and relationships among social facts and connect public issues to self awareness. PL371 is a survey course with the identification of common threads across social situations, and determining the self and social significance of facts. The teaching and learning strategy involves reading, writing, discussions, presentations, and other active-learning, hands and heads-on projects.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	Three papers synthesizing course readings; lead one class discussion.	
<b>Prerequisite(s):</b>	PL100 -Or- PL150	
<b>PL372</b>	<b>SOCIOLOGY OF THE FAMILY</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>



<b>Scope:</b>	2012-2	<b>Offerings:</b>
<p>This course focuses on contemporary American families, with special emphasis on military families. It approaches the study of marriages and families from a scientific perspective, based on scholarship and research. Cadets will learn about the actual state of marriages and families in the United States, and particularly within the military population. This course uses the sociological perspective to analyze issues, as well as several other academic disciplines, such as psychology, anthropology, biology, physiology, and economics to provide additional information. Cadets will examine past and present forces that contribute to changes in the nature of marriage and families in the United States. They will explore the nature of relationships between the family and other major social institutions. They will also evaluate contemporary issues, policies, and research related to marriages and families in order to determine the social significance of these situations.</p>		2019-2 2020-2 2021-2
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	A major course paper analyzing either personal family expectations or a specific contemporary family issue.	
<b>Prerequisite(s):</b>	PL100 -Or- PL150	
<b>PL373</b>	<b>LIFE CYCLE &amp; HUMAN DEVEL</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2004-1	<b>Offerings:</b>
<p>This course focuses on individual development and the forces that influence our development from birth to old age. Cadets will study the various facts, theories, issues, and topics that constitute the field of human development. Cadets will explore human development from various theoretical perspectives. In addition, cadets will discuss such topics as cognitive and moral development, how our self-concept and sense of identity form, and the influence of family and the world around us on development. Special attention will be given to the developmental impact of college.</p>		2019-1 2020-1 2021-1
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	One analysis paper (6-8 pages); one research paper (10-12 pages) and one group presentation.	
<b>Prerequisite(s):</b>	PL100 -Or- PL150	
<b>PL376</b>	<b>PERSONALITY &amp; AB PSYCH</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2004-2	<b>Offerings:</b>
<p>Building upon the elementary concepts of personality from PL100, this course examines in detail various theoretical frameworks used to study personality and abnormal behavior. The course focuses on four theoretical perspectives: the psychoanalytic, learning, phenomenological, and dispositional perspectives. After examining how the various theoretical perspectives can be used to explain personality, the course applies these perspectives to an understanding of abnormal behavior. Thus, the course focuses on developing the cadets' understanding of "normal" personality development and how and why deviant behavior may result.</p>		No Course Offerings
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	Cadets will complete a case-study analysis of a real or fictional person of the cadet's choice (10-15 pages) and one oral presentation.	
<b>Prerequisite(s):</b>	PL100 -Or- PL150	
<b>PL376</b>	<b>ABNORMAL PSYCHOLOGY</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2019-1	<b>Offerings:</b>
<p>This course provides cadets within an introduction to abnormal psychology. As part of this course, we will examine various psychological disorders, focusing on an understanding of the explanation of the development and maintenance of these disorders, along with approaches to treatment. We will discuss the understanding of psychological disorders from various theoretical perspectives to include genetic, biological, cognitive, behavioral, sociocultural, and psychoanalytic influences.</p>		2019-2 2020-2 2021-2
<b>Lessons:</b>	30 @ 75 min (2.000 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	None	

<b>Prerequisite(s):</b>	PL100 -Or- PL150	
<b>PL377</b>	<b>SOCIAL INEQUALITY</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2004-1	<b>Offerings:</b>
Cadets are introduced to several theoretical perspectives intended to explain the structure of social stratification in the United States. The course examines the state of social inequality in the United States, with a focus on social class, integration, mobility, and equality of opportunity. Cadets explore individual and structural perspectives of social inequality. Cadets evaluate social issues, policies, and programs intended to influence social inequality. Throughout the course, cadets discuss the relevance of class, race, ethnicity, and gender on social opportunity and inequality.		2019-1 2020-1 2021-1
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	PL100 -Or- PL150	
<b>PL379</b>	<b>GROUP DYNAMICS</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2010-1	<b>Offerings:</b>
This course is designed to improve cadets' understanding of human behavior in small group/team settings. Course content includes structural characteristics of teams such as size, status, roles and norms in addition to the effects of task and environment. Cadets then use their understanding of these constructs to analyze team phenomena such as cohesion, performance, decision making, problem solving and conflict resolution. We also devote a number of lessons to current issues such as electronic and virtual groups, high performance work teams and shared leadership in a team environment. The course is particularly relevant to professional development in that cadets gain a comprehensive understanding of the dynamics of small group and team interaction. This allows them to develop and implement creative leader actions that will maximize unit/team effectiveness.		No Course Offerings
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	PL100 -Or- PL150	
<b>PL383</b>	<b>EXPERIMENTAL SOCIAL PSYCHOLOGY</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2008-1	<b>Offerings:</b>
This course surveys the field of contemporary social psychology. Cadets examine the impact of social structure and group membership on social behavior, while focusing on intrapsychic processes such as attribution, cognition, and learning that underlie social behavior. The course is intended to enable cadets to more effectively analyze and explain human behavior in a given situation. Specific topics include the self, attitudes and attitude change, sex and gender, conformity, obedience, compliance, deviance, helping behavior, aggression, attraction and romance, groups and intergroup relations, and collective behavior. The classroom experience is heavily discussion-oriented in order to maximize the application of social psychological concepts, theories, and perspectives to daily life.		No Course Offerings
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	Two (5-6 page) individual reports of group conducted research studies, and one oral presentation.	
<b>Prerequisite(s):</b>	PL100 -Or- PL150	
<b>PL383</b>	<b>SOCIAL PSYCHOLOGY</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2019-1	<b>Offerings:</b>

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Prerequisite(s):** PL100  
-Or-  
PL150

**3.0 Credit Hours**  
(BS=0.0,ET=0.0,MA=0.0)

**Offerings:**

2019-2 2020-2 2021-2

Prerequisite(s): PL371

**3.0 Credit Hours**  
(BS=0.0,ET=0.0,MA=0.0)

**Offerings:**

2019-1 2020-1 2021-1

**Prerequisite(s):** PL100  
-Or-  
PL150

**3.0 Credit Hours**  
(BS=0.0,ET=0.0,MA=0.0)

**Offerings:**

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

Special Requirements: None

<b>Prerequisite(s):</b>	PL100 -Or- PL150	
<b>PL390</b>	<b>BIOLOGICAL PSYCHOLOGY</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	1983-1	<b>Offerings:</b>
<p>This course introduces the cadet to the physiological and anatomical structures and processes that underlie human behavior with emphasis on human performance. The course examines the structure of the nervous and endocrine systems, the mechanisms of seeing and hearing, movement, stress and arousal, learning, memory, biological causes of abnormal behavior, sleep, language, and the effects on performance of damage to neural structures. Cadets are introduced to the scientific examination of real-world bio-psychological problems in laboratory assignments in examining tissue, brains and eyes to provide three-dimensional realism to classroom instruction. This course provides the basis for competence in later engineering psychology electives. Biological Psychology is the "hardware" introduction to engineering psychology.</p>		2019-1 2020-1 2021-1
<b>Lessons:</b>	36 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 4 @ 110 min
<b>Special Requirements:</b>	One laboratory report (1200 words). One scientific critique (1200 words).	
<b>PL391</b>	<b>SENSATION/PERCEPTN/PSYCPHYS</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	1983-2	<b>Offerings:</b>
<p>This course covers the acquisition and analysis of information by the human nervous system from examination of the physical properties of light and sound, the functioning of the visual, auditory systems and the kinesthetic processes, and the theoretical background of contemporary perceptual research. The following general topics are covered: psychophysical methods, including measurement, scaling and signal detection theory; physiology of the visual, auditory and kinesthetic systems; recognition of color and brightness, pitch and loudness, patterns, features, and the role of visual channels; visual detection and tracking; the role of kinesthesia in military applications; and research methodology in perception. Laboratory assignments stress the application of data acquisition systems on research and the construction of strictly defined experimental methods in this area of research.</p>		2019-2 2020-2 2021-2
<b>Lessons:</b>	38 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 2 @ 110 min
<b>Special Requirements:</b>	Two application projects requiring laboratory reports (1200 words each).	
<b>Prerequisite(s):</b>	MA376 PL386 PL390 -Or- MA376 PL250 PL386	
<b>PL392</b>	<b>COGNITIVE PSYCHOLOGY</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	1984-1	<b>Offerings:</b>
<p>This course addresses the processes of human information gathering, learning and memory using an information processing model. The course deals with cognitive theory and application, including stage models of processing and memory, machine models and artificial intelligence, and research methodology in these areas. Emphasis is placed on practical military applications in such areas as pattern recognition and detection, text processing, visual search and associated problems. Laboratory experiences stress development of experimental paradigms in this area of investigation and the use of test instrumentation, and computer software models to investigate cognitive processing.</p>		2019-2 2020-2 2021-2
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	Team term project, two laboratory reports (1000 words), and oral presentation.	
<b>Prerequisite(s):</b>	PL100 -Or- PL150	
<b>PL393</b>	<b>CRIMINOLOGY-CRIM JUST SYSTM</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2004-1	<b>Offerings:</b>

Criminology is the scientific study of the making of laws, the breaking of laws, and the reaction to the breaking of laws. When a crime appears to have been committed and authorities have been notified, the criminal justice system is set in motion. The criminal justice system is the societal response to crime and includes three major activities – law enforcement, the judicial process, and corrections. The course provides an overview of (a) the theories offered to explain crime and delinquent behavior (b) the criminal justice system which responds to those behaviors, and (c) the relationships between the varied explanations of criminal behavior and society's criminal justice responses to those behaviors. The focus of the course is primarily on the United States, but there is some attention devoted to an international view of crime and criminal justice.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** Cadets select, write, and report on a topic in criminology.

**Prerequisite(s):** PL100  
-Or-  
PL150

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<b>PL394</b>	<b>ANTHROPOMETRICS &amp; BIOMECHANICS</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=3.0,MA=0.0)</b>
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<b>Scope:</b>	2013-2	<b>Offerings:</b>
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Virtually every activity in which humans engage involves interacting with our environment. Much of that interaction requires physical movement. Creating a safe workplace requires an understanding of the forces we apply to objects in our environment and how those forces can be measured and modified by better design. Anthropometrics is the study of human measurement. Biometrics is the study of forces on our muscular and skeletal system. The goal of this course is to teach cadets the fundamentals of anthropometrics and biomechanics so that they will be able to modify work environments of injury. The course will emphasize work performed in military settings.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** PL100  
-Or-  
PL150

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<b>PL396</b>	<b>SNA FOR PUBLIC POLICY</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2015-2	<b>Offerings:</b>
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PL396 is an interdisciplinary course where students learn to apply network strategies to real policy issues, and assess the utility of these models to society. The course enables students to confront complexity in modeling, solving, analyzing, and understanding large dynamic systems and networks. The course is designed with three sections. The first portion of the course covers basic network analytic methods and concepts. Students get hands-on experience with network software tools. In the second section, high-level concepts and modeling principles are covered. In the third sections, four major policy issues are covered - health care, natural resources, cyber/information, and education. Cadets research a government policy and re-define the problem in network terminology and relational data. Evaluating and recommending public policy is a complex social, political, scientific process with many competing issues and challenges. As final projects, students select their own topics, and are asked to critique and provide resolution of issues around education, health care, transportation, information technology, and public utilities from network perspectives.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** Book or article review on network science approach to studying public policy work in a group to produce a poster for presentation at Projects Day.

**Prerequisite(s):** MA205 PL100  
-Or-  
MA153 PL100

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<b>PL398</b>	<b>LEADERSHIP THEORY &amp; DEVEL</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	1982-2	<b>Offerings:</b>
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This course focuses on the "cutting edge" concepts and theories of leadership and leader development that are designed to help cadets better understand the leadership process to enhance leadership effectiveness and organizational performance across multiple levels of analysis. The course addresses leadership from not only the focal leader perspective, but also from the organizational, strategic and combat leadership viewpoints. The course will examine the historical evolution of leadership theory, and emphasizes scientific research and the empirical supports for existing leadership theories, and current thinking on the effective development of leaders. Additionally, cadets will study some of the emerging leadership perspectives that have been proposed to be relevant for effective leadership in the volatile, ambiguous, uncertain and chaotic world of the 21st century.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

<b>Special Requirements:</b>	Book review and analysis on a noted military leader. Significant inquiry into current leader development theory in relationship to the leader development program at USMA: written reports and oral presentations communicate the results.
<b>Prerequisite(s):</b>	PL300 -Or- PL350

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<b>PL399</b>	<b>BEH SCI &amp; LEADERSHIP PRACTICUM</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2006-4	<b>Offerings:</b>
<p>The Department of Behavioral Sciences and Leadership's Academic Individual Advanced Development (AIAD) program is designed to give cadets practical experience in their field of study and to reflect on their experiences by completing specified academic requirements. Recent AIADs have involved internships with the American Psychological Association; studies of psychological support to NATO operations in France and stress in military operations in Norway; as well as other topics in CONUS, China, Germany, and Australia. Scope, depth and material covered will meet the requirement of a 3-credit hour course in the department. Grades are determined based on preparatory briefings and essays, a journal of daily activities or Weblog with instructors, the quality of the work performed during the internship, student evaluation of the experience and a final paper, briefing, or exam that incorporates their experience with a topic from their field of study, due upon return.</p>		No Course Offerings
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	

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<b>PL399A</b>	<b>BEH SCI &amp; LEADERSHIP PRACTICUM</b>	<b>2.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2007-4	<b>Offerings:</b>
<p>The Department of Behavioral Sciences and Leadership's Academic Individual Advanced Development (AIAD) program is designed to give cadets practical experience in their field of study and to reflect on their experiences by completing specified academic requirements. Recent AIADs have involved internships with the American Psychological Association; studies of psychological support to NATO operations in France and stress in military operations in Norway; as well as other topics at West Point, elsewhere in the continental United States, or overseas. Scope, depth and material covered will meet the requirement of a two-credit hour course in the department. Grades are determined based on preparatory briefings and essays, a journal of daily activities or Weblog with instructors, the quality of the work performed during the internship, student evaluation of the experience and a final paper, briefing, or exam that incorporates their experience with a topic from their field of study, due upon return.</p>		2018-7
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	

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<b>PL462</b>	<b>EXPERIMENTAL APP IN PSYCHOLOGY</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2011-1	<b>Offerings:</b>
<p>This seminar-based course focuses on the advanced study of topics in psychology. It provides cadets an opportunity for reading and analysis in depth in a topic area of interest and relevance to the study of psychology and its applications. The course employs a seminar approach in which cadets present their own analyses of the discussion topics to the group. By the end of this course, cadets will be able to conduct and evaluate research in the behavioral sciences. This course continues the themes of PL361 (Research Methods I) and introduces cadets to more varied experimental and non-experimental designs and more complex statistical analyses. Groups of cadets will conduct a research project using an experimental method in an area of their choice. Cadets who complete this course will be competent consumers of behavioral sciences research and will be equipped to use the scientific method to investigate and solve many of the problems they will face as military leaders.</p>		No Course Offerings
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	Review and analysis of topic within psychology; topics will vary depending on instructor expertise and relevance to contemporary issues. Assignments (papers and oral presentations) will culminate to course paper summarizing research project investigating	
<b>Prerequisite(s):</b>	PL361	

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<b>PL462</b>	<b>ADVANCED RESEARCH METHODS</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2019-1	<b>Offerings:</b>
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<p>This course provides cadets an opportunity for reading and analysis in depth of a topic area of interest and relevance to the study of psychology and its applications. In this course we continue the themes of PL361 (Research Methods I) and introduces cadets to more varied experimental and non-experimental designs and more complex statistical analyses. Groups of cadets will conduct a research project using an experimental method in an area of their choice. Cadets who complete this course will be competent consumers of behavioral sciences research and will be equipped to use the scientific method to investigate and solve many of the problems they will face as military leaders.</p> <p><b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)      <b>Labs:</b> 0 @ 0 min</p> <p><b>Special Requirements:</b> None</p> <p><b>Prerequisite(s):</b> PL361</p>		2019-2 2020-2 2021-2
<b>PL470</b>	<b>TOPICS-BEHAVIOR SCI/LDRSHIP</b>	<b>3.0 Credit Hours</b> (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	1999-1	<b>Offerings:</b>
<p>This course explores an advanced topic in Behavioral Sciences and Leadership. Specific subject matter will vary with the expertise of the senior faculty member conducting the course.</p> <p><b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)      <b>Labs:</b> 0 @ 0 min</p> <p><b>Special Requirements:</b> As specified by the professor.</p> <p><b>Prerequisite(s):</b> PL100 -Or- PL150</p>		2019-2 2020-2 2021-2
<b>PL471</b>	<b>LEADERSHIP IN COMBAT</b>	<b>3.0 Credit Hours</b> (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2004-1	<b>Offerings:</b>
<p>PL 471 examines leadership in combat at the tactical level from an interdisciplinary perspective. It first seeks to provide a theoretical foundation for understanding human dimensions of combat, and then explores some of the factors that influence the leadership of soldiers in combat through a collection of readings, film, and first-hand discussions with combat veterans. Cadets examine four case studies and conduct a comparative analysis of two combat leaders.</p> <p><b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)      <b>Labs:</b> 0 @ 0 min</p> <p><b>Special Requirements:</b> As specified by professor.</p>		2019-2 2020-2 2021-2
<b>PL472</b>	<b>CROSS-CULTURAL ORG'L BEHAVIOR</b>	<b>3.0 Credit Hours</b> (BS=0.0,ET=3.0,MA=0.0)
<b>Scope:</b>	2010-2	<b>Offerings:</b>
<p>This course examines the individual, group and organizational level influences on human behavior in the international arena. Cadets will gain an understanding of these influences and use the insights gained to formulate leader actions to effectively motivate and manage in a global environment. The course emphasizes the practical application of management theories and research findings in the international situations that cadets encounter in their personal lives and in the field Army with an increasing emphasis on the global environment. Course content includes foundations of individual behavior, diversity, motivation, decision making, rewards, feedback and power and influence in an international setting. We will also examine organizational influences on ethical behavior in the global arena with an emphasis on creating ethical climates in the organizations we belong to.</p> <p><b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)      <b>Labs:</b> 0 @ 0 min</p> <p><b>Special Requirements:</b> None</p> <p><b>Corequisite(s):</b> PL300</p>		No Course Offerings
<b>PL475</b>	<b>HUMAN-COMPUTER INTERACTION</b>	<b>3.0 Credit Hours</b> (BS=0.0,ET=1.0,MA=0.0)
<b>Scope:</b>	2013-1	<b>Offerings:</b>
<p>Computer use in the world today is at an all-time high. Consequently, the need for user-friendly computers is crucial. Somewhat ironically, human capacity for memory has often been explained using the computer metaphor, while the computer designer often attempts to instill human-like qualities into their computer designs. This course focuses on the interface between the human and computer. Initial focus is placed on understanding the theoretical foundations of human processes. The course then examines how these processes interact with computer usage. Students will learn design principles that enhance compatibility with computer systems.</p>		2019-1 2020-1 2021-1

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** PL392

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<b>PL476</b>	<b>EDUCATIONAL PSYCHOLOGY</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 1979-2

**Offerings:**

In this course, cadets will develop their instructional skills and formulate a conceptual basis for their instructional practices as army officers. The course is oriented toward the study of psychological theories of learning and application of these theories to the design, delivery, and evaluation of adult education and training. The course is subdivided into major areas of study. Learning theory focuses on the study of the learning process with balanced treatment given to behavioristic and cognitive perspectives. Instructional design emphasizes a systems approach to planning and decision making in learning situations.

No Course Offerings

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** Course practicum in which cadets design, deliver, and evaluate a learning experience. The practicum involves submission of a written design plan and evaluation (15-20 pages) and the delivery of instruction (55 minutes).

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<b>PL479</b>	<b>LEADING ORGNZS THRU CHANGE</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=3.0,MA=0.0)</b>
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**Scope:** 2011-1

**Offerings:**

The environments in which organizations operate are characterized by unprecedented change fueled by rapidly emerging technologies, information overload, changing values, lifestyles and attitudes, and social and civil problems of great magnitude. Effective leaders either must be proactive toward change or be its captive. The purpose of this course is to examine change from an organizational perspective through a complex and diverse mix of theories, concepts, and information. Course concepts are drawn from the disciplines of behavioral science, business, management, and military doctrine. Cadets have the opportunity to analyze the successes, the failures, and the multiple dilemmas of modern organizations in both the private and public sectors in order to better understand the causes, implications, and potential leader actions and strategies associated with organizational change.

2019-1 2019-2 2020-1  
2021-1

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** Cadets prepare an individual research report examining an actual large-scale change within the context of a modern organization.

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<b>PL482</b>	<b>ARMED FORCES AND SOCIETY</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2013-2

**Offerings:**

The intersection of armed forces and society involves the examination of two domains: the intersection of any armed force and the larger societal context and the focused study of the military as a unique social institution with a set of demands placed on the people making up the institution. Our principal focus is sociological as we use sociological theories, concepts, and research to study the military and society and culture both in the United States and abroad. PL482 is a capstone course that requires cadets to apply their sociological knowledge at the intersection of the armed forces and society. The course expects cadets to read, write, and discuss military and society issues in-depth and practically apply their knowledge to solve real world problems. Cadets integrate the knowledge gleaned from the course into a coherent and focused research project addressing some aspect of the human dimension of the armed forces and society.

2019-2 2020-2 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** Research paper that applies course concepts to analysis of the current military. This paper is written in stages throughout the semester.

**Prerequisite(s):** PL300  
-Or-  
PL350

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<b>PL485</b>	<b>HUMAN FACTORS ENGINEERING</b>	<b>3.0 Credit Hours</b> <b>(BS=0.5,ET=1.5,MA=0.0)</b>
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**Scope:** 2013-1

**Offerings:**



This course surveys the theories and methods of human factors engineering (ergonomics). Human factors engineering is concerned with the application of technology and the design of equipment for human use. This course emphasizes the cognitive dimension of human factors engineering. The focus is on understanding the capabilities and limitations of humans as they interact with equipment and facilities. This course lays the foundations for the systematic application of information about humans to the design of equipment and workspace environments.

**Lessons:** 36 @ 55 min (2.500 Att/wk)      **Labs:** 4 @ 55 min

**Special Requirements:** Term project--research report and oral presentation. Students will perform an in-depth analysis of an existing human-machine system. Results will be reported in written and oral formats.

**Prerequisite(s):** PL386

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<b>PL488B</b>	<b>COLLOQUIUM-BSL-PSYCHOLOGY</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 1984-1

**Offerings:**

The colloquium focuses on advanced study of behavioral science topics and issues using small group discussions of important books and articles of both traditional and contemporary topics in psychology, sociology, organizational leadership, and engineering psychology. It is a reading and discussion course. Subcourse topics are not fixed and are subject to annual revision.

2019-2 2020-2 2021-2

**Lessons:** 0 @ 0 min (0.000 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** Two to four critical essays and oral presentations based on readings.

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<b>PL488C</b>	<b>COLLOQUIUM-BSL-LEADERSHIP</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 1984-1

**Offerings:**

The colloquium focuses on advanced study of behavioral science topics and issues using small group discussions of important books and articles of both traditional and contemporary topics in psychology, sociology, organizational leadership, and engineering psychology. It is a reading and discussion course. Subcourse topics are not fixed and are subject to annual revision.

No Course Offerings

**Lessons:** 40 @ 55 min (0.000 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** Two to four critical essays and oral presentations based on readings.

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<b>PL488D</b>	<b>COLLOQUIUM-BSL-SOCIOLOGY</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 1984-1

**Offerings:**

The colloquium focuses on advanced study of behavioral science topics and issues using small group discussions of important books and articles of both traditional and contemporary topics in psychology, sociology, organizational leadership, and engineering psychology. It is a reading and discussion course. Subcourse topics are not fixed and are subject to annual revision.

2019-2 2020-2 2021-2

**Lessons:** 0 @ 0 min (0.000 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** Two to four critical essays and oral presentations based on readings.

**Prerequisite(s):** PL371

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<b>PL488E</b>	<b>COLLOQUIUM-BSL-ENGIN PSYCH</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 1998-2

**Offerings:**

The colloquium focuses on advanced study of behavioral science topics and issues using small group discussions of important books and articles of both traditional and contemporary topics in psychology, sociology, organizational leadership, and engineering psychology. It is a reading and discussion course. Subcourse topics are not fixed and are subject to annual revision.

2019-2 2020-2 2021-2

**Lessons:** 0 @ 0 min (0.000 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** Two to four critical essays and oral presentations based on readings.

**Prerequisite(s):** PL485

PL490	ENGINEERING PSYCHOLOGY	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	1993-2	<b>Offerings:</b>
This course integrates the material previously covered in the Human Factors curriculum, especially PL485, Human Factors Engineering. It uses the theoretical bases and practical applications of Human Factors Engineering in the treatment of design problems. Emphasis in this course is on the design of systems to fit human capabilities. Course project is a design project of a contemporary applied problem.		2019-2 2020-2 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	Term project--team design projects applying selected engineering psychology concepts to a contemporary problem.	
<b>Prerequisite(s):</b>	PL485	
PL497	SEMINAR IN BEHAVIORAL SCI	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	1998-1	<b>Offerings:</b>
Cadets develop individual research themes from contemporary behavioral science topics. They are then grouped under a seminar leader for study, discussion, and preparation of their research reports, culminating in a presentation before the seminar group. Cadets will be expected to master both the significant work within the topics of choice and the body of criticisms of the works and to propose a study to advance the body of knowledge.		2019-1 2020-1 2021-1
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	Literature review and research proposal; oral defense of proposal.	
PL498	ADV STUDY-BEHAVIOR SCI	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2003-2	<b>Offerings:</b>
This course allows selected cadets to design an advanced study project under the guidance of a member of the BSL faculty. The advanced study, designed with the guidance of the faculty advisor, can be a thesis, research program, or service learning project. Depending on the nature of the project, cadets will work individually or in small groups. Cadets may conduct work in such areas as Leadership, Engineering Psychology, Sociology, or Psychology.		2019-2 2020-2 2021-2
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	Written research report with an oral defense.	
<b>Prerequisite(s):</b>	PL100 PL361 -Or- PL150 PL361	
PL499	LEADERS IN ACTION	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2005-2	<b>Offerings:</b>
This course is designed to enhance cadets' leadership performance through the application of essential leadership skills in challenging, on-going, real-world projects, and scenario-driven leadership laboratory exercises. The course uses a series of "concept study > actions > reflections" (CAR) cycles to focus students on the enhancing (and hindering) factors that typically surface when an individual has responsibility for executing a project and must "do" leadership. Cadets move through a CAR cycle in three related stages. First, cadets consider specific concepts, theories and models of leadership covered in prior courses. Then, using a pool of projects resourced by the faculty expressly for this course, cadets wrestle with real-world leadership projects (such as leading an organizational unit through an unexpected change), keeping these issues and insights in mind. Finally, both during and after the project, cadets engage in self-reflection exercises (e.g., journals) and meet with faculty mentors, to help process and make sense of their leadership experience on both a personal and conceptual level.		No Course Offerings
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	Course-long research projects and written and oral reports.	
<b>Prerequisite(s):</b>	PL398	

## Department of Chemistry & Life Science

### 52 Courses

CH101	GENERAL CHEMISTRY I	4.0 Credit Hours (BS=4.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2016-1	<b>Offerings:</b>
<p>This course provides a solid background in chemistry principles and applications. It includes a study of the nature of matter, its atomic and molecular structure, and associated energies. Fundamental concepts, principles, theories, and laws of chemistry are emphasized. Stoichiometry, states of matter, solutions, foundational thermodynamics, acid-base and redox reactions are addressed. The course also provides the student with an introduction to materials chemistry, environmental chemistry, and military chemistry. An extensive laboratory program is integrated within the course and is designed to develop an appreciation of classical and modern investigative techniques and to reinforce fundamental concepts introduced in the classroom.</p>		2019-1 2019-2 2019-3 2020-1 2020-2 2020-3 2021-1 2021-2 2021-3
<b>Lessons:</b> 33 @ 80 min (2.500 Att/wk)	<b>Labs:</b> 7 @ 120 min	
<b>Special Requirements:</b>	None	
<b>Disqualifier(s):</b>	CH151	
CH101X	GENERAL CHEMISTRY I	3.5 Credit Hours (BS=3.5,ET=0.0,MA=0.0)
<b>Scope:</b>	2013-1	<b>Offerings:</b>
<p>USED FOR SCHEDULING PURPOSES ONLY. This course provides a solid background in chemistry principles and applications. It includes a study of the nature of matter, its atomic and molecular structure, and the associated energies involved. Fundamental concepts, principles, theories, and laws of chemistry are stressed. Stoichiometry, states of matter, solutions, kinetics, thermodynamics, acid-base and redox equilibria, electro-, organic, and nuclear chemistry are stressed. The course also provides the student with a strong foundation in materials chemistry, the chemistry of life, environmental chemistry, and military chemistry. A laboratory program is integrated within the course and is designed to develop an appreciation of classical and modern investigative techniques and to illustrate fundamental concepts.</p>		No Course Offerings
<b>Lessons:</b> 31 @ 80 min (2.500 Att/wk)	<b>Labs:</b> 9 @ 120 min	
<b>Special Requirements:</b>	None	
<b>Disqualifier(s):</b>	CH101 CH101Y CH151	
CH101Y	GENERAL CHEMISTRY I	3.5 Credit Hours (BS=3.5,ET=0.0,MA=0.0)
<b>Scope:</b>	2013-1	<b>Offerings:</b>
<p>USED FOR SCHEDULING PURPOSES ONLY. This course provides a solid background in chemistry principles and applications. It includes a study of the nature of matter, its atomic and molecular structure, and the associated energies involved. Fundamental concepts, principles, theories, and laws of chemistry are stressed. Stoichiometry, states of matter, solutions, kinetics, thermodynamics, acid-base and redox equilibria, electro-, organic, and nuclear chemistry are stressed. The course also provides the student with a strong foundation in materials chemistry, the chemistry of life, environmental chemistry, and military chemistry. A laboratory program is integrated within the course and is designed to develop an appreciation of classical and modern investigative techniques and to illustrate fundamental concepts.</p>		No Course Offerings
<b>Lessons:</b> 31 @ 80 min (2.500 Att/wk)	<b>Labs:</b> 9 @ 120 min	
<b>Special Requirements:</b>	None	
<b>Disqualifier(s):</b>	CH101 CH101X CH151	
CH102	GENERAL CHEMISTRY II	4.0 Credit Hours (BS=4.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2016-2	<b>Offerings:</b>
<p>This course extends the foundational disciplinary content and practices from General Chemistry I into chemical equilibrium acid/base chemistry, electrochemistry, thermodynamics (entropy and free energy) and kinetics. Basic principles governing organic chemistry is also addressed. The laboratory is integrated within the course. The initial labs develop skills which are they applied to an authentic research problem.</p>		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 32 @ 80 min (2.500 Att/wk)	<b>Labs:</b> 8 @ 120 min	

<b>Special Requirements:</b>	None
<b>Prerequisite(s):</b>	CH101 -Or- CH151
<b>Disqualifier(s):</b>	CH152

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<b>CH102X</b>	<b>GENERAL CHEMISTRY II</b>	<b>3.5 Credit Hours (BS=3.5,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2012-2	<b>Offerings:</b>
<p>USED FOR SCHEDULING PURPOSES ONLY. This course provides a solid background in chemistry principles and applications. It includes a study of the nature of matter, its atomic and molecular structure, and the associated energies involved. Fundamental concepts, principles, theories, and laws of chemistry are stressed. Stoichiometry, states of matter, solutions, kinetics, thermodynamics, acid-base and redox equilibria, electro-, organic, and nuclear chemistry are stressed. The course also provides the student with a strong foundation in materials chemistry, the chemistry of life, environmental chemistry, and military chemistry. A laboratory program is integrated within the course and is designed to develop an appreciation of classical and modern investigative techniques and to illustrate fundamental concepts.</p>		No Course Offerings

**Lessons:** 31 @ 80 min (2.500 Att/wk)    **Labs:** 9 @ 120 min

<b>Special Requirements:</b>	None
<b>Prerequisite(s):</b>	CH151 -Or- CH101
<b>Disqualifier(s):</b>	CH102 -Or- CH102Y -Or- CH152

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<b>CH102Y</b>	<b>GENERAL CHEMISTRY II</b>	<b>3.5 Credit Hours (BS=3.5,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2012-2	<b>Offerings:</b>
<p>USED FOR SCHECULING PURPOSES ONLY. This course provides a solid background in chemistry principles and applications. It includes a study of the nature of matter, its atomic and molecular structure, and the associated energies involved. Fundamental concepts, principles, theories, and laws of chemistry are stressed. Stoichiometry, states of matter, solutions, kinetics, thermodynamics, acid-base and redox equilibria, electro-, organic, and nuclear chemistry are stressed. The course also provides the student with a strong foundation in materials chemistry, the chemistry of life, environmental chemistry, and military chemistry. A laboratory program is integrated within the course and is designed to develop an appreciation of classical and modern investigative techniques and to illustrate fundamental concepts.</p>		No Course Offerings

**Lessons:** 31 @ 80 min (2.500 Att/wk)    **Labs:** 9 @ 120 min

<b>Special Requirements:</b>	NONE
<b>Prerequisite(s):</b>	CH151 -Or- CH101
<b>Disqualifier(s):</b>	CH102 -Or-  -Or- CH152 -Or- CH102X

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<b>CH151</b>	<b>ADV GENERAL CHEMISTRY I</b>	<b>4.0 Credit Hours (BS=4.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2016-1	<b>Offerings:</b>
<p>An advanced coverage of the concepts and principles covered in CH101 including a more in-depth laboratory program.</p>		2019-1 2020-1 2021-1

**Lessons:** 32 @ 80 min (2.500 Att/wk)    **Labs:** 8 @ 120 min

<b>Special Requirements:</b>	None
<b>Disqualifier(s):</b>	CH101

CH152	ADV GENERAL CHEMISTRY II	3.5 Credit Hours (BS=3.5,ET=0.0,MA=0.0)
<b>Scope:</b>	2009-2	<b>Offerings:</b>
An advanced coverage of the concepts and principles covered in CH101-102 including a more in-depth laboratory program with emphasis on instrumental analysis.		No Course Offerings
<b>Lessons:</b> 28 @ 80 min (2.500 Att/wk)	<b>Labs:</b> 12 @ 120 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	CH151 -Or- CH101	
<b>Disqualifier(s):</b>	CH102	
CH275	BIOLOGY	4.0 Credit Hours (BS=4.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2017-1	<b>Offerings:</b>
This course provides a broad understanding of biological principles, applications and the relevance of biological science to the military and society. This course consists of an examination of the unity and diversity of life. The course utilizes a reductionist approach to biological study by beginning with an introduction to life at the cellular level and preceding through Mendelian Genetics, central dogma, DNA technologies, and Darwinian evolution. The course culminates in the application of basic biological principles to human structure and function. Emphasis is placed on course material that is relevant to current environmental issues and disease particularly as these areas apply to military operations. A laboratory program is integrated within the course and is designed to enhance understanding of classical and modern investigative techniques and to illustrate fundamental concepts.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 8 @ 120 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	CH101 -Or- CH151	
CH289	INTRODUCTION TO RESEARCH I	1.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2018-2	<b>Offerings:</b>
Introduces the methods of research in chemistry, chemical engineering, or life science that includes use of the research literature and instruction in intermediate experimental and theoretical procedures and techniques specific to the cadet's program of study. Under the direct supervision of faculty.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	LESSONS and LABS: Established by consultation between the cadet and his/her faculty advisor. Cadets are expected to perform an average of 2 hours of work per week towards completion of the project.	
CH290	INTRODUCTION TO RESEARCH	1.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2012-1	<b>Offerings:</b>
Introduces the methods of research in chemistry, chemical engineering, or life science that includes use of the research literature and instruction in intermediate experimental and theoretical procedures and techniques specific to the cadet's program of study. Under the direct supervision of faculty.		No Course Offerings
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	LESSONS and LABS: Established by consultation between the cadet and his/her faculty advisor. Cadets are expected to perform an average of 2 hours of work per week towards completion of the project.	
CH290	INTRODUCTION TO RESEARCH II	1.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2018-2	<b>Offerings:</b>

Continues the development of research methods in chemistry, chemical engineering, or life science that includes use of the research literature and instruction in intermediate experimental and theoretical procedures and techniques specific to the cadet's program of study. Under the direct supervision of faculty.

**Lessons:** 0 @ 0 min (0.000 Att/wk)

**Labs:** 0 @ 0 min

**Special Requirements:**

LESSONS and LABS: Established by consultation between the cadet and his/her faculty advisor. Cadets are expected to perform an average of 2 hours of work per week towards completion of the project.

**Prerequisite(s):**

CH289

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<b>CH291X</b>	<b>HEALTHCARE PROFESSIONS SEMINAR</b>	<b>1.0 Credit Hours</b> <b>(BS=1.0,ET=0.0,MA=0.0)</b>
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**Scope:**

2018-2

**Offerings:**

No Course Offerings

Healthcare is a complex and rewarding field with numerous career opportunities for military service members. This course is intended for 2nd class cadets planning to attend medical school and/or seriously interested in a healthcare career. Course content will focus on the nexus of medicine with the humanities, behavioral sciences and military service. Specific topics will include medical history, economics, ethics and the basics of clinical practice. The seminar will facilitate the development of knowledge and skills key to medical school applications, improve interview skills and monitor progress during the MCAT preparation process. THIS IS A PILOT COURSE NOT YET OFFICIALLY APPROVED BY THE GC.

**Lessons:** 10 @ 75 min (0.750 Att/wk)

**Labs:** 0 @ 0 min

**Special Requirements:**

None

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<b>CH362</b>	<b>MASS &amp; ENERGY BALANCES</b>	<b>3.5 Credit Hours</b> <b>(BS=0.0,ET=3.5,MA=0.0)</b>
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**Scope:**

2014-2

**Offerings:**

2019-2 2020-2 2021-2

Introduction to mass and energy balances in single phase and multiphase, nonreactive and reactive systems. Course topics include an introduction to engineering calculations and process variables, use of computers in solving chemical engineering problems, fundamentals of material balances in single-phase and multi-phase systems, energy balances on nonreactive and reactive processes, applications of combined material and energy balances, introduction to chemical engineering unit operations, and a general introduction to the field of chemical engineering.

**Lessons:** 40 @ 55 min (2.500 Att/wk)

**Labs:** 7 @ 120 min

**Special Requirements:**

None

**Prerequisite(s):**

CH102  
-Or-  
CH152

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<b>CH363</b>	<b>SEPARATION PROCESSES</b>	<b>3.5 Credit Hours</b> <b>(BS=0.0,ET=3.5,MA=0.0)</b>
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**Scope:**

2010-1

**Offerings:**

2019-1 2020-1 2021-1

This course covers methods for the physical separation of chemicals. Topics include dew point and bubble point calculations, adiabatic flash, distillation, chromatography, liquid-liquid and gas-liquid absorption. Students are taught the significance of staging of unit operations. Heavy emphasis is placed on theory of operation, numerical methods of solution, and simulation.

**Lessons:** 40 @ 55 min (2.500 Att/wk)

**Labs:** 7 @ 120 min

**Special Requirements:**

None

**Prerequisite(s):**

CH362

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<b>CH364</b>	<b>CHEMICAL REACTION ENGINEERING</b>	<b>3.5 Credit Hours</b> <b>(BS=0.0,ET=3.5,MA=0.0)</b>
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**Scope:**

2012-2

**Offerings:**

2019-2 2020-2 2021-2

This course studies the effects of chemical reaction kinetics on systems of engineering significance. It introduces selection and operation of commercial chemical reactors, emphasizing chemical kinetics and transport phenomena. It studies currently practiced engineering techniques associated with each of these reactors. Topics covered in this course include ideal reactors including batch, CSTR and PFR, isothermal and nonisothermal. Other topics may include catalytic reactors, bioreactors, reactors, transient and steady state design, pressure drop in reactors, recycle, stability, and numerical methods.

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 7 @ 120 min

**Special Requirements:** None

**Prerequisite(s):** CH362

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<b>CH365</b>	<b>CHEMICAL ENG THERMODYNAMICS</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=3.0,MA=0.0)</b>
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**Scope:** 2016-1

**Offerings:**

2019-1 2020-1 2021-1

This course covers the body of thermodynamic knowledge necessary for understanding modern chemical process simulation. Students learn the theory behind the thermodynamic methods used in the software. The course includes calculus- and numerical-based thermodynamics approaches for determining the properties of substances, solutions, and multiphase mixtures. Topics include equations of state, pure component properties, transport properties, properties of mixtures, fugacity, excess properties, activity coefficients, and phase equilibria. The problems in the course emphasize engineering applications. Topics covered in class are related to real systems through the use of chemical process simulators.

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** CH363 CH364 MA366 MC312  
-Or-  
CH363 CH364 MA364 MC312  
-Or-  
CH363 CH364 MA365 MC312

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<b>CH367</b>	<b>INTRO / AUTOMATIC PROC CONTROL</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=3.0,MA=0.0)</b>
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**Scope:** 2019-2

**Offerings:**

2019-2 2020-2 2021-2

This course covers the principles necessary to understand the automatic control of chemical processes. Students learn the current mathematical models and mechanical details of various control elements, including sensors, transmitters, actuators, and controllers. Application of mathematical models will be covered with dynamic modeling techniques as well as real-time training using process simulators. The course will also cover tuning of controllers as well as safe response to process upsets. A capstone project will involve dynamic modelling of an integrated process control system. ET pending approval by ABET-PEV

**Lessons:** 40 @ 55 min (3.000 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** EE301 MA366  
-Or-  
EE301 MA364  
-Or-  
EE301 MA365

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<b>CH371</b>	<b>INTRO TO ANALYTICAL CHEM</b>	<b>3.5 Credit Hours</b> <b>(BS=2.0,ET=1.5,MA=0.0)</b>
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**Scope:** 2009-1

**Offerings:**

2019-2 2020-2 2021-2

The course teaches the fundamental concepts of analytical chemistry. Topics include acid-base equilibria, redox potentials, compleximetric titrimetry, separations, electrochemistry, and absorption spectroscopy. The course provides an overview of modern analytical techniques being used in various fields. The course emphasizes the development of rigorous laboratory techniques and introduces the cadet to computer based data acquisition. Cadet laboratory work is evaluated in terms of the student's ability to accurately determine the identity and quantity of an unknown sample.

**Lessons:** 30 @ 55 min (3.000 Att/wk)    **Labs:** 17 @ 120 min

**Special Requirements:** None

**Prerequisite(s):** CH102  
-Or-  
CH152

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<b>CH375</b>	<b>ADVANCED BIOLOGY</b>	<b>4.0 Credit Hours</b> <b>(BS=4.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2017-1

**Offerings:**

This course focuses on the evolution, diversity, structure, and processes of living organisms. The curriculum starts with a description of the structure and function of cells and their metabolism. These topics are used to explain DNA replication, transcription, translation and gene expression. In turn these concepts serve as a foundation of knowledge examining natural selection, population genetics, biodiversity, and ecology. Emphasis is placed on related course material to current environmental issues and disease, particularly as these areas apply to military operations.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 8 @ 120 min

**Special Requirements:** None

**Prerequisite(s):** CH101  
-Or-  
CH151

**Corequisite(s):** CH102

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<b>CH381</b>	<b>INTRO TO ORGANIC CHEMISTRY</b>	<b>3.5 Credit Hours</b> <b>(BS=1.5,ET=2.0,MA=0.0)</b>
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**Scope:** 1992-1

**Offerings:**

No Course Offerings

This one semester course is an introduction to the concepts and material in organic chemistry designed for non-chemistry concentrators. It examines the relationship between chemical structure and the physical and chemical properties of molecules. Functional group reactivity, reaction mechanisms and instrumental methods of structural analysis are also studied. Topics are chosen from the two semester course that are important to environmental and chemical engineering students who are not required to take two semesters of organic chemistry.

**Lessons:** 35 @ 80 min (3.000 Att/wk)      **Labs:** 12 @ 120 min

**Special Requirements:** None

**Prerequisite(s):** CH102  
-Or-  
CH152

**Disqualifier(s):** CH383

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<b>CH383</b>	<b>ORGANIC CHEMISTRY I</b>	<b>3.5 Credit Hours</b> <b>(BS=3.5,ET=0.0,MA=0.0)</b>
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**Scope:** 2010-1

**Offerings:**

2019-1 2020-1 2021-1

Organic chemistry I is an introduction to the relationship between chemical structure and the physical and chemical properties of molecules. A qualitative description of structure and bonding is presented. The relationships between free energy changes and equilibria, and between activation energy and rate of reaction are developed. Stereochemistry and isomerism are explored. The concept of the mechanism of reaction is presented and the relationships between mechanism, the least energy path, stable intermediates and transition states are exemplified by the reactions of the alkanes, alkenes, alkyl halides, and alcohols. The use of instrumental methods of structural analysis is also introduced.

**Lessons:** 35 @ 80 min (3.000 Att/wk)      **Labs:** 12 @ 120 min

**Special Requirements:** None

**Prerequisite(s):** CH102  
-Or-  
CH152

**Disqualifier(s):** CH381

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<b>CH384</b>	<b>ORGANIC CHEMISTRY II</b>	<b>3.5 Credit Hours</b> <b>(BS=3.5,ET=0.0,MA=0.0)</b>
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**Scope:** 2010-2

**Offerings:**

2019-2 2020-2 2021-2

The reactions of the important functional groups are explored: conjugated alkenes; aldehydes; ketones; carboxylic acids; and amines. The concept of aromaticity is explored and its mechanistic implications are developed. Selected topics in carbohydrate and lipid chemistry are also studied. Functional group interconversions and synthetic strategy are presented. The laboratory capstone synthesis introduces cadets to multi-step synthetic sequences.

**Lessons:** 35 @ 80 min (3.000 Att/wk)      **Labs:** 12 @ 120 min

**Special Requirements:** None

**Prerequisite(s):** CH383



CH385	INTRODUCTION TO CELL BIOLOGY	3.5 Credit Hours (BS=3.5,ET=0.0,MA=0.0)
<b>Scope:</b>	2011-1	<b>Offerings:</b>
The course will cover the structure and function of prokaryotic and eukaryotic cells. The course will present a detailed discussion on the molecular biology of DNA replication, transcription, translation, the control of gene expression, cell-to-cell signaling, and the cytoskeleton. Emphasis will be placed on research methods and techniques that have lead to our understanding of how the cell works.		2019-1 2020-1 2021-1
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 7 @ 120 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	CH375	
CH387	HUMAN PHYSIOLOGY	3.5 Credit Hours (BS=3.5,ET=0.0,MA=0.0)
<b>Scope:</b>	2015-2	<b>Offerings:</b>
This course consists of an in-depth study of human physiology and the interrelationships between major organs and systems of the body. This course will concentrate on homeostatic reflex mechanisms of the human body. Major topics covered include endocrinology, neural physiology, muscles, cardiovascular physiology, respiratory physiology, renal physiology, digestion, immunology, and reproductive physiology. The laboratory program reinforces the foundational principles of thermoregulation, muscle, cardiac, respiratory, neural, sensory and renal physiology and introduces cadets to basic laboratory measurements and diagnostics for each of those subjects.		No Course Offerings
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 8 @ 120 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	CH375	
CH387	HUMAN PHYSIOLOGY	3.5 Credit Hours (BS=3.5,ET=0.0,MA=0.0)
<b>Scope:</b>	2018-2	<b>Offerings:</b>
This course consists of an in-depth study of human physiology and the interrelationships between major organs and systems of the body. This course will concentrate on homeostatic reflex mechanisms of the human body. Major topics covered include endocrinology, neural physiology, muscles, cardiovascular physiology, respiratory physiology, renal physiology, digestion, immunology, and reproductive physiology. The laboratory program reinforces the foundational principles of thermoregulation, muscle, cardiac, respiratory, neural, sensory and renal physiology and introduces cadets to basic laboratory measurements and diagnostics for each of those subjects.		2019-2 2020-2 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 8 @ 120 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	CH375 -Or- CH275	
CH388	GENETICS	3.0 Credit Hours (BS=3.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2013-1	<b>Offerings:</b>
Genetics is the science of heredity. It is concerned with the physical and chemical properties an organism's genome, how the genome is transmitted from one generation to the next, and how genes are expressed in the development and function of an organism. Heredity is the process by which all living things produce offspring like themselves. This capacity for self-reproduction involves the transmission from parent to offspring of genetic information. This course is intended to develop an understanding the basic principles of genetics and to develop an ability to apply these principles to solve problems involving heredity. These genetic principles are built on a foundational understanding of DNA structure and replication, as well as basic cellular processes such as transcription and translation. Students will learn basic Mendelian genetics and progress to more complex genetic problems. These principles will be applied in the laboratory through the completion of a Mendelian genetics project.		2019-1 2019-2 2020-2 2021-2
<b>Lessons:</b> 36 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 4 @ 55 min	
<b>Special Requirements:</b>	All cadets will complete a Mendelian Project.	
<b>Corequisite(s):</b>	CH375	

CH389	ADVANCED LAB PROJECTS I	1.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2012-1	<b>Offerings:</b>
The development of usable protocols, procedures, or laboratory experiments to advance current research projects directed by a member of the faculty. Individual cadets must gain the consent of the faculty member and present project title and scope of proposed effort for Program Director approval.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	LESSONS and LABS: Established by consultation between the cadet and his/her faculty advisor. Cadets are expected to perform an average of 3 hours of work per week towards completion of the project.	
<b>Prerequisite(s):</b>	CH101 -Or- CH151	
CH390	ADVANCED LAB PROJECTS II	1.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2012-1	<b>Offerings:</b>
The development of usable protocols, procedures, or laboratory experiments to advance current research projects directed by a member of the faculty. Project can be either a continuation of CH389 or a new project limited to the scope of 1.5 credit hours. Individual cadets must gain the consent of the faculty member and present project title and scope of proposed effort for Program Director approval.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	LESSONS and LABS: Established by consultation between the cadet and his/her faculty advisor. Cadets are expected to perform an average of 3 hours of work per week towards completion of the project.	
<b>Prerequisite(s):</b>	CH389	
CH391	ADV LAB PROJECTS III	1.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2017-2	<b>Offerings:</b>
The development of usable protocols, procedures, or laboratory experiments to advance current research projects directed by the member of the faculty. Project can be either a continuation of CH390 or a new project limited to the scope of 1.5 credit hours. Individual cadets must gain the consent of the faculty member and present the project title and scope of the proposed effort for Program Director approval.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	LESSONS and LABS: Established by consultation between the cadet and his/her faculty advisor. Cadets are expected to perform an average of 3 hours of work per week towards completion of the project.	
<b>Prerequisite(s):</b>	CH390	
CH392	ADVANCED LAB PROJECTS IV	1.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2018-2	<b>Offerings:</b>
The development of usable protocols, procedures, or laboratory experiments to advance current research projects directed by a member of the faculty. Project can be either a continuation of CH391 or a new project limited to the scope of 1.5 credit hours. Individual cadets must gain the consent of the faculty member and present project title and scope of proposed effort for Program Director approval.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	LESSONS and LABS: Established by consultation between the cadet and his/her faculty advisor. Cadets are expected to perform an average of 3 hours of work per week towards completion of the project.	
<b>Prerequisite(s):</b>	CH391	
CH399	TOPICS IN CHEM/LS/CHMENG	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2010-7	<b>Offerings:</b>

This course provides in-depth study of a special topic in chemistry, chemical engineering and life science not offered elsewhere in the USMA curriculum. Course content will be based on the special expertise of the Visiting Professor, Rotating PhD, or a senior faculty member. This course may also be offered as an AIAD course at USMA.

2019-1 2019-2 2020-2  
2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** None

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<b>CH399A</b>	<b>TOPICS IN CHEM/LS/CHMENG</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2017-2

**Offerings:**

This course provides in-depth study of a special topic in chemistry, chemical engineering and life science not offered elsewhere in the USMA curriculum. Course content will be based on the special expertise of the Visiting Professor, Rotating PhD, or a senior faculty member. This course may also be offered as an AIAD course at USMA.

No Course Offerings

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** None

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<b>CH400</b>	<b>CHEM ENG PROFESSIONAL PRACTICE</b>	<b>1.5 Credit Hours (BS=0.0,ET=1.5,MA=0.0)</b>
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**Scope:** 2016-2

**Offerings:**

The course will meet once per week and will cover topics such as ethics, continuing education, and global and social issues within chemical engineering. Special emphasis will be placed on preparation for the Fundamentals of Engineering Exam using practice problems and graded practice exams. The course also covers professional plant engineering using plant simulators and mock exercises to teach proper troubleshooting and response techniques.

2019-2 2020-2 2021-2

**Lessons:** 20 @ 55 min (1.250 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** CH365 CH459 CH485

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<b>CH402</b>	<b>CHEM ENG PROCESS DESIGN</b>	<b>3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)</b>
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**Scope:** 2016-2

**Offerings:**

This course provides a capstone experience that brings together material from previous courses to examine contemporary problems in chemical engineering process design. The course provides instruction in the conceptual design of processes to achieve design goals, as well as the economic optimization of the process. The course emphasizes the use of computer simulations, theory of unit operations, process control, safety, environmental and economic factors. The effect of changes in design on the process economics will be investigated. Written and oral design reports for the capstone design project are required.

2019-2 2020-2 2021-2

**Lessons:** 40 @ 55 min (3.000 Att/wk)    **Labs:** 7 @ 120 min

**Special Requirements:** The completion of significant out-of-class design problems requiring the equivalent of 2.5 credit hour of student effort. Compensatory time is provided to complete the design requirement.

**Prerequisite(s):** CH365 CH459 CH485

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<b>CH457</b>	<b>MICROBIOLOGY</b>	<b>3.5 Credit Hours (BS=3.5,ET=0.0,MA=0.0)</b>
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**Scope:** 2013-1

**Offerings:**

This course introduces the diversity of microorganisms in all three domains of life. The course covers prokaryotic cell structure and function, growth, genetics, and metabolism. The course will survey five major groups of microorganisms: eubacteria, archaea, protozoa, fungi and viruses including ecology, their role in human disease and their applications in medicine, industry and warfare. Cadets have the opportunity to explore both a viral and a bacterial disease in-depth and present their findings in a briefing and a paper. The 18-hour laboratory program focuses on practical applications of concepts covered in class, with a particular emphasis on the eubacteria. The lab program culminates with a hands-on laboratory examination.

2019-1 2020-1 2021-1

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 7 @ 120 min

**Special Requirements:** None

**Prerequisite(s):** CH375

CH459	CHEM ENGR LABORATORY	3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)
<b>Scope:</b>	2011-1	<b>Offerings:</b>
This course provides laboratory experience in selected chemical engineering unit operations, such as gas absorption, evaporation, distillation, liquid-liquid extraction, cooling tower, heat exchanger, and chemical reactors. Process control and process safety are emphasized in laboratory and classroom instruction. Written and oral reports required.		
<b>Lessons:</b> 7 @ 120 min (3.000 Att/wk)	<b>Labs:</b> 40 @ 120 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	CH362 CH363 CH364	
CH460	HUMAN ANATOMY	3.5 Credit Hours (BS=3.5,ET=0.0,MA=0.0)
<b>Scope:</b>	2013-2	<b>Offerings:</b>
This course is designed to provide cadets with a detailed study of the anatomical structure of the human body. Body structure will be studied by organ systems and will involve a balance between gross anatomical study and histology. Form-function relationships will be emphasized. The laboratory study will involve working with human skeletal collections and virtual dissection of cadavers and preserved specimens. The 14-hour laboratory program focuses on structural identification (naming) of human and mammalian anatomy and various imaging modalities (e.g., radiographs, CT scans), and computer programs. Cadets that successfully complete this course will have a good understanding of human body structure, construction, and function.		
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 7 @ 120 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	CH102 CH375 CH387 -Or- CH102 CH385 CH387 -Or- CH152 CH375 CH387 -Or- CH152 CH385 CH387	
CH471	POLYMER CHEMISTRY	3.5 Credit Hours (BS=3.5,ET=0.0,MA=0.0)
<b>Scope:</b>	2016-2	<b>Offerings:</b>
This course is an introduction to modern polymer chemistry. It provides an introduction to macromolecules and their properties. It covers polymerization methods, copolymerization, the morphology of polymers, and the testing and characterization of polymer products. The course also introduces polymer additives, natural and biomedical polymers and modern polymer applications, emphasizing the military uses of polymer products.		
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 7 @ 120 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	CH102 -Or- CH152	
CH472	INORGANIC CHEMISTRY	3.5 Credit Hours (BS=3.5,ET=0.0,MA=0.0)
<b>Scope:</b>	2013-1	<b>Offerings:</b>
This course features an in-depth study of main group and transition elements and their compounds, with emphasis on chemical bonding and both atomic and molecular structures. The fundamentals of quantum chemistry to include the valence bond and molecular orbital theories as applied to inorganic chemistry are studied. An introduction to symmetry/group theory, coordination chemistry/crystal field theory, chemistry in aqueous and nonaqueous solutions, and organometallic compounds are also included in the course. Chemical principles and spectroscopic techniques will also be emphasized. Journal articles from the chemical literature are used to supplement the text with topics of current interest.		
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 7 @ 120 min	
<b>Special Requirements:</b>	None	

**Prerequisite(s):**

-Or-  
CH384 CH481

**CH473****BIOCHEMISTRY**

**3.5 Credit Hours**  
(BS=3.5,ET=0.0,MA=0.0)

**Scope:**

2013-1

**Offerings:**

This course is an introduction to biochemical systems and concentrates on studying them from the molecular approach. Three themes are emphasized: 1) Structure - Function relationships, 2) Metabolism, and 3) Regulation of the systems and processes studied. The fundamental goals of the course are to provide students the basic knowledge of biochemistry and to give them a framework for analyzing problems and questions in life science studies. Additional emphasis is placed on familiarizing students with the experimental techniques used in biochemistry and their application to current issues of interest.

2019-2 2020-2 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)**Labs:** 7 @ 120 min**Special Requirements:**

None

**Corequisite(s):**

CH384

**CH474****INSTRU METHODS OF ANALYSIS**

**3.5 Credit Hours**  
(BS=3.5,ET=0.0,MA=0.0)

**Scope:**

2013-1

**Offerings:**

A laboratory course designed to develop proficiency in the selection and use of modern instrumental methods of chemical analysis. Topics include atomic spectroscopy, molecular absorption and fluorescence spectroscopy, infrared and Raman spectroscopy, nuclear magnetic resonance and mass spectrometry, and chromatography. The laboratory program includes a Capstone experimental procedure and methodology design component. Cadet laboratory work is evaluated in terms of the student's ability to determine the proper instrumental methodology to analyze a chemical sample.

2019-1 2020-1 2021-1

**Lessons:** 32 @ 55 min (2.500 Att/wk)**Labs:** 15 @ 120 min**Special Requirements:**

One project report on a selected research topic.

**Prerequisite(s):**

CH371 PH204

-Or-

CH371 PH254

-Or-

CH371 PH202

-Or-

CH371 PH252

-Or-

CH371 PH206

-Or-

CH371 PH256

**Corequisite(s):**

CH384

**CH479****METHODS & APPS OF BIOTECH**

**3.5 Credit Hours**  
(BS=3.5,ET=0.0,MA=0.0)

**Scope:**

2013-2

**Offerings:**

This course is intended to reinforce topics learned in other life science courses by studying laboratory and practical applications of biotechnology. Laboratories will concentrate on biotechnology methods including purification, separation, and identification of DNA, RNA and protein. Other biotechnology techniques that will be studied include recombinant DNA techniques, PCR, and DNA sequencing. Classroom lessons will include discussions of assigned readings on the modern applications of biotechnology.

2019-2 2020-2 2021-2

**Lessons:** 23 @ 55 min (2.500 Att/wk)**Labs:** 24 @ 120 min**Special Requirements:**

None

**Prerequisite(s):**

CH388 CH457

**CH481****PHYSICAL CHEMISTRY I**

**3.5 Credit Hours**  
(BS=3.5,ET=0.0,MA=0.0)

**Scope:**

2010-1

**Offerings:**

The major areas of study in this course are chemical thermodynamics with a special focus on chemical equilibrium, and chemical kinetics, introduction to intermolecular interactions. Some of the specific topics covered include properties of real gases, the kinetic theory of gases, the laws of thermodynamics as related to chemical systems, diffusion as a description of mass transport, rates of chemical reactions, and molecular reaction dynamics. The laboratory program illustrates the fundamental topics covered through precision measurements, utilizing modern instrumental and computational methods.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 7 @ 120 min

**Special Requirements:** None

**Corequisite(s):** CH383

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<b>CH482</b>	<b>PHYSICAL CHEMISTRY II</b>	<b>3.5 Credit Hours</b> <b>(BS=3.5,ET=0.0,MA=0.0)</b>
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**Scope:** 2010-2

**Offerings:**

This course builds on the concepts covered in CH481 through a study of the quantum mechanics of atoms and molecules, their interaction with radiation, and statistical thermodynamics. Some of the specific topics covered include the electronic structure of atoms and molecules, molecular geometry, molecular symmetry, several types of spectroscopy used for identification and monitoring of the local molecular environment, and the details of molecular motion. Various levels of theory are used to obtain increasingly more accurate descriptions of atomic and molecular systems with user-friendly software tools. Statistical thermodynamics enables understanding about the connection between the microscopic details in quantum mechanics and the macroscopic observations made in the laboratory. The laboratory program illustrates the fundamental topics through use of modern instrumental and computational methods.

2019-2 2020-2 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 7 @ 120 min

**Special Requirements:** None

**Prerequisite(s):**  
-Or-  
CH481

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<b>CH485</b>	<b>HEAT AND MASS TRANSFER</b>	<b>3.5 Credit Hours</b> <b>(BS=0.0,ET=3.5,MA=0.0)</b>
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**Scope:** 2014-1

**Offerings:**

This course includes the study of the mechanisms of energy and mass transport, with special emphasis on applications in engineering systems. Coverage includes Fourier's Law of Heat Conduction, and Fick's Law of Diffusion, the development of shell energy and species balances, and the use of these equations to solve for temperature and concentration profiles in chemical engineering systems. An important emphasis in the course is the use of transport equations to understand species diffusion, convection, and chemical reaction in equipment design.

**Lessons:** 44 @ 55 min (3.000 Att/wk)      **Labs:** 3 @ 120 min

**Special Requirements:** None

**Prerequisite(s):**  
MA366 MC312  
-Or-  
MA364 MC312  
-Or-  
MA365 MC312

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<b>CH487</b>	<b>ADVANCED CHEMISTRY LABORATORY</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2016-2

**Offerings:**

In this laboratory course cadets will further develop their knowledge and understanding of organic and inorganic syntheses, quantitative and qualitative instrumental analysis, and applications of physical chemistry principles to molecular structure and kinetics. They will carry out experiments based on current needs and applications of the Army. Cadets and faculty will also discuss current research and present their work.

2019-2 2020-2 2021-2

**Lessons:** 5 @ 55 min (2.500 Att/wk)      **Labs:** 35 @ 120 min

**Special Requirements:** Library research and written reports are required. All cadets will complete an integrative experience group project that will investigate the social, political and economical implications of chemistry.

**Prerequisite(s):** CH474

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<b>CH489</b>	<b>INDIVIDUAL RESEARCH I</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2013-1	<b>Offerings:</b>
This undergraduate research course is designed to significantly advance the cadet's knowledge and comprehension of science and/or engineering by answering a real world scientific question. Course work includes defining a problem, understanding related issues, designing an experimental approach, analyzing data, and drawing conclusions. By applying the scientific method to attempt to solve an actual problem, cadets will expand their critical thinking and intellectual capability. Cadets are supervised by a faculty advisor with expertise in the chosen research area. Cadets conduct research individually but may be part of a larger group working on a project with a broad scope. The minimum requirement for moving onto CH490 is a defined problem and hypothesis, a background in related research, and an experimental design. The Head of the Department will approve cadet projects. Lessons and labs will be established through consultation between cadet and advisor. Requirements include both written and oral progress reports.		2018-4 2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b>	0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	LESSONS and LABS: Established by consultation between the cadet and his/her faculty advisor. Cadets are expected to perform an average of 7.5 hours of work per week towards completion of the project.	
<b>Prerequisite(s):</b>	CH102 -Or- CH152	
<b>CH490</b>	<b>INDIVIDUAL RESEARCH II</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2013-1	<b>Offerings:</b>
With the same outcome goal as CH489 of significantly advancing the cadet's knowledge and comprehension of science and engineering into answering a real world scientific question, this course typically involves experimentation, data analysis, data evaluation, and publishing results. Cadets are supervised by a faculty advisor with expertise in the chosen research area. Cadets conduct research individually but may be part of a larger group working on a project with a broad scope. This course could conclude in a poster presentation, publication and/or a conference presentation as the undergraduate researcher contributes to the larger scientific community. Requirements include both a written final report and an oral presentation.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b>	0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	LESSONS and LABS: Established by consultation between the cadet and his/her faculty advisor. Cadets are expected to perform an average of 7.5 hours of work per week towards completion of the project.	
<b>Prerequisite(s):</b>	CH489	
<b>CH491</b>	<b>ADVANCED INDIVIDUAL STUDY I</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2012-1	<b>Offerings:</b>
This undergraduate research course is structured similarly to both CH489 and CH490. In this course, a cadet may continue on an established research problem or begin a new line of investigation. The minimum requirement for moving onto CH491 is a defined problem and hypothesis, a background in related research, and an experimental design. Requirements include both written and oral progress reports. Written recommendation from Department Head must be presented to ORD and approved by the Dean of the Academic Board as this course constitutes a third semester of independent study.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b>	0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	LESSONS and LABS: Established by consultation between the cadet and his/her faculty advisor. Cadets are expected to perform an average of 7.5 hours of work per week towards completion of the project.	
<b>Prerequisite(s):</b>	CH490	
<b>CH492</b>	<b>ADVANCED INDIVIDUAL STUDY II</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2012-1	<b>Offerings:</b>
The Advanced Individual Study provides cadets the unique opportunity to complete a carefully defined question or problem researched over the course of the previous 1.5 to 2 years. Based in research, this problem may be critical, experimental, applied, or creative in nature, and represents an effort to make an original contribution to the field. The Research Thesis is a culmination of a research effort that goes beyond normal requirements of the major and represents the cadet's best work in their discipline. Each thesis must demonstrate clear critical thinking, a mastery of disciplinary material, clarity in communication of complex ideas, and professionalism in production. Cadets must complete a written thesis and present an oral thesis defense to the faculty and staff. Additionally cadets having completed a year of research on one topic would be able to explore another researcher topic altogether. Written recommendation from Department Head must be presented to ORD and approved by the Dean of the Academic Board.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2

**Lessons:** 0 @ 0 min (0.000 Att/wk)**Labs:** 0 @ 0 min**Special Requirements:**

LESSONS and LABS: Established by consultation between the cadet and his/her faculty advisor. Cadets are expected to perform an average of 7.5 hours of work per week towards completion of the project.

**Prerequisite(s):**

CH490

**CH499****TOPICS IN CHEM/LS/CHMENG W/LAB**
**3.5 Credit Hours**  
**(BS=0.0,ET=0.0,MA=0.0)**
**Scope:**

2010-7

**Offerings:**

This course provides in-depth study of a special topic in chemistry, chemical engineering and life science not offered elsewhere in the USMA curriculum. Course content will be based on the special expertise of the Visiting Professor, Rotating PhD, or a senior faculty member. This course may also be offered as an AIAD course at USMA. This course will contain significant lab content to justify 3.5 credit hours.

2019-1 2020-1

**Lessons:** 40 @ 55 min (2.500 Att/wk)**Labs:** 7 @ 120 min**Special Requirements:**

None

**Prerequisite(s):**
 CH102  
 -Or-  
 CH152



## Department of Civil and Mechanical Engineering

### 78 Courses

<b>CE189</b>	<b>INDEPENDENT STUDY IN CE (1CR)</b>	<b>1.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2018-1	<b>Offerings:</b>
The cadet pursues study of a research or design topic in civil engineering on an individual or small group basis, independent of a formal classroom setting. The scope of the course is tailored to the needs of the project and interests of the cadet in consultation with a faculty advisor. Activities vary by project but include defining the problem, studying the fundamentals involved, organizing an approach, performing research, achieving a solution, submitting a written report, and giving a formal briefing.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 13 @ 55 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	Enrollment by permission of Civil Engineering Program Director. Appropriate ET credit will be determined by the Civil Engineering Program Director on a case by case basis. Other requirements as determined by the Faculty Advisor.	
<b>CE189A</b>	<b>INDEPENDENT STUDY IN CE (1CR)</b>	<b>1.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2018-1	<b>Offerings:</b>
The cadet pursues study of a research or design topic in civil engineering on an individual or small group basis, independent of a formal classroom setting. The scope of the course is tailored to the needs of the project and interests of the cadet in consultation with a faculty advisor. Activities vary by project but include defining the problem, studying the fundamentals involved, organizing an approach, performing research, achieving a solution, submitting a written report, and giving a formal briefing.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 13 @ 55 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	Enrollment by permission of Civil Engineering Program Director. Appropriate ET credit will be determined by the Civil Engineering Program Director on a case by case basis. Other requirements as determined by the Faculty Advisor.	
<b>Prerequisite(s):</b>	CE189	
<b>CE189B</b>	<b>INDEPENDENT STUDY IN CE (1CR)</b>	<b>1.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2018-1	<b>Offerings:</b>
The cadet pursues study of a research or design topic in civil engineering on an individual or small group basis, independent of a formal classroom setting. The scope of the course is tailored to the needs of the project and interests of the cadet in consultation with a faculty advisor. Activities vary by project but include defining the problem, studying the fundamentals involved, organizing an approach, performing research, achieving a solution, submitting a written report, and giving a formal briefing.		2019-1 2019-2
<b>Lessons:</b> 13 @ 55 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	Enrollment by permission of Civil Engineering Program Director. Appropriate ET credit will be determined by the Civil Engineering Program Director on a case by case basis. Other requirements as determined by the Faculty Advisor.	
<b>Prerequisite(s):</b>	CE189A	
<b>CE201</b>	<b>INTRO TO CIVIL ENGINEERING</b>	<b>1.0 Credit Hours (BS=0.0,ET=1.0,MA=0.0)</b>
<b>Scope:</b>	2019-1	<b>Offerings:</b>
This course introduces cadets to the civil engineering profession. The course consists of classroom instruction and activities that addresses who civil engineers are, what they build, how they design, and how the West Point Civil Engineering program prepares cadets to enter the profession.		2019-1 2020-1 2021-1
<b>Lessons:</b> 10 @ 75 min (0.630 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	

<b>CE289</b>	<b>INDEPENDENT STUDY IN CE (2CR)</b>	<b>2.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2018-1	<b>Offerings:</b>
The cadet pursues study of a research or design topic in civil engineering on an individual or small group basis, independent of a formal classroom setting. The scope of the course is tailored to the needs of the project and interests of the cadet in consultation with a faculty advisor. Activities vary by project but include defining the problem, studying the fundamentals involved, organizing an approach, performing research, achieving a solution, submitting a written report, and giving a formal briefing.		2019-1 2019-2
<b>Lessons:</b> 27 @ 55 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	Enrollment by permission of Civil Engineering Program Director. Appropriate ET credit will be determined by the Civil Engineering Program Director on a case by case basis. Other requirements as determined by the Faculty Advisor.	
<b>CE289A</b>	<b>INDEPENDENT STUDY IN CE (2CR)</b>	<b>2.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2018-1	<b>Offerings:</b>
The cadet pursues study of a research or design topic in civil engineering on an individual or small group basis, independent of a formal classroom setting. The scope of the course is tailored to the needs of the project and interests of the cadet in consultation with a faculty advisor. Activities vary by project but include defining the problem, studying the fundamentals involved, organizing an approach, performing research, achieving a solution, submitting a written report, and giving a formal briefing.		No Course Offerings
<b>Lessons:</b> 27 @ 55 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	Enrollment by permission of Civil Engineering Program Director. Appropriate ET credit will be determined by the Civil Engineering Program Director on a case by case basis. Other requirements as determined by the Faculty Advisor.	
<b>Prerequisite(s):</b>	CE289	
<b>CE289B</b>	<b>INDEPENDENT STUDY IN CE (2CR)</b>	<b>2.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2018-1	<b>Offerings:</b>
The cadet pursues study of a research or design topic in civil engineering on an individual or small group basis, independent of a formal classroom setting. The scope of the course is tailored to the needs of the project and interests of the cadet in consultation with a faculty advisor. Activities vary by project but include defining the problem, studying the fundamentals involved, organizing an approach, performing research, achieving a solution, submitting a written report, and giving a formal briefing.		No Course Offerings
<b>Lessons:</b> 27 @ 55 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	Enrollment by permission of Civil Engineering Program Director. Appropriate ET credit will be determined by the Civil Engineering Program Director on a case by case basis. Other requirements as determined by the Faculty Advisor.	
<b>Prerequisite(s):</b>	CE289B	
<b>CE350</b>	<b>INFRASTRUCTURE ENGINEERING</b>	<b>3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)</b>
<b>Scope:</b>	2011-1	<b>Offerings:</b>
This course identifies, analyzes, and assesses built infrastructure which is the foundation for modern society. The complex and interconnected nature of infrastructures is investigated and demands on critical components are calculated. Students explore the non-technical factors necessary for the functioning of infrastructure including supplies, trained personnel, and cross-sector dependencies. The course provides a basis for understanding the complexity and cost of maintaining, rebuilding and developing infrastructure. Major blocks of instruction include water and wastewater, power, transportation, solid waste, communications systems, and public administration. Several in-class scenarios are provided to synthesize the connectivity between the major items of infrastructure. Finally, as infrastructure is one of the six variables in the joint operating environment, the knowledge gained is employed to analyze infrastructure in the context of combat operations.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	

<b>Special Requirements:</b>	None	
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<b>CE371</b>	<b>SOIL MECHANICS/FNDTN ENGNRG</b>	<b>3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)</b>
<b>Scope:</b>	2018-2	<b>Offerings:</b>
Soil Mechanics is the study of soil properties which govern the use of soil as a construction or foundation material. The course is devoted to describing soils, analyzing soil stresses, determining consolidation settlement, designing earth embankments, determining earth pressures, and designing foundations based upon applicable engineering principles and recognition of the fundamental concepts of soil behavior. During laboratory periods the student will examine soil properties and extract necessary parameters for design.		2019-2 2020-2 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 7 @ 120 min	
<b>Special Requirements:</b>	Design problems and a laboratory summary report; compensatory time provided. One day-long field trip.	
<b>Prerequisite(s):</b>	MA206 -Or- MA206X -Or- MA256	
<b>Corequisite(s):</b>	CE364 -Or- MC364	

<b>CE380</b>	<b>HYDROLOGY/HYDRAULIC DESIGN</b>	<b>3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)</b>
<b>Scope:</b>	2009-2	<b>Offerings:</b>
This course studies both hydrology, which is the study of occurrence, movement and distribution of rainfall, and hydraulic design, which is the application of fluid mechanics and other science an engineering disciplines in the design of structures and development of water resources. Hydrologic principles are applied to model and analyze the distribution and movement of rainfall in a watershed. Hydraulic principles are applied to analyze and design flow through systems of reservoirs, channels and culverts. The course makes extensive use of computer simulation models used in engineering practice.		No Course Offerings
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 8 @ 120 min	
<b>Special Requirements:</b>	Three design problems; term project; compensatory time provided. One day-long field trip.	
<b>Prerequisite(s):</b>	CE300 MA206 -Or- CE302 MA206 -Or- MA206 MC300 -Or- MA206 MC302	
<b>Corequisite(s):</b>	ME311 -Or- MC311	

<b>CE380</b>	<b>HYDROLOGY/HYDRAULIC DESIGN</b>	<b>3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)</b>
<b>Scope:</b>	2019-1	<b>Offerings:</b>
This course studies both hydrology, which is the study of occurrence, movement and distribution of rainfall, and hydraulic design, which is the application of fluid mechanics and other science an engineering disciplines in the design of structures and development of water resources. Hydrologic principles are applied to model and analyze the distribution and movement of rainfall in a watershed. Hydraulic principles are applied to analyze and design flow through systems of reservoirs, channels and culverts. The course makes extensive use of computer simulation models used in engineering practice.		2019-2 2020-2 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 8 @ 120 min	
<b>Special Requirements:</b>	Three design problems; term project; compensatory time provided. One day-long field trip.	

**Prerequisite(s):**

-Or-  
 -Or-  
 MA206 MC300  
 -Or-  
 MA206 MC302  
 -Or-  
 MA206X MC300  
 -Or-  
 MA256 MC300

**Corequisite(s):**

-Or-  
 MC311

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<b>CE389</b>	<b>INDEPENDENT STUDY IN CE (3CR)</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:**

2018-1

**Offerings:**

2019-1 2019-2

The cadet pursues study of a research or design topic in civil engineering on an individual or small group basis, independent of a formal classroom setting. The scope of the course is tailored to the needs of the project and interests of the cadet in consultation with a faculty advisor. Activities vary by project but include defining the problem, studying the fundamentals involved, organizing an approach, performing research, achieving a solution, submitting a written report, and giving a formal briefing.

**Lessons:** 40 @ 55 min (0.000 Att/wk)**Labs:** 0 @ 0 min**Special Requirements:**

Enrollment by permission of Civil Engineering Program Director. Appropriate ET credit will be determined by the Civil Engineering Program Director on a case by case basis. Other requirements as determined by the Faculty Advisor.

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<b>CE389A</b>	<b>INDEPENDENT STUDY IN CE (3CR)</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:**

2018-2

**Offerings:**

2019-1

The cadet pursues study of a research or design topic in civil engineering on an individual or small group basis, independent of a formal classroom setting. The scope of the course is tailored to the needs of the project and interests of the cadet in consultation with a faculty advisor. Activities vary by project but include defining the problem, studying the fundamentals involved, organizing an approach, performing research, achieving a solution, submitting a written report, and giving a formal briefing.

**Lessons:** 40 @ 55 min (0.000 Att/wk)**Labs:** 0 @ 0 min**Special Requirements:**

Enrollment by permission of Civil Engineering Program Director. Appropriate ET credit will be determined by the Civil Engineering Program Director on a case by case basis. Other requirements as determined by the Faculty Advisor.

**Prerequisite(s):**

CE389

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<b>CE399</b>	<b>CIVIL ENG PRAC-FIELD ENG</b>	<b>3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)</b>
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**Scope:**

2014-7

**Offerings:**2018-7 2019-7 2020-7  
2021-7

This course provides cadets with an opportunity to learn and practice the field aspects of civil engineering. Topics include plane surveying, introduction to construction materials, wood frame building construction, heavy equipment operations, concrete placement and finishing, roadway construction, steel fabrication, reinforced concrete construction, bridge construction, power production, and environmental systems. Cadets perform actual construction projects as part of course requirements. LESSONS and LABS: 12 lessons of varying length, scheduled across three weeks of full-day instruction during the summer.

**Lessons:** 12 @ 0 min (0.000 Att/wk)**Labs:** 0 @ 0 min**Special Requirements:**

TDY travel to the course location at the U.S. Air Force Academy.

**Prerequisite(s):**

CE302  
 -Or-  
 CE300  
 -Or-  
 MC302  
 -Or-  
 MC300

<b>CE400</b>	<b>CIVIL ENGR PROF PRACTICE</b>	<b>1.0 Credit Hours (BS=0.0,ET=1.0,MA=0.0)</b>
<b>Scope:</b>	2009-2	<b>Offerings:</b>
<p>This seminar consists of 13 class attendances during the spring semester and includes all First Class cadets in the Civil Engineering major. The course focuses on issues related to the professional practice of civil engineering, and is intended to augment and enrich the cadets' CE492 Capstone design experience. Topics include professional roles and responsibilities, professional registration, continuing education, engineering ethics, procurement of work, competitive bidding, quality-based selection processes, and construction management. Cadets are also introduced to the design and construction processes used by the U.S. Army Corps of Engineers. The seminar will include presentations by guest lecturers on topics of current interest in the field of civil engineering. Guest lecturers will be primarily civil engineering practitioners, providing the students an opportunity to interact with professionals in their major field of interest.</p>		No Course Offerings
<b>Lessons:</b>	13 @ 55 min (1.000 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	One essay requirement usually on an ethics topic.	
<b>Corequisite(s):</b>	CE492	
<b>CE401</b>	<b>CIV ENG PROF PRAC AND APP</b>	<b>3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)</b>
<b>Scope:</b>	2019-2	<b>Offerings:</b>
<p>This course prepares cadets to enter the civil engineering profession. The course consists of classroom discussions and activities that address planning their career, analyzing issues in professional engineering ethics, and analyzing and designing solutions to complex engineering problems.</p>		2019-2 2020-2 2021-2
<b>Lessons:</b>	30 @ 75 min (2.000 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	None	
<b>Corequisite(s):</b>	CE494	
<b>CE403</b>	<b>STRUCTURAL ANALYSIS</b>	<b>3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)</b>
<b>Scope:</b>	2017-2	<b>Offerings:</b>
<p>This course addresses the analysis of basic structural forms such as beams, trusses, and frames, which are found in bridges and buildings. Classical deflection techniques such as direct integration and virtual work; and indeterminate analysis techniques such as the force method and displacement method (specifically direct stiffness) are used to determine forces and deflections in elastic structures. Structural analysis computer programs are introduced and directly applied in the solution of graded analysis.</p>		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	One half-day field trip. Compensatory time provided.	
<b>Prerequisite(s):</b>	CE364 -Or- MC364	
<b>CE404</b>	<b>DSN STEEL AND WOOD STRUCTURES</b>	<b>3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)</b>
<b>Scope:</b>	2013-1	<b>Offerings:</b>
<p>This course teaches the engineering thought process through the design of steel structures. The course synthesizes the fundamentals of statics, mechanics of materials, and structural analysis and applies them to the design of structural members, with emphasis on satisfying real-world needs. Topics include an introduction to the design of structural systems, design of steel tension and compression members, design of beams and beam-columns, and an introduction to connection design. All design is performed in accordance with codes and specifications used in current engineering practice. A comprehensive design problem requires development of a design methodology, consideration of alternative solutions, and design of an optimal steel structure to meet stated functional requirements. Seven lessons of the course introduce students to the design of wood tension members, compression members and beams.</p>		No Course Offerings
<b>Lessons:</b>	33 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 7 @ 120 min
<b>Special Requirements:</b>	Problem sets and a semester-long design project; one compensatory lesson provided for the final submission.	
<b>Prerequisite(s):</b>	CE403 -Or- CE453	

CE404	DSN STEEL AND WOOD STRUCTURES	3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)
<b>Scope:</b>	2018-2	<b>Offerings:</b>
<p>This course teaches the engineering thought process through the design of steel structures. The course synthesizes the fundamentals of statics, mechanics of materials, and structural analysis and applies them to the design of structural members, with emphasis on satisfying real-world needs. Topics include an introduction to the design of structural systems, design of steel tension and compression members, design of beams and beam-columns, and an introduction to connection design. Students read, interpret and create structural plans using an intelligent 3D digital modeling and design software. Students analyze structural systems and elements using finite element modeling software. All design is performed in accordance with codes and specifications used in current engineering practice. A comprehensive design problem requires development of a design methodology, consideration of alternative solutions, and design of an optimal steel structure to meet stated functional requirements. Seven lessons of the course introduce students to the design of wood tension members, compression members, beams, and connections.</p>		2019-2 2020-2 2021-2
<b>Lessons:</b>	35 @ 75 min (2.200 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	CE403 -Or- CE453	
CE450	CONSTRUCTION MANAGEMENT	3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)
<b>Scope:</b>	2011-2	<b>Offerings:</b>
<p>This course focuses on the implementation portion of the design process. The management of construction is covered to include scope of work, rough order-of-magnitude estimating, scheduling, planning, progress reporting, resource constraining, and quality control. The roles of the contractor, owner, and designer are explained.</p>		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	One design project requiring a formal oral and written presentation; compensatory time provided.	
<b>Prerequisite(s):</b>	CE350 MC300	
CE472	ADV SOIL MECHNCS/FNDTN ENGRNG	3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)
<b>Scope:</b>	2007-1	<b>Offerings:</b>
<p>Students will extend what they learned in Soil Mechanics and Foundation Engineering and design advanced foundations in this course. Topics covered are: slope stability, field testing, field instrumentation, designing braced excavations, designing piles and drilled shafts, designing flexible walls, designing earth retaining structures, and designing earth structures using geosynthetics.</p>		2019-1 2020-1 2021-1
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	CE371	
CE483	DSN CONC AND MASON STRUCTURES	3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)
<b>Scope:</b>	2013-1	<b>Offerings:</b>
<p>The course introduces the materials and mechanical properties of concrete and masonry, and the design of reinforced concrete and masonry structures. Mix design and strength testing labs develop the concept of proportioning constituents for quality concrete and provide a background in techniques of material testing, quality control, and sound construction practices. The study of reinforced concrete and masonry includes analysis and design of simple structures, resulting in an appreciation for the strength and serviceability of these structures. Current codes and standards are used to guide the practical design of beams, slabs, columns, footings, walls and lintels.</p>		2019-1 2020-1 2021-1
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 8 @ 120 min
<b>Special Requirements:</b>	One field trip.	
<b>Prerequisite(s):</b>	CE403	

<b>CE489</b>	<b>ADV IND STUDY CIVIL ENGRING</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	1984-1	<b>Offerings:</b>
The cadet, on an individual or small group basis, pursues advanced study of a research or design topic in civil engineering. The scope of the course is tailored to the needs of the project and desires of the cadet, in consultation with the Faculty Advisor. The cadet is required to define and analyze the problem, study the fundamentals involved, organize an approach, determine a procedure, perform research and/or achieve a solution, submit a written report, and give a formal briefing.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	As determined by faculty advisor. Many CE489 projects will have a significant laboratory requirement.	
<b>CE489A</b>	<b>ADV IND STUDY CIVIL ENGRING</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	1984-1	<b>Offerings:</b>
The cadet, on an individual or small group basis, pursues advanced study of a research or design topic in civil engineering. The scope of the course is tailored to the needs of the project and desires of the cadet, in consultation with the Faculty Advisor. The cadet is required to define and analyze the problem, study the fundamentals involved, organize an approach, determine a procedure, perform research and/or achieve a solution, submit a written report, and give a formal briefing.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	As determined by faculty advisor. Many CE489A projects will have a significant laboratory requirement.	
<b>Corequisite(s):</b>	CE489	
<b>CE490</b>	<b>TOPICS IN CIVIL ENGINEERING</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	1997-2	<b>Offerings:</b>
This course provides in-depth study of a special topic in engineering mechanics or in structural, geotechnical, environmental, water resources, construction, or transportation engineering not offered elsewhere in the USMA curriculum. The course is intended to broaden the cadet's exposure to the civil engineering discipline. Course content will be based on the special expertise of the visiting professor or a senior civil engineering faculty member.		2019-2 2020-2 2021-2
<b>Lessons:</b> 40 @ 55 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	TBD.	
<b>CE490A</b>	<b>TOPICS IN CIVIL ENGINEERING</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2012-2	<b>Offerings:</b>
This course provides in-depth study of a special topic in engineering mechanics or in structural, geotechnical, environmental, water resources, construction, or transportation engineering not offered elsewhere in the USMA curriculum. The course is intended to broaden the cadet's exposure to the civil engineering discipline. Course content will be based on the special expertise of the visiting professor or a senior civil engineering faculty member.		2019-2 2020-2 2021-2
<b>Lessons:</b> 40 @ 55 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	TBD	
<b>Prerequisite(s):</b>	CE490	
<b>CE491</b>	<b>ADV STRUCTURAL ANALYSIS</b>	<b>3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)</b>
<b>Scope:</b>	2017-2	<b>Offerings:</b>
This course builds upon the material covered in CE403/453 to develop a better understanding of structural behavior. Two-dimensional analysis of trusses and frames is reviewed and extended into 3D. Matrix analysis methods, including an introduction to continuum finite elements are developed as the basis for modern computer-based structural analysis. An introduction to nonlinear analysis is presented. Coursework involves extensive use of the computer as an analytical tool. Students use state-of-the-art structural engineering analysis and design software.		2019-2 2020-2 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	

**Special Requirements:** Graded homework is assigned to reinforce concepts covered in class.

**Prerequisite(s):** CE403

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<b>CE492</b>	<b>DESIGN OF CE SYSTEMS</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=3.0,MA=0.0)</b>
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**Scope:** 2012-2

**Offerings:**

No Course Offerings

This course provides an opportunity for cadets to apply and synthesize their knowledge of structural engineering, geotechnical engineering, hydrology, hydraulic engineering, construction management and engineering economics in an open-ended, realistic, semester-long, capstone design experience. Working in teams, cadets develop functional requirements for a proposed project then perform the civil engineering designs for this facility. Execution of the design requires extensive use of computer-based analysis and design tools. The products of this effort include a comprehensive design report including drawings, a model of the facility, and a briefing to the client. The integrated design experience is augmented by formal classroom instruction in civil engineering systems design and advanced topics in civil engineering component design. This course constitutes the integrative experience for cadets majoring in civil engineering and civil engineering studies.

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** One comprehensive semester-long design problem requiring four submissions and an oral presentation. Compensatory time provided for each submission.

**Prerequisite(s):** CE404 CE483  
-Or-  
CE454 CE483

**Corequisite(s):** CE371 CE380

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<b>CE493</b>	<b>CIV ENG CAPSTONE DESIGN I</b>	<b>3.5 Credit Hours</b> <b>(BS=0.0,ET=3.5,MA=0.0)</b>
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**Scope:** 2019-1

**Offerings:**

2019-1 2020-1 2021-1

CE493 is the first of two courses in the integrative Civil Engineering capstone design experience that prepares cadets for engineering practice. The course is a culminating experience based on the knowledge and skills acquired throughout the program; and incorporates appropriate engineering standards and multiple social, political, economic, and technical design constraints. The course projects require design in more than one civil engineering context; i.e., structural engineering, construction management, hydraulic and hydrologic engineering, geotechnical engineering, materials engineering, and civil site and infrastructure engineering. Cadets are required to conduct iterative analysis and design of solutions to challenging, ill-defined and open-ended problems. Cadets are required to utilize state-of-art engineering software and applications in their projects, which contributes to the West Point IT/Cyber Goal. Every project includes significant written requirements with established faculty mentor assessments and feedback, which contributes the West Point Writing Goal. Cadets begin their capstone assignments early in the course and continue their projects with CE494. (CONDITIONAL APPROVAL in AY16 - Full Review in AY18)

**Lessons:** 40 @ 120 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** CE371 CE380 CE403

**Corequisite(s):** CE404 CE483

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<b>CE494</b>	<b>CIV ENG CAPSTONE DESIGN II</b>	<b>3.5 Credit Hours</b> <b>(BS=0.0,ET=3.5,MA=0.0)</b>
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**Scope:** 2019-2

**Offerings:**

2019-2 2020-2 2021-2

CE494 is the second of two courses in the integrative Civil Engineering capstone design experience that prepares cadets for engineering practice. Projects are continued from CE493 and continue to build upon the program's coursework. Iterative analysis and design reach a culminating state where project reports and presentations are provided to real-world customers or similar conditions. The course environment and requirements will continue to contribute to the West Point Academic Goals; i.e. IT/Cyber and Writing. (CONDITIONAL APPROVAL in AY16 - Full Review in AY18)

**Lessons:** 40 @ 120 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** CE493

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<b>CE495</b>	<b>TRANSPORTATION ENGINEERING</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=3.0,MA=0.0)</b>
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<b>Scope:</b>	2011-2	<b>Offerings:</b>
This course provides cadets with a solid introduction to the principles of transportation engineering with a focus on highway engineering and traffic analysis. The material learned will provide the basic skill set that will allow students to solve transportation problems that are likely to appear in professional practice (civilian and military), on the Fundamentals of Engineering exam (FE), and on the Principles and Practice of Engineering exam (PE).		2019-1 2020-1 2021-1
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	One in-class design exercise.	
<b>Prerequisite(s):</b>	CE371 CE380	
<b>MC300</b>	<b>FUND OF ENGR MECH AND DESIGN</b>	<b>3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)</b>
<b>Scope:</b>	2017-1	<b>Offerings:</b>
The engineering design process and the method of design are introduced. Principles of equilibrium are used to analyze forces on statically determinate rigid bodies and structures to include trusses and frames. The behavior of deformable bodies under axial and flexural loading is examined. The concepts of stress, strain, and material properties are introduced and are used to relate external forces applied to a body to the resulting internal forces and deformations so that performance can be evaluated. Practical applications involving the design and adequacy of mechanical and structural elements under various loading conditions are emphasized.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 34 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 6 @ 120 min	
<b>Special Requirements:</b>	None	
<b>Corequisite(s):</b>	PH205 -Or- PH255 -Or- PH201	
<b>MC302</b>	<b>STATICS &amp; DYNAMICS</b>	<b>3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)</b>
<b>Scope:</b>	2013-2	<b>Offerings:</b>
Statics & Dynamics examines the effect of forces acting on particles and rigid bodies. Vector mechanics is used extensively. The first part of the course, Statics, addresses the topics of equilibrium in two and three dimensions, to include distributed loads, trusses, frames, friction, and cables. The second part, Dynamics, begins with the study of kinematics, including translating and rotating reference frames and coriolis acceleration. The final block of the course deals with two dimensional kinetics methods of force-acceleration, work-energy, and impulse-momentum.		No Course Offerings
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	Homework problems are assigned	
<b>Prerequisite(s):</b>	MA205 -Or- MA255	
<b>Corequisite(s):</b>	PH202 -Or- PH252	
<b>Disqualifier(s):</b>	CE302	
<b>MC306</b>	<b>DYNAMICS</b>	<b>3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)</b>
<b>Scope:</b>	2012-1	<b>Offerings:</b>
Dynamics examines the motion of particles, systems of particles, and rigid bodies under the influence of forces. It focuses on the use of Newton's Second Law, in three major, progressive blocks of instruction: from scalar, then vector, treatments of rectilinear and curvilinear motion of single particles; through vector motion of systems of particles; to general three-dimensional motion of rigid bodies. The course also provides brief introductions to energy methods: work-energy and impulse-momentum.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	Homework problems are assigned.	

<b>Prerequisite(s):</b>	PH201 -Or- PH251 -Or- PH205 -Or- PH255
<b>Corequisite(s):</b>	CE300 -Or- MC300
<b>Disqualifier(s):</b>	ME306

<b>MC311</b>	<b>THERMAL-FLUID SYSTEMS I</b>	<b>3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)</b>
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<b>Scope:</b>	2015-2	<b>Offerings:</b>
Thermal-Fluid Systems I is an integrated study of fundamental topics in thermodynamics and fluid mechanics. The course introduces conservation principles for mass, energy, and linear momentum as well as the 2nd Law of Thermodynamics. Principles are applied to incompressible flow in pipes and turbomachinery, power generation systems, refrigeration cycles, and total air-conditioning focusing on the control volume approach. Laboratory exercises are integrated into classroom work. This course includes completion of a comprehensive, out-of-class design problem. This design problem provides the opportunity for students to apply engineering science and the engineering design process to a hands-on project.		No Course Offerings

**Lessons:** 44 @ 55 min (3.000 Att/wk)      **Labs:** 3 @ 120 min

**Special Requirements:** None

**Prerequisite(s):**

-Or-

-Or-

-Or-

-Or-

-Or-

-Or-

CH151 MA205 PH251

-Or-

CH151 MA255 PH251

-Or-

CH101 MA205 PH205

-Or-

CH101 MA255 PH205

-Or-

CH101 MA205 PH255

-Or-

CH101 MA255 PH255

-Or-

CH151 MA205 PH205

-Or-

CH151 MA255 PH205

-Or-

CH151 MA205 PH255

-Or-

CH151 MA255 PH255

-Or-

CH101 MA205 PH201

<b>MC311</b>	<b>THERMAL-FLUID SYSTEMS I</b>	<b>3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)</b>
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<b>Scope:</b>	2019-1	<b>Offerings:</b>
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Thermal-Fluid Systems I is an integrated study of fundamental topics in thermodynamics and fluid mechanics. The course introduces conservation principles for mass, energy, and linear momentum as well as the 2nd Law of Thermodynamics. Principles are applied to incompressible flow in pipes and turbomachinery, power generation systems, refrigeration cycles, and total air-conditioning focusing on the control volume approach. Laboratory exercises are integrated into classroom work. This course includes completion of a comprehensive, out-of-class design problem. This design problem provides the opportunity for students to apply engineering science and the engineering design process to a hands-on project.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Lessons:** 44 @ 55 min (3.000 Att/wk)      **Labs:** 3 @ 120 min

**Special Requirements:** None

**Prerequisite(s):**

-Or-  
-Or-  
-Or-  
-Or-  
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-Or-  
CH101 MA205 PH205  
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CH101 MA255 PH205  
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CH101 MA205 PH255  
-Or-  
CH101 MA255 PH255  
-Or-  
CH151 MA205 PH205  
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CH151 MA255 PH205  
-Or-  
CH151 MA205 PH255  
-Or-  
CH151 MA255 PH255  
-Or-  
CH101 MA366 PH205  
-Or-  
CH101 MA366 PH255  
-Or-  
CH151 MA366 PH205  
-Or-  
CH151 MA366 PH255  
-Or-  
CH101 MA205 PH201

MC312	THERMAL-FLUID SYSTEMS II	3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)
<b>Scope:</b>	2012-1	<b>Offerings:</b>
MC 312 Thermal-Fluid Systems II continues the integrated study of fundamental topics in thermodynamics and fluid mechanics. The course applies conservation principles for mass, energy, and linear momentum as well as the 2nd Law of Thermodynamics. Principles are applied to an automotive system to examine engine performance (Otto and Diesel Cycles) and to high performance aircraft to examine the Brayton Cycle, compressible flow, external flow, lift, and drag. Laboratory exercises are integrated into classroom work. Design problems provide the opportunity for students to apply engineering science to the design of thermal-fluid systems.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 35 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 5 @ 55 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	MC311 -Or- ME311	
<b>Disqualifier(s):</b>	ME312	

MC364	MECHANICS OF MATERIALS	3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)
<b>Scope:</b>	2018-2	<b>Offerings:</b>
This course studies the behavior of a variety of materials under normal, shear, torsional, bending and combined loads. The concepts of stress, strain, creep, corrosion, failure theory and failure mechanisms are explored. The course examines observed behavior in light of the relationships between the microscopic structure and macroscopic properties of materials used in engineering applications. The loading, geometry, functional environment and material properties of machine or structural parts are used to relate the forces applied to a body to the resulting internal forces and deformations so that performance can be evaluated. Practical applications involving the design and adequacy of mechanical and structural elements under various loading and environmental conditions are emphasized.		2018-7 2019-2 2020-2 2021-2
<b>Lessons:</b> 34 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 6 @ 120 min	
<b>Special Requirements:</b>	Several out of class design problems are given.	
<b>Prerequisite(s):</b>	MC300	
<b>Corequisite(s):</b>	MA205 -Or- MA255 -Or- MA366	
<b>Disqualifier(s):</b>	CE364	
MC380	ENGINEERING MATERIALS	3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)
<b>Scope:</b>	2012-1	<b>Offerings:</b>
Course explores the relationship between the microscopic structure and macroscopic properties of materials used in engineering applications. The origin of mechanical and physical properties is studied. Emphasized is an understanding of the fundamental aspects of atomic and microstructural concepts for proper materials selection and enhancement of engineering properties. Materials under study are metals, ceramics, polymers, composites, nano-sized/structured materials, biomaterials, smart materials, and semi- and super-conductors. Laboratory exercises are incorporated throughout the course to provide practical experience in making decisions concerning material composition and processing in order to optimize engineering properties. Experiences from the field are detailed to demonstrate application of concepts.		No Course Offerings
<b>Lessons:</b> 42 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 5 @ 120 min	
<b>Special Requirements:</b>	The completion of an out-of-class design problem requiring the equivalent of 0.5 credit hours of student effort.	
<b>Prerequisite(s):</b>	CH102 MC364 -Or- CH152 MC364 -Or- CE364 CH102 -Or- CE364 CH152	
<b>Disqualifier(s):</b>	ME380	
MC380	ENGINEERING MATERIALS	3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)
<b>Scope:</b>	2018-2	<b>Offerings:</b>
Course explores the relationship between the microscopic structure and macroscopic properties of materials used in engineering applications. The origin of mechanical and physical properties is studied. Emphasized is an understanding of the fundamental aspects of atomic and microstructural concepts for proper materials selection and enhancement of engineering properties. Materials under study are metals, ceramics, polymers, composites, nano-sized/structured materials, biomaterials, smart materials, and semi- and super-conductors. Laboratory exercises are incorporated throughout the course to provide practical experience in making decisions concerning material composition and processing in order to optimize engineering properties. Experiences from the field are detailed to demonstrate application of concepts.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 42 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 5 @ 120 min	
<b>Special Requirements:</b>	The completion of an out-of-class design problem requiring the equivalent of 0.5 credit hours of student effort.	
<b>Prerequisite(s):</b>	CH102 MC300 -Or- CH152 MC300	

MC478	STRUCTURAL MECHANICS	3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)
<b>Scope:</b>	2013-1	<b>Offerings:</b>
<p>The course extends the coverage of Mechanics of Materials to the analysis of structural elements found in civil and mechanical engineering applications. Topics include stress/strain transformation, Mohr's circle, Generalized Hooke's Law, failure theory, fatigue and fracture mechanics and the basic theory of elasticity in three dimensions. Also covered in varying depth are numerical methods and experimental methods as they apply to structural mechanics. Students investigate the combined effects of axial, torsion, flexural, and shear loads on members with complex geometries and cross sections. Coverage includes the generalized flexure theory and the concept of a shear center, torsion of non-circular cross-sections, and thick-walled cylinders.</p>		2019-1 2020-1 2021-1
<b>Lessons:</b> 37 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 3 @ 55 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	MC364 -Or- CE364	
<b>Disqualifier(s):</b>	CE478	
MC486	VIBRATION ENGINEERING	3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)
<b>Scope:</b>	2013-2	<b>Offerings:</b>
<p>In this course students develop a foundation in the analysis and design of free and forced single and multi-degree of freedom systems. Applications include modeling, damping, resonance, force transmissibility, vibration absorbers, matrix formulation and modal analysis. Emphasis is placed on vibrations examples from several engineering fields. Out-of-class design problems provide students with the opportunity to apply principles taught in the classroom to realistic problems encountered by practicing engineers. In-class demonstrations supplement the theory development.</p>		No Course Offerings
<b>Lessons:</b> 39 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 1 @ 55 min	
<b>Special Requirements:</b>	Two out-of-class design problems. Compensatory time given.	
<b>Prerequisite(s):</b>	MA364 MC306 -Or- MA365 MC306	
<b>Corequisite(s):</b>	MC364	
<b>Disqualifier(s):</b>	ME486	
MC486	VIBRATION ENGINEERING	3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)
<b>Scope:</b>	2018-2	<b>Offerings:</b>
<p>In this course students develop a foundation in the analysis and design of free and forced single and multi-degree of freedom systems. Applications include modeling, damping, resonance, force transmissibility, vibration absorbers, matrix formulation and modal analysis. Emphasis is placed on vibrations examples from several engineering fields. Laboratory experiences provide students with the opportunity to apply principles taught in the classroom to physical systems, allowing the comparison of theoretical and actual vibrating systems. In-class demonstrations supplement the theory development.</p>		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 36 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 4 @ 55 min	
<b>Special Requirements:</b>	One lab-related trip section, compensatory time given.	
<b>Prerequisite(s):</b>	MA364 MC306 -Or- MA365 MC306	
ME189	INTRO IND STUDY IN ME	1.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2017-2	<b>Offerings:</b>
<p>The cadet pursues study of a topic in mechanical engineering on an individual or small group basis, independent of a formal classroom setting. The scope of the selected project is tailored to the interests of the cadet based on resources and in consultation with a faculty advisor. To develop research skills, the cadet is integral in all phases of project completion by defining objectives, studying fundamentals and background material, outlining the approach, conducting analysis, and communicating results.</p>		No Course Offerings

**Lessons:** 13 @ 55 min (0.000 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** Enrollment by permission of Mechanical Engineering Program Director. Appropriate ET credit will be determined by the Mechanical Engineering Program Director on a case by case basis. Other requirements as determined by the Faculty Advisor.

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<b>ME201</b>	<b>INTRO TO MECH ENGINEERING</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=3.0,MA=0.0)</b>
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<b>Scope:</b>	2018-1	<b>Offerings:</b>
<p>This course introduces product design as an iterative decision making process. It also introduces project planning and team dynamics, technical communications, and using computing tools including structured programming and 2-D/3-D visualization and analysis to aid the design process. Cadets solve a series of progressively more challenging problems by applying the design process while addressing social, political, economic and technical issues.</p>		2019-1 2020-1 2021-1

**Lessons:** 32 @ 55 min (2.500 Att/wk)    **Labs:** 8 @ 55 min

**Special Requirements:** None

**Corequisite(s):** PH205  
-Or-  
PH255

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<b>ME289</b>	<b>INDIVIDUAL STUDY IN ME</b>	<b>2.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2017-2	<b>Offerings:</b>
<p>The cadet pursues study of a topic in mechanical engineering on an individual or small group basis, independent of a formal classroom setting. The scope of the selected project is tailored to the interests of the cadet based on resources and in consultation with a faculty advisor. To develop research skills, the cadet is integral in all phases of project completion by defining objectives, studying fundamentals and background material, outlining the approach, conducting analysis, and communicating results.</p>		No Course Offerings

**Lessons:** 27 @ 55 min (0.000 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** Enrollment by permission of Mechanical Engineering Program Director. Appropriate ET credit will be determined by the Mechanical Engineering Program Director on a case by case basis. Other requirements as determined by the Faculty Advisor.

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<b>ME301</b>	<b>THERMODYNAMICS</b>	<b>3.5 Credit Hours</b> <b>(BS=0.0,ET=3.5,MA=0.0)</b>
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<b>Scope:</b>	2004-1	<b>Offerings:</b>
<p>Thermodynamics concerns the study of energy. In this course, the student will gain a basic engineering knowledge of energy applications and limitations. This course provides the groundwork for subsequent studies in engineering sciences and an appreciation of numerous problems associated with energy. Emphasis is placed on practical application to power generation, thermal and air pollution, refrigeration, air conditioning, automotive and aircraft engines, and combustion. Laboratory exercises are integrated into classroom work. This course includes completion of a comprehensive, out-of-class design problem. This design problem provides the opportunity to apply the principles of thermodynamics which are taught in the classroom to a realistic problem encountered by practicing engineers.</p>		No Course Offerings

**Lessons:** 41 @ 55 min (3.000 Att/wk)    **Labs:** 6 @ 120 min

**Special Requirements:** The completion of an out-of-class design problem requiring the equivalent of 0.5 credit hour of student effort. Compensatory time is provided to complete the design requirement.

**Prerequisite(s):** CH101 MA205 PH204  
-Or-  
CH101 MA205 PH254  
-Or-  
CH101 MA255 PH254  
-Or-  
CH101 MA255 PH204  
-Or-  
CH151 MA205 PH204  
-Or-  
CH151 MA205 PH254  
-Or-  
CH151 MA255 PH254  
-Or-  
CH151 MA255 PH204

ME350	INTRO THERMAL SYS W/ ARMY APPL	3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)
<b>Scope:</b>	2005-2	<b>Offerings:</b>
<p>This course is presented within the framework of a common model for the engineering design process. This model serves as a conceptual framework for study in the engineering thermal sciences. This course concerns the study of mediums and energy. The basic conservation laws are developed. The student will gain a basic engineering knowledge of thermal science applications in the Army. Emphasis is placed on practical applications of internal combustion and gas turbine engines and fluid flow. Laboratory exercises are integrated into classroom work.</p>		No Course Offerings
<b>Lessons:</b>	37 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 3 @ 55 min
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	CE300 CH102 -Or- CE300 CH152 -Or- CH102 MC300 -Or- CH152 MC300	
ME362	FLUID MECHANICS	3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)
<b>Scope:</b>	2004-1	<b>Offerings:</b>
<p>Fluid Mechanics is the study of the behavior of liquids and gases under all conditions of rest and motion. The basic conservation laws are developed and applied to problems encountered in stream and pipe flow, modeling, low speed aerodynamics, forces on submerged surfaces, turbomachinery, and flow measurement. The course emphasizes physical concepts as well as mathematics and is augmented by laboratory work and a wide variety of training aids. This course provides the foundation for further study in aerodynamics, energy systems engineering, automotive engineering, civil engineering, and environmental engineering.</p>		No Course Offerings
<b>Lessons:</b>	43 @ 55 min (3.000 Att/wk)	<b>Labs:</b> 4 @ 120 min
<b>Special Requirements:</b>	One design problem; compensatory time provided.	
<b>Prerequisite(s):</b>	CH102 MA205 PH204 -Or- CH102 MA255 PH204 -Or- CH102 MA205 PH254 -Or- CH102 MA255 PH254 -Or- CH152 MA205 PH204 -Or- CH152 MA205 PH254 -Or- CH152 MA255 PH204 -Or- CH152 MA255 PH254	
ME370	COMPUTER AIDED DESIGN	3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)
<b>Scope:</b>	2009-1	<b>Offerings:</b>
<p>Explores the use of computer methods as an aid to solving engineering problems. Computer techniques are studied in a variety of engineering contexts. Topics include 3D solid modeling, engineering analysis, engineering computer programming, and graphical presentation of information. Students learn to apply a variety of engineering-related programs or routines. Students write, document, and use programs of their own in design scenarios. Considerable emphasis is placed on use of the computer as a tool in the engineering design process.</p>		No Course Offerings
<b>Lessons:</b>	27 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 13 @ 120 min
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	MA205 -Or- MA255	
ME370	COMPUTER AIDED DESIGN	3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)

<b>Scope:</b>	2018-2	<b>Offerings:</b>
Explores the use of computer methods as an aid to solving engineering problems. Computer techniques are studied in a variety of engineering contexts. Topics include 3D solid modeling, engineering analysis, engineering computer programming, and graphical presentation of information. Students learn to apply a variety of engineering-related programs or routines. Students write, document, and use programs of their own in design scenarios. Considerable emphasis is placed on use of the computer as a tool in the engineering design process.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b>	27 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 13 @ 120 min
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	MA205 ME201 -Or- MA255 ME201	
<b>ME387</b>	<b>INTRO APPLIED AERODYNAMICS</b>	<b>3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)</b>
<b>Scope:</b>	2015-2	<b>Offerings:</b>
The fundamental laws of fluid mechanics are used to develop the characteristic forces and moments generated by the flow about aerodynamic bodies. Lift, drag, and aerodynamic moments are studied for airfoils (2-D) and finite wings (3-D) in the subsonic and supersonic flow regimes. Theoretical concepts are demonstrated in laboratory sessions that include low-speed wind tunnel testing and actual flight in the Department of Civil and Mechanical Engineering's fixed-wing aircraft.		2019-2 2020-2 2021-2
<b>Lessons:</b>	38 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 2 @ 120 min
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	MC300 MC311	
<b>Corequisite(s):</b>	ME312 -Or- MC312	
<b>ME388</b>	<b>HELICOPTER AERONAUTICS</b>	<b>3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)</b>
<b>Scope:</b>	2016-2	<b>Offerings:</b>
The aerodynamics of helicopter flight is analyzed for hover, translating, and partial power flight. Theory and experimental results are used to predict aircraft performance. The course analyzes the dynamic response of the rotor system and the performance aspects of the vehicle as a whole. This is followed by a design workshop, during which cadets complete the initial sizing of a helicopter to meet specific mission requirements. The course includes one flight lab in a helicopter, a laboratory examining rotor power and thrust utilizing a whirl stand apparatus, and one field trip to a commercial helicopter company.		No Course Offerings
<b>Lessons:</b>	38 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 2 @ 120 min
<b>Special Requirements:</b>	Graded design workshop, whirl-stand laboratory, and flight laboratory briefing.	
<b>Prerequisite(s):</b>	MC300 MC312 ME370	
<b>ME388</b>	<b>HELICOPTER AERONAUTICS</b>	<b>3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)</b>
<b>Scope:</b>	2018-2	<b>Offerings:</b>
The aerodynamics of helicopter flight is analyzed for hover, translating, and partial power flight. Theory and experimental results are used to predict aircraft performance. The course analyzes the dynamic response of the rotor system and the performance aspects of the vehicle as a whole. This is followed by a design workshop, during which cadets complete the initial sizing of a helicopter to meet specific mission requirements. The course includes one flight lab in a helicopter, a laboratory examining rotor power and thrust utilizing a whirl stand apparatus, and one field trip to a commercial helicopter company.		2019-2 2020-2 2021-2
<b>Lessons:</b>	38 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 2 @ 120 min
<b>Special Requirements:</b>	Graded design workshop, whirl-stand laboratory, and flight laboratory briefing.	
<b>Prerequisite(s):</b>	ME370	
<b>ME389</b>	<b>INTRO TO ADV STUDY IN MECH ENG</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>



<b>Scope:</b>	2014-1	<b>Offerings:</b>
The cadet pursues advanced study of a topic in mechanical engineering on an individual or small group basis, independent of a formal classroom setting. Similar to graduate level research, the scope of the selected project is tailored to the interests of the cadet based on resources and in consultation with a faculty advisor. To develop research skills, the cadet is integral in all phases of project completion by defining objectives, studying fundamentals and background material, outlining the approach, conducting analysis, and communicating results.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 40 @ 55 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	Enrollment by permission of Mechanical Engineering Program Director. Appropriate ET credit will be determined by the Mechanical Engineering Program Director on a case by case basis. Other requirements as determined by Faculty Advisor.	
<b>ME389A</b>	<b>INTRO TO ADV STUDY IN MECH ENG</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2014-1	<b>Offerings:</b>
The cadet pursues advanced study of a topic in mechanical engineering on an individual or small group basis, independent of a formal classroom setting. Similar to graduate level research, the scope of the selected project is tailored to the interests of the cadet based on resources and in consultation with a faculty advisor. To develop research skills, the cadet is integral in all phases of project completion by defining objectives, studying fundamentals and background material, outlining the approach, conducting analysis, and communicating results.		2018-7 2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 40 @ 55 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	Enrollment by permission of Mechanical Engineering Program Director. Appropriate ET credit will be determined by the Mechanical Engineering Program Director on a case by case basis. Other requirements as determined by Faculty Advisor.	
<b>Corequisite(s):</b>	ME389	
<b>ME400</b>	<b>MECHANICAL ENGINEERING SEMINAR</b>	<b>2.0 Credit Hours (BS=0.0,ET=2.0,MA=0.0)</b>
<b>Scope:</b>	2013-2	<b>Offerings:</b>
This seminar consists of a series of guest speakers and preparatory lessons for the Fundamentals of Engineering Examination. It will include all First Class cadets majoring in mechanical engineering. Guest Speaker topics will address the concerns of professional mechanical engineers such as engineering ethics, continuing education, engineering economy, social and safety considerations, and professional registration. Project management techniques will be introduced in this seminar as well as presentations by guest lecturers on topics of current interest in the field of mechanical engineering. Guest lecturers will be primarily mechanical engineering practitioners, providing the students an opportunity to interact with professionals in their major field of interest.		2019-1 2019-2 2021-1
<b>Lessons:</b> 26 @ 55 min (1.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>ME403</b>	<b>MANUFACTURING/MACHINE COMP DSN</b>	<b>3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)</b>
<b>Scope:</b>	2009-2	<b>Offerings:</b>
This course is an introduction to mechanical manufacturing machines and machine component design. The first portion of the class is devoted to safe, hands-on experience with manufacturing machines and equipment. Cadets will have an opportunity to work on civil and mechanical manufacturing machines that are common in machine, woodworking, and sheet metal shops such as a mill, lathe, grinder, belt sander, drill press, and bandsaw. The course progresses to fundamental engineering science applied to machine components. These topics include load, stress, and strain analyses, impact, fatigue, and surface damage. The course progresses to the study of machine component design to include mechanical components such as fasteners, springs, bearings, gears, and shafts. Welding techniques and welding equipment are introduced. The course culminates in a team-oriented process, design, and manufacture of a mechanical engineering product using the techniques, tools, machines, and equipment that were developed and taught throughout the course.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 7 @ 110 min	
<b>Special Requirements:</b>	One comprehensive design and manufacturing project.	
<b>Prerequisite(s):</b>	CE300 CE364 -Or- MC300 MC364	

ME404	MECHANICAL ENGINEERING DESIGN	3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)
<b>Scope:</b>	2014-1	<b>Offerings:</b>
This course introduces mechanical engineering design as an iterative decision making process. It also introduces engineering economics and ethics. One engineering design problem reinforces the design process instruction and culminates in a student competition. Cadets begin an integrative capstone design experience that applies the Mechanical Engineering Design Process to a real-world engineering problem addressing social, political, economic, and technical issues. Students begin capstone assignments early in the course and continue their projects with ME496.		2019-1 2020-1 2021-1
<b>Lessons:</b> 15 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 25 @ 55 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	ME403	
ME450	ME DESIGN OF ARMY SYSTEMS	3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)
<b>Scope:</b>	2009-1	<b>Offerings:</b>
This course presents mechanical engineering design as an iterative decision making process. A wide variety of mathematics, science, and engineering fundamentals are applied to the synthesis, analysis, and evaluation of mechanical components. The culminating design project provides an opportunity to experience design and to consider reliability, economics, and the judicious use of resources. A paper design and design and build projects reinforce the design process instruction. The course culminates in a student competition.		No Course Offerings
<b>Lessons:</b> 38 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 2 @ 55 min	
<b>Special Requirements:</b>	Design projects as assigned; compensatory time provided.	
<b>Prerequisite(s):</b>	ME350 -Or- ME311 -Or- MC311	
ME472	ENERGY CONVERSION SYSTEMS	3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)
<b>Scope:</b>	2015-2	<b>Offerings:</b>
Fundamental concepts are extended to the engineering analysis of coal, oil and natural gas fossil fuel systems to assess the dominant sources of energy and technologies in the electric power, transportation, industrial, and residential and commercial energy sectors. Renewable and alternative energy resources including solar, wind, biomass, hydro, geothermal, nuclear and ocean energy are assessed, along with analysis of conventional and emerging technologies to harness them. National and global energy issues are discussed with technical, economical, environmental, societal and geopolitical considerations and in the context of Army energy needs.		2019-2 2020-2 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None.	
<b>Prerequisite(s):</b>	MC311	
ME480	HEAT TRANSFER	3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)
<b>Scope:</b>	2016-1	<b>Offerings:</b>
The three modes of heat transfer, conduction, convection, and radiation, are studied in detail and applications are made to various engineering systems. The principles of conduction and convection are used to study the mechanisms of heat transfer during boiling, condensation and the design of heat exchangers.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 46 @ 55 min (3.000 Att/wk)	<b>Labs:</b> 1 @ 55 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	MA364 MC311 -Or- MA365 MC311	
ME481	AIRCRAFT PERFOR/STAT STBLTY	3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)

<b>Scope:</b>	2011-1	<b>Offerings:</b>
The course applies the principles developed in applied aerodynamics to develop the equations of motion for a rigid aircraft in steady state level flight, maneuvering flight, and during takeoff and landing. These equations are analyzed to determine such performance characteristics as maximum range, endurance, turning rate, climb rate, etc. Piston-prop, turbo-prop, and jet aircraft are considered. The equations of motion are then analyzed to develop static stability criteria and investigate steady state control characteristics. Two flight laboratories in the departments fixed-wing airplanes provide an opportunity to obtain performance data and analyze the steady state stability and control of an actual aircraft.		No Course Offerings
<b>Lessons:</b>	38 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 2 @ 120 min
<b>Special Requirements:</b>	Two flight laboratory reports, glider design and test.	
<b>Prerequisite(s):</b>	-Or- -Or- -Or- ME311 ME387 -Or- MC311 ME387	
<b>ME481</b>	<b>AIRCRAFT PERFOR/STAT STBLTY</b>	<b>3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)</b>
<b>Scope:</b>	2018-2	<b>Offerings:</b>
The course applies the principles developed in applied aerodynamics to develop the equations of motion for a rigid aircraft in steady state level flight, maneuvering flight, and during takeoff and landing. These equations are analyzed to determine such performance characteristics as maximum range, endurance, turning rate, climb rate, etc. Piston-prop, turbo-prop, and jet aircraft are considered. The equations of motion are then analyzed to develop static stability criteria and investigate steady state control characteristics. Two flight laboratories in the departments fixed-wing airplanes provide an opportunity to obtain performance data and analyze the steady state stability and control of an actual aircraft.		2019-1 2020-1 2021-1
<b>Lessons:</b>	38 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 2 @ 120 min
<b>Special Requirements:</b>	Two flight laboratory reports, glider design and test.	
<b>Prerequisite(s):</b>	ME387	
<b>ME483</b>	<b>AERONAUTICAL SYSTEMS DESIGN</b>	<b>3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)</b>
<b>Scope:</b>	2005-2	<b>Offerings:</b>
Using the aeronautical fundamentals learned in the prerequisite courses, cadet design groups apply the design process to develop and build an aeronautical systems design project. The following design areas are addressed: weight estimation, aerodynamic surfaces, stability and trim, component layout, drive trains, structural analysis, and miscellaneous subsystems. The semester-long course project is completed in phases, culminating in a final report and oral presentation. This course provides an integrative experience in support of the overarching academic program goal, and is often interdisciplinary in nature.		No Course Offerings
<b>Lessons:</b>	3 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 44 @ 110 min
<b>Special Requirements:</b>	Cadets spend extensive time in project development laboratories fabricating and refining their products under the supervision of laboratory technicians during Z-hour (mutually agreed upon meeting period).	
<b>Prerequisite(s):</b>	ME402 ME481	
<b>ME489</b>	<b>ADV STUDY IN MECH ENGRNG</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2014-1	<b>Offerings:</b>
The cadet pursues advanced study of a topic in mechanical engineering on an individual or small group basis, independent of a formal classroom setting. Similar to graduate level research, the scope of the selected project is tailored to the interests of the cadet based on resources and in consultation with a faculty advisor. To develop research skills, the cadet is integral in all phases of project completion by defining objectives, studying fundamentals and background material, outlining the approach, conducting analysis, and communicating results.		2018-7 2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b>	40 @ 55 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min

**Special Requirements:** Enrollment by permission of Mechanical Engineering Program Director. Appropriate ET credit will be determined by the Mechanical Engineering Program Director on a case by case basis. Other requirements as determined by Faculty Advisor.

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<b>ME489A</b>	<b>ADV STUDY IN MECH ENGRNG</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2014-1

The cadet pursues advanced study of a topic in mechanical engineering on an individual or small group basis, independent of a formal classroom setting. Similar to graduate level research, the scope of the selected project is tailored to the interests of the cadet based on resources and in consultation with a faculty advisor. To develop research skills, the cadet is integral in all phases of project completion by defining objectives, studying fundamentals and background material, outlining the approach, conducting analysis, and communicating results.

**Lessons:** 40 @ 55 min (0.000 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** Enrollment by permission of Mechanical Engineering Program Director. Appropriate ET credit will be determined by the Mechanical Engineering Program Director on a case by case basis. Other requirements as determined by the Faculty Advisor.

**Corequisite(s):** ME489

**Offerings:**

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

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<b>ME489B</b>	<b>INDEPENDENT STUDY, ADVANCED</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2014-2

This course will cover advanced topics in M. E.

**Lessons:** 40 @ 55 min (0.000 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** Must have ME489 and ME489A

**Offerings:**

No Course Offerings

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<b>ME490</b>	<b>TOPICS IN MECHANICAL ENGRNG</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 1990-2

This course provides in-depth study of a special topic in engineering mechanics or mechanical engineering not offered elsewhere in the USMA curriculum. Course content will be based on the special expertise of the Visiting Professor or a senior mechanical engineering faculty member.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** TBD

**Offerings:**

2019-1 2019-2 2020-2  
2021-2

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<b>ME490A</b>	<b>TOPICS IN MECHANICAL ENGRNG</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2018-1

This course provides in-depth study of a special topic in engineering mechanics or mechanical engineering not offered elsewhere in the USMA curriculum. Course content will be based on the special expertise of the Visiting Professor or a senior mechanical engineering faculty member.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** TBD

**Prerequisite(s):** ME490

**Offerings:**

No Course Offerings

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<b>ME491</b>	<b>MECHANICAL POWER PLANTS</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=3.0,MA=0.0)</b>
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**Scope:** 2006-2

Students engage in the analysis, testing and evaluation of internal combustion engines and their subsystems with a view toward understanding the underlying principles which affect their design. Spark ignition and compression ignition engine systems are studied in detail with laboratory opportunities to relate theory to practice. A series of component design problems is interspersed throughout the course.

**Offerings:**

No Course Offerings

<b>Lessons:</b> 34 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 6 @ 120 min	
<b>Special Requirements:</b>	Component design projects; compensatory time provided.	
<b>Prerequisite(s):</b>	ME311 -Or- MC311	
<b>Corequisite(s):</b>	ME312 -Or- MC312	
<b>ME491</b>	<b>MECHANICAL POWER PLANTS</b>	<b>3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)</b>
<b>Scope:</b>	2018-2	<b>Offerings:</b>
An introductory course on internal combustion engines covering basic theory, analysis, design, testing, and evaluation of automotive powerplants. Course material is intended to provide an understanding of the guiding principles and competing demands associated with power generation on modern ground mobility systems. Main topics include thermodynamic cycles, engine subsystems, heat transfer, and emissions. Theory is verified with hands on experience in engines laboratory exercises and vehicle performance practicums utilizing a military vehicle. A semester long engineering project challenges cadets to design, analyze, and 3D print an engine component.		2019-2 2020-2 2021-2
<b>Lessons:</b> 34 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 4 @ 120 min	
<b>Special Requirements:</b>	numerical methods (MATLAB), Computer aided design (SolidWorks), engineering design project (3D printing) with design studios scheduled	
<b>Prerequisite(s):</b>	ME311 -Or- MC311	
<b>Corequisite(s):</b>	ME312 -Or- MC312	
<b>ME492</b>	<b>PWR TRAINS &amp; VEH DYNAMICS</b>	<b>3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)</b>
<b>Scope:</b>	2010-1	<b>Offerings:</b>
An introductory course in ground vehicle theory with emphasis on analysis, testing, and evaluation of automotive power trains and dynamic systems to understand the underlying principles affecting vehicle design. Clutches, transmissions (manual and automatic), differentials, wheels and tires, as well as braking, steering and suspension systems are studied in detail to include their effect on vehicular or other system performance. High speed, tracked vehicle application of the above systems is also covered. Theory is verified with hands on experience in the laboratory. Component design problems are interspersed throughout the course.		No Course Offerings
<b>Lessons:</b> 36 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 4 @ 120 min	
<b>Special Requirements:</b>	Comprehensive team design projects; compensatory time provided.	
<b>Prerequisite(s):</b>	ME306 ME312 -Or- MC306 MC312	
<b>ME492</b>	<b>PWR TRAINS &amp; VEH DYNAMICS</b>	<b>3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)</b>
<b>Scope:</b>	2018-2	<b>Offerings:</b>
An introductory course on automotive engineering covering basic theory, analysis, design, testing, and evaluation of powertrains and vehicle dynamics. Course material is intended to provide an understanding of the guiding principles and competing demands associated with power transfer and dynamic performance of modern ground mobility systems. Main topics include vehicle performance, powertrain components, and off-road mobility. Theory is verified with hands on experience in powertrain laboratory exercises and vehicle performance practicums utilizing a military vehicle. A semester long engineering project challenges cadets to design, analyze, and build an automotive sensor/actuator/logic system.		2019-1 2020-1 2021-1
<b>Lessons:</b> 36 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 4 @ 120 min	
<b>Special Requirements:</b>	numerical methods (MATLAB), Computer aided design (SolidWorks), engineering design project (Arduino) with design studios scheduled	
<b>Prerequisite(s):</b>	ME306 ME312 -Or- MC306 MC312	

ME496	MECHANICAL SYSTEM DESIGN	3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)
<b>Scope:</b>	2009-2	<b>Offerings:</b>
<p>This course provides experience in the integration of math, science, and engineering principles into a comprehensive engineering design project. Open-ended, client-based design problems emphasize a multidisciplinary approach to total system design providing multiple paths to a number of feasible and acceptable solutions which meet the stated performance requirements. Design teams are required to develop product specifications, generate alternatives, make practical engineering approximations, perform appropriate analysis to support the technical feasibility of the design, and make decisions leading to an optimal system design. System integration, human factors engineering, computer-aided design, maintainability, and fabrication techniques are addressed. This course provides an integrative experience in support of the overarching academic program goal, and is often interdisciplinary in nature.</p>		2019-2 2020-2 2021-2
<b>Lessons:</b>	3 @ 55 min (3.000 Att/wk)	<b>Labs:</b> 44 @ 110 min
<b>Special Requirements:</b>	Cadets spend extensive time in project development laboratories fabricating and refining their final products under the supervision of laboratory technicians during Z-hour (mutually agreed upon meeting period).	
<b>Prerequisite(s):</b>	ME404	
XE310	INTRO TO BIOMECH ENGINEERING	3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)
<b>Scope:</b>	2018-2	<b>Offerings:</b>
<p>This course introduces a broad spectrum of biomechanical concepts, including the musculoskeletal system, biological materials, locomotion, and computational biomechanics, through the application of engineering. Contemporary topics will be discussed and analyzed, and the concepts will be applied within the scope of a project in experimental biomechanics, which will employ standard, cutting edge biomechanical software and instrumentation techniques.</p>		2019-2 2020-2 2021-2
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	MA205 PH205 -Or- MA255 PH205 -Or- MA205 PH255 -Or- MA255 PH255	
XE475	MECHATRONICS	3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)
<b>Scope:</b>	2013-1	<b>Offerings:</b>
<p>XE 475 is a comprehensive introductory course in the field of mechatronics. Mechatronics is the crossroads in engineering where mechanical engineering, electrical engineering, computer science, and controls engineering meet to create new and exciting real-world systems. Knowledge of mechanical and electrical components, controls theory, and design are integrated to solve actual physical design applications.</p>		2019-1 2020-1 2021-1
<b>Lessons:</b>	42 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 5 @ 120 min
<b>Special Requirements:</b>	The completion of an out-of-class project requiring the equivalent of 0.5 credit hour of student effort.	
<b>Corequisite(s):</b>	XE472	
XE495	TOPICS: ADVANCED TECHNOLOGY	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2013-2	<b>Offerings:</b>
<p>This course is taught by the Class of 1950 Chair of Advanced Technology, a visiting scholar with a distinguished record of academic and professional achievement in the field of engineering, science and technology. The seminars focus on topical issues that either reflect the Chair's area of expertise or are conducted by an expert in the field. Students will apply mathematics, science, and engineering fundamentals to evaluate equipment, processes, and concepts being used in the Army. The course has a final design briefing that is an integrative experience. Admission into course is with permission of Department Head.</p>		2019-2 2020-2 2021-2
<b>Lessons:</b>	20 @ 110 min (1.250 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	FCS Decision Brief too distinguished guests; Industry field trip.	

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**Prerequisite(s):**

MA205 PH202

-Or-

MA205 PH252

-Or-

MA205 PH204

-Or-

MA205 PH254

-Or-

MA255 PH202

-Or-

MA255 PH252

-Or-

MA255 PH204

-Or-

MA255 PH254

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## Department of Electrical Engineering and Computer Science

### 85 Courses

<b>CS380</b>	<b>COMPUTER ORGANIZATION</b>	<b>3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)</b>
<b>Scope:</b>	2017-1	<b>Offerings:</b>
<p>This course provides an introduction to computer organization and architecture. Emphasis is placed on understanding the implications of computer hardware, the operating system, and compilation system, on the performance and security of written code. Students learn basic C programming and the IA32 assembly language. Topics covered include basic computer organization, reverse engineering, buffer overflow, pipelining, the memory hierarchy, code optimization, and process creation. Students also gain exposure to topics in concurrency and parallel computing through the POSIX API. In addition to theory, students gain practical real-world experience using tools for profiling and debugging, including Valgrind and GDB. By the end of this programming intensive course, students will understand how the fundamental principles of computer organization impact their ability to write efficient code.</p>		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	CS301 CS384 -Or- CS384 CY300	
<b>Corequisite(s):</b>	EE360	
<b>CS384</b>	<b>DATA STRUCTURES</b>	<b>3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)</b>
<b>Scope:</b>	1998-1	<b>Offerings:</b>
<p>This course is designed to build on the cadet's basic programming knowledge. Major emphasis is placed on object-based design, programming methodology, algorithms and algorithm analysis, data structures, and abstract data types as tools for the analysis, design, and implementation of software modules to meet specified requirements. Cadets will learn and employ several well-known algorithms and data structures. Techniques of searching, sorting, recursion, and hashing will be examined. Data structures such as sets, heaps, linked lists, stacks, queues, and trees will be covered. A block-structured programming language reflecting comprehensive support for good software engineering principles will be the foundation of application-oriented exercises. Cadets will design software solutions by employing problem decomposition and selecting the appropriate algorithms and abstract data types.</p>		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	CS360 -Or- CS360A -Or- CS301 -Or- CY300	
<b>CS385</b>	<b>DESIGN &amp; ANALYS-ALGORITHMS</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2007-2	<b>Offerings:</b>
<p>This course studies analysis of algorithms and the relevance of analysis to the design of efficient computer algorithms. Algorithmic approaches covered include greedy, divide and conquer, and dynamic programming. Topics include sorting, searching, graph algorithms, and disjoint set structure.</p>		2019-2 2020-2 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	CS384 MA372	
<b>CS393</b>	<b>DATABASE SYSTEMS</b>	<b>3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)</b>
<b>Scope:</b>	2015-1	<b>Offerings:</b>



This course addresses the analysis, design and implementation of relational database applications. The structured query language (SQL) is covered in depth along with standard problem domain and data modeling techniques. Implementation techniques and considerations are discussed and practiced extensively. Key concepts include analysis and design using a standardized notation such as the unified modeling language (UML), data model to logical schema conversion techniques, normalization, client-server architectures and web-based access to database systems (e.g. XML). Additional advanced topics covered include system security, transaction processing, data recovery techniques, and maintaining state for mobile devices. Design projects focus on implementing the key course concepts using state-of-the-art multi-user database software.

**Lessons:** 35 @ 55 min (2.500 Att/wk)

**Labs:** 5 @ 55 min

**Special Requirements:**

Three design projects; compensatory time given.

**Prerequisite(s):**

CS301  
-Or-  
IT305  
-Or-  
IT355  
-Or-  
CY300 CY305  
-Or-  
CY300 CY355

**Disqualifier(s):**

CS350

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<b>CS394</b>	<b>DISTRIB APPLICATION ENGRNG</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:**

2015-1

**Offerings:**

2019-1 2020-1 2021-1

Building on the foundations of algorithm implementation, data structures, data representation, and object oriented programming this course focuses on the principles of designing, implementing, and testing a modern distributed application. Cadets study the construction and interaction of user interface, network, web server, database, and other components to produce an integrated working secure system. Cadets will learn new tools and skills working as a team to analyze, design, and implement a system that solves a given problem. This is one of the courses that a Computer Science major can choose from a list of elective courses and the focus is on data structure concepts and object oriented programming.

**Lessons:** 40 @ 55 min (2.500 Att/wk)

**Labs:** 0 @ 0 min

**Special Requirements:**

None

**Corequisite(s):**

CS403

**Disqualifier(s):**

IT394

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<b>CS400</b>	<b>COMPUTER SCIENCE SEMINAR</b>	<b>2.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:**

2013-1

**Offerings:**

No Course Offerings

This seminar will meet once or twice a week and will include all First Class cadets majoring in computer science. The seminar's instruction consists of relevant reading assignments, class discussions based on readings and case studies, and numerous distinguished guest speakers. Content will address the concerns of computing professionals as well as recent Department of Defense initiatives and new developments in the discipline. Students will develop the ability to identify, explain, and interpret local and global (professional, ethical, social, security, legal, economic, political) impacts of computing on individuals, organizations, and society. They will also be able to outline and defend the values and responsibilities of a member of the computing profession and to summarize avenues through which they can continue to grow professionally.

**Lessons:** 27 @ 55 min (1.700 Att/wk)

**Labs:** 0 @ 0 min

**Special Requirements:**

None

**Corequisite(s):**

CS401

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<b>CS400</b>	<b>PROFESSIONAL CONSIDERATIONS</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:**

2019-2

**Offerings:**

This course addresses the concerns of professional computer scientists, primarily focusing on non-technical considerations and the development of communication skills. Coursework includes a heavy emphasis on iterative written and oral presentation assignments, based on relevant reading assignments, class discussions, case studies, and distinguished guest speakers. Content will address recent Department of Defense initiatives and new developments in the computing discipline. Students will develop the ability to identify, explain, and interpret local and global (professional, ethical, social, security, legal, economic, political) impacts of computing on individuals, organizations, and society. They will also be able to defend the values and responsibilities of a member of the computing profession and to summarize avenues through which they can continue to grow professionally. **CONDITIONAL - FULL PROPOSAL AY 2018**

2019-2 2020-2 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

**Corequisite(s):** XE401

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<b>CS401</b>	<b>SOFTWARE SYSTEMS DESIGN I</b>	<b>3.5 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2005-1	<b>Offerings:</b>
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This course is the first in the senior-level sequence dealing with software systems. It provides cadets with an integrative engineering design and implementation experience as they pursue a solution to a complex, real-life problem. Conceptual material stresses requirements definition and problem solving strategies applied to the design and implementation of software systems. Hierarchical abstractions, modeling, and user interface issues are examined and integrated with a study of the software life cycle, requirements specification, and verification and validation issues. Cadets also learn and employ additional advanced computing techniques that prepare them for the more complex portions of project implementations during CS402. Potential topic areas to be covered may include distributed computation, software quality measurement, or portable application interfaces.

No Course Offerings

**Lessons:** 40 @ 55 min (3.000 Att/wk)      **Labs:** 7 @ 120 min

**Special Requirements:** Individual and team projects; compensatory time provided.

**Prerequisite(s):** CS403

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<b>CS403</b>	<b>SOFTWARE TESTING &amp; DEVELOPMENT</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2017-2	<b>Offerings:</b>
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This course builds on the fundamental programming skills from prerequisite courses to explore advanced concepts used in modern object oriented software design to create software that is robust, reusable, and extensible in varying problem domains. Cadets gain confidence in their abilities to model, implement, and test solutions to demanding programming problems.

No Course Offerings

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** Design projects; compensatory time provided.

**Prerequisite(s):** CS350 CS384  
-Or-  
CS384 CS393

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<b>CS403</b>	<b>SOFTWARE TESTING &amp; DEVELOPMENT</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2018-2	<b>Offerings:</b>
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This course builds on the fundamental programming skills from prerequisite courses to explore advanced concepts used in modern object oriented software design to create software that is robust, reusable, and extensible in varying problem domains. Cadets gain confidence in their abilities to model, implement, and test solutions to demanding programming problems.

2019-2 2020-2 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** Design projects; compensatory time provided.

**Prerequisite(s):** CS384 IT305  
-Or-  
CS384 IT355  
-Or-  
CS384 CY305  
-Or-  
CS384 CY355

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CS473	COMPUTER GRAPHICS	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2004-2	<b>Offerings:</b>
<p>This course concerns computer programs that draw two- and three-dimensional objects on computer output devices and receive input from users through graphical input devices. Cadets implement interactive programs through a commonly available graphical application programmers' interface (API). They learn about graphical hardware devices and the elegant algorithms that underlie the API, including elementary computational geometry, continuous time physical simulation, homogeneous transformations, parametric forms, clipping, shading, color, and surface rendering. These concepts are all illustrated with examples of military data visualization including two-dimensional maps and three-dimensional battle simulation and terrain visualization.</p>		2019-2 2020-2 2021-2
<b>Lessons:</b> 33 @ 55 min (0.000 Att/wk)	<b>Labs:</b> 7 @ 55 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	CS384 MA205 PH203 -Or- CS384 MA255 PH203 -Or- CS384 MA255 PH253 -Or- CS384 MA205 PH253 -Or- CS384 MA205 PH201 -Or- CS384 MA255 PH201 -Or- CS384 MA255 PH251 -Or- CS384 MA205 PH251 -Or- CS384 MA104 PH205 -Or- CS384 MA104 PH255	
CS474	FUNDAMENTALS-COMPUTER THEORY	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2015-2	<b>Offerings:</b>
<p>Grounds the cadet in the essentials of theory of computation: formal languages, automata, and computability theory. Frames computation in the context of the Chomsky hierarchy, the polynomial and exponential time hierarchies, and the decidability hierarchy. Explores fundamental limits on computation: what problems can never be solved, what problems can be solved but are intractable, and the class NP of problems that are thought to be intractable, but for which no proof of intractability exists to date.</p>		2019-2 2020-2 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	MA372	
<b>Corequisite(s):</b>	CS385	
CS478	PROGRAMMING LANGUAGES	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2006-1	<b>Offerings:</b>
<p>Concepts of high-level programming language design are explored in detail. Cadets will examine the fundamental issues of programming language design and use this knowledge as a framework for comparison of different high-level languages. Cadets will study concepts from some or all of the imperative, functional, object-oriented, concurrent, and logic programming language paradigms.</p>		No Course Offerings
<b>Lessons:</b> 33 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 7 @ 55 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	CS403	
CS478	PROGRAMMING LANGUAGES	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)

<b>Scope:</b>	2018-1	<b>Offerings:</b>
Concepts of high-level programming language design are explored in detail. Cadets will examine the fundamental issues of programming language design and use this knowledge as a framework for comparison of different high-level languages. Cadets will study concepts from some or all of the imperative, functional, object-oriented, concurrent, and logic programming language paradigms.		2019-1 2020-1 2021-1
<b>Lessons:</b>	33 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 7 @ 55 min
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	CS384	
<b>CS481</b>	<b>OPERATING SYSTEMS</b>	<b>3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)</b>
<b>Scope:</b>	2017-1	<b>Offerings:</b>
The operating system controls the computer itself and provides a useful interface for users and application programs. The operating system controls all the computer resources: processors, main storage, secondary storage, I/O devices, and files. It determines which programs will be in memory at any given time and the order in which programs will run. The operating system should resolve conflicts between processes, attempt to optimize the performance of the computer, allow the computer to communicate with other computers, and maintain a record of actions performed as it goes about its system tasks. This course investigates the basic design issues encountered in order to produce an operating system that can address the above problems in an efficient manner. These concepts are reinforced by a series of programming projects that include both design and implementation.		2019-1 2020-1 2021-1
<b>Lessons:</b>	37 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 3 @ 55 min
<b>Special Requirements:</b>	Programming projects; compensatory time given.	
<b>Prerequisite(s):</b>	CS380 CS403	
<b>CS482</b>	<b>CYBER SECURITY ENGINEERING</b>	<b>3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)</b>
<b>Scope:</b>	2016-1	<b>Offerings:</b>
The focus for this course is to design, build and test secure networked computer systems. Topics covered include operating system and network security, secure network architecture, and offensive and defensive information operations. Practical exercises that give students hands-on experience with current network security tools and techniques complement a series of laboratory exercises that have small groups of cadets secure their own small network. In a culminating exercise, cadets design, build and test defensive measures to protect a production network from intrusions.		No Course Offerings
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	CS484 -Or- IT350 -Or- CY350	
<b>CS483</b>	<b>DIGITAL FORENSICS</b>	<b>3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)</b>
<b>Scope:</b>	2017-2	<b>Offerings:</b>
Digital Forensics will explore the evidence left behind when malicious activity occurs on an information system. The material in this course will build on your knowledge of Operating Systems, file formats, file system structure, computer architecture, and networking. The course begins with an overview of these areas, then examines how to find and extract digital evidence. During the course, you will be challenged with three projects (subjects to be chosen by you) and in class challenges that will allow you to demonstrate your understanding of the material.		2019-2 2020-2 2021-2
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	CS380 CS481	
<b>CS484</b>	<b>COMPUTER NETWORKS</b>	<b>3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)</b>

**Scope:** 2015-2

**Offerings:**

This course provides cadets with an introduction to computer networks by breaking the subject into comprehensible parts and building a survey of the state of the art. The goal of the course is to provide each cadet with basic concepts necessary to understand the design and operation of computer networks. Taking a layered approach, it examines the internet with an emphasis on the TCP/IP protocol suite. Additionally, basic principles including multiplexing, switching, flow control, and error control are covered. Internetworking and its application to both local and wide area networks are also investigated. The course offers an understanding of the current status and future directions of technology and how technology relates to standards.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** CS384  
-Or-  
IT350

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<b>CS485</b>	<b>SPEC TOPICS IN COMPUTER SCI</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2003-2

**Offerings:**

This course provides in-depth study of a special topic in computer science not offered elsewhere in the USMA curriculum. Course content will be based on the special expertise of the visiting professor or a senior computer science faculty member.

**Lessons:** 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

**Special Requirements:** To be determined by the program director.

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<b>CS486</b>	<b>ARTIFICIAL INTELLIGENCE</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2004-1

**Offerings:**

The course provides an introduction to the field of Artificial Intelligence (AI). Cadets will develop an appreciation for the domain of AI and an understanding of the current interest and research in the field. The historical ideas and techniques of AI and the resulting set of concepts will be covered. Classic programs will be covered as well as underlying theory. Topics include a history of computer problem solving, heuristic search techniques, knowledge representation, knowledge engineering, predicate calculus, and expert and/or rule based systems. Advanced topics that may be covered include intelligent agents, genetic algorithms, neural networks, fuzzy logic, robotics, vision, natural language processing, learning, and the programming languages of AI. The course will emphasize the practical application of artificial intelligence to industry and business as well as DoD.

2019-1 2020-1 2021-1

**Lessons:** 32 @ 55 min (2.500 Att/wk) **Labs:** 8 @ 55 min

**Special Requirements:** Term project/paper; compensatory time given.

**Prerequisite(s):** CS384 EE360  
-Or-  
CS384 EE300

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<b>CS488</b>	<b>LANG-BASED SIMULATION MODELING</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2010-1

**Offerings:**

This course applies nearly all previous study of computer science to a specific problem domain essential to the Army - simulation technology. Cadets will learn the fundamental principles of event-based simulation, language-based representation of simulation models, and how models are implemented efficiently. Finally, they will learn how simulations are assessed and validated to determine their usefulness. A series of progressive implementation projects put learned concepts into practice.

2019-2 2020-2 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** CS403 CS474

**Corequisite(s):** CS478

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<b>CS489</b>	<b>ADV IND STUDY COMPUTER SCI</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	1990-1	<b>Offerings:</b>
The detailed syllabus of this elective will be tailored to the specific project and to qualifications of the cadet. The research or study program will be proposed by the cadet or selected from those proposed by the department. The cadet will formalize a proposal, design a viable research plan, and conduct research under the guidance and supervision of a faculty advisor. The Head of the Department will approve cadet projects. Lessons and labs established by consultation between cadet and advisor.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	At least 3.0 average in CS courses normally required. Grades based largely on research paper/presentation to faculty. Participation in Eastern Collegiate Science Conference/publication of research are options.	
<b>CS489A</b>	<b>ADV IND STUDY COMPUTER SCI</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	1995-1	<b>Offerings:</b>
Same as CS489.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	Same as CS489.	
<b>Prerequisite(s):</b>	CS489	
<b>CS489B</b>	<b>ADV IND STUDY COMPUTER SCI</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	1995-1	<b>Offerings:</b>
Temp		No Course Offerings
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>CS490</b>	<b>COMPUTR SCI SUMMER RESEARCH</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	1990-4	<b>Offerings:</b>
This course is designed to familiarize the cadet with advanced techniques for independent research in computer science. The course will normally require research, development, and implementation of a novel idea or concept. An oral presentation and a written project report will be completed under the supervision of a USMA faculty member who serves as project advisor. The course requires three full weeks of study, completed in conjunction with the Academic Individual Advanced Development program. Scope, depth, and material covered will meet the requirements of a three-credit course in computer science.		No Course Offerings
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	Oral and written reports.	
<b>CS490A</b>	<b>COMPUTR SCI SUMMER RESEARCH</b>	<b>2.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	1990-4	<b>Offerings:</b>
This course is designed to familiarize the cadet with advanced techniques for independent research in computer science. The course will normally require research, development, and implementation of a novel idea or concept. An oral presentation and a written project report will be completed under the supervision of a USMA faculty member who serves as project advisor. The course requires three weeks of study, completed in conjunction with the Academic Individual Advanced Development program. Scope, depth, and material covered will be equivalent to two credits of course work in computer science.		No Course Offerings
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>CS490B</b>	<b>COMPUTR SCI SUMMER RESEARCH</b>	<b>1.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>

**Scope:** 1990-4

**Offerings:**

This course is designed to familiarize the cadet with advanced techniques for independent research in computer science. No Course Offerings  
The course will normally require research, development, and implementation of a novel idea or concept. An oral presentation and a written project report will be completed under the supervision of a USMA faculty member who serves as project advisor. The course requires three weeks of study, completed in conjunction with the Academic Individual Advanced Development program. Scope, depth, and material covered will be equivalent to one credit of course work in computer science.

**Lessons:** 0 @ 0 min (0.000 Att/wk)

**Labs:** 0 @ 0 min

**Special Requirements:** Oral and written reports.

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**CY300 PROGRAMMING FUNDAMENTALS**

**3.0 Credit Hours**  
(BS=0.0,ET=2.5,MA=0.0)

**Scope:** 2018-1

**Offerings:**

This is the foundational programming course for IT majors and the first course for the cyber engineering sequence. Cadets learn fundamental computing concepts that will allow them to design, build and test small to medium programs using a high-level programming language. Key concepts include applying appropriate aspects of a structured problem solving process, applying a standardized design notation such as the Unified Modeling Language (UML) to communicate their design, and iteratively testing their program.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Lessons:** 40 @ 0 min (2.500 Att/wk)

**Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** IT105  
-Or-  
IT155

**Disqualifier(s):** CS301  
-Or-  
IT300

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**CY305 CYBER FOUNDATIONS**

**3.0 Credit Hours**  
(BS=0.0,ET=1.5,MA=0.0)

**Scope:** 2017-1

**Offerings:**

This course builds on the foundations of Information Technology (IT) acquired during the first two years of cadet experiences to ensure graduates have the capacity and confidence to employ information technology--hardware, software, and networks--to empower people and organizations to acquire, manage, communicate and defend information, solve problems, and adapt to change. It provides a deeper understanding of sensor and communications technologies; computer processing, storage, and networks; cyberspace operations, planning and management; interaction of IT components; IT-enabled decision making; and the evolving legal and ethical framework surrounding use of IT and operating in the cyber domain. Information Assurance issues are addressed throughout the course. Cadets complete projects throughout the course using specified information systems to meet given requirements.

2018-4 2019-1 2019-2  
2019-3 2019-4 2020-1  
2020-2 2020-4 2021-1  
2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)

**Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** IT105  
-Or-  
IT155  
-Or-  
IT105X

**Disqualifier(s):** IT305  
-Or-  
CY355

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**CY350 NETWORK ENGR & MGT**

**3.0 Credit Hours**  
(BS=0.0,ET=3.0,MA=0.0)

**Scope:** 2018-1

**Offerings:**

This course addresses the analysis, design, building, and testing of modern computer networks. Network implementation techniques and considerations are discussed and practiced extensively. Key concepts include analysis and design using standardized network models, protocols and practices such as the Open Systems Interconnect (OSI) network model, subnetting, static/dynamic routing, switching, and access control. Practical skills implementing network designs are also reinforced through a number of hands-on laboratory exercises using commodity network hardware.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)

**Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** IT105  
-Or-  
IT155  
-Or-  
CY305  
-Or-  
CY355

**Corequisite(s):** CS301  
-Or-  
CY300

**Disqualifier(s):** IT382  
-Or-  
IT350

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<b>CY355</b>	<b>CYBER FOUNDATIONS - COMPUTING</b>	<b>3.0 Credit Hours</b> <b>(BS=0.5,ET=1.5,MA=0.0)</b>
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**Scope:** 2017-1

**Offerings:**

Provides a more in-depth study of computing for cadets who have demonstrated ability beyond the level of CY305. The course covers material presented in CY305 at an accelerated pace to provide cadets additional opportunities for application and hands-on experience with cyber principles and concepts such as encryption and machine learning, with less emphasis on networking.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** CY355 is designed primarily for CS and IT majors and Cyber minors. Enrollment by other cadets with permission of the Department Head.

**Prerequisite(s):** IT105  
-Or-  
IT155

**Disqualifier(s):** CY305  
-Or-  
IT305

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<b>CY450</b>	<b>CYBER SECURITY ENGINEERING</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=3.0,MA=0.0)</b>
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**Scope:** 2019-1

**Offerings:**

The focus for this course is to design, build and test secure networked computer systems. Topics covered include operating system and network security, secure network architecture, and offensive and defensive information operations. Practical exercises that give students hands-on experience with current network security tools and techniques complement a series of laboratory exercises that have small groups of cadets secure their own small network. In a culminating exercise, cadets design, build and test defensive measures to protect a production network from intrusions.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** CS484  
-Or-  
CY350

**Disqualifier(s):** CS482

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<b>EE300</b>	<b>FUNDAMENTALS OF DIGITAL LOGIC</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=3.0,MA=0.0)</b>
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**Scope:** 2011-1

**Offerings:**

This is a course for non-electrical engineering majors that covers the analysis, design, simulation, and construction of digital logic circuits and systems. The material in this course provides the necessary tools to design digital hardware circuits such as clocks and security devices, as well as computer hardware. The course begins with the study of binary and hexadecimal number systems, Boolean algebra, and their application to the design of combinational logic circuits. The first half of the course focuses on combinational logic designs. The second half of the course emphasizes sequential logic circuits like memory systems, counters, and shift registers. Laboratory work reinforces the course material by requiring cadets to design and implement basic digital circuits. Throughout the course, the focus is on how the various digital hardware devices are used to perform the internal operations of a computer.

2019-1 2020-1 2021-1

**Lessons:** 34 @ 55 min (2.500 Att/wk)    **Labs:** 6 @ 120 min



<b>Special Requirements:</b>	None
<b>Prerequisite(s):</b>	IT105 -Or- IT155
<b>Disqualifier(s):</b>	EE360

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<b>EE301</b>	<b>FUNDAMENTALS OF ELEC ENGIN</b>	<b>3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)</b>
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<b>Scope:</b>	2017-1	<b>Offerings:</b>
This introductory course in electrical engineering for the non-electrical engineering major provides a foundation in basic circuit theory and analysis, power in circuits and electric power systems, analog and digital electronics, and information technology systems. Lectures, laboratory work, practical applications, and classroom demonstrations emphasize and illustrate the fundamental theories and concepts presented in the course. Engineering design is reflected in laboratory work and minor design problems.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 7 @ 120 min

**Special Requirements:** None

**Prerequisite(s):** MA205  
-Or-  
MA255

**Corequisite(s):** PH202  
-Or-  
PH252  
-Or-  
PH206  
-Or-  
PH256

**Disqualifier(s):** EE302 EE350

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<b>EE302</b>	<b>INTRO ELECTRICAL ENGIN</b>	<b>3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)</b>
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<b>Scope:</b>	2009-1	<b>Offerings:</b>
This first course in electrical engineering provides a solid introduction to electric circuit theory. Fundamental principles and network theorems are developed using DC resistive circuits. The complete responses of RC, RL, and RLC circuits are obtained using classical and Laplace-transform techniques to solve the related differential equations. Electrical system transfer functions, time-domain and frequency-domain relationships, stability, frequency response, steady-state AC analysis, and power are also studied. Laboratory work, practical applications, and classroom demonstrations emphasize and illustrate the fundamentals presented in the course.		2019-2 2020-2 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 7 @ 120 min

**Special Requirements:** None

**Corequisite(s):** MA205 PH202  
-Or-  
MA205 PH252  
-Or-  
MA255 PH202  
-Or-  
MA255 PH252  
-Or-  
MA205 PH204  
-Or-  
MA255 PH204  
-Or-  
MA205 PH206  
-Or-  
MA205 PH256  
-Or-  
MA255 PH206  
-Or-  
MA255 PH256

**Disqualifier(s):** EE350  
-Or-  
EE301

<b>EE350</b>	<b>BASIC ELECTRICAL ENGINEERING</b>	<b>3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)</b>
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<b>Scope:</b>	2005-1
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**Offerings:**

No Course Offerings

This is a course for non-electrical engineering majors that provides a foundation in basic circuit theory and analysis, power in circuits and electric power systems, and analog electronics. Lectures, laboratory work, classroom demonstrations and discussions showing practical applications illustrate the fundamental theories and concepts presented in the course. Engineering science is reflected in laboratory work.

**Lessons:** 33 @ 55 min (2.500 Att/wk)    **Labs:** 7 @ 120 min

**Special Requirements:** None

**Prerequisite(s):**

-Or-  
MA205 PH254  
-Or-  
MA255 PH204  
-Or-  
MA255 PH254  
-Or-  
MA205 PH202  
-Or-  
MA205 PH252  
-Or-  
MA255 PH202  
-Or-  
MA255 PH252

**Disqualifier(s):** EE302  
-Or-  
EE301

<b>EE350</b>	<b>BASIC ELECTRICAL ENGINEERING</b>	<b>3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)</b>
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<b>Scope:</b>	2018-2
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**Offerings:**

2019-2 2020-2 2021-2

This is a course for non-electrical engineering majors that provides a foundation in basic circuit theory and analysis, power in circuits and electric power systems, and analog electronics. Lectures, laboratory work, classroom demonstrations and discussions showing practical applications illustrate the fundamental theories and concepts presented in the course. Engineering science is reflected in laboratory work.

**Lessons:** 33 @ 55 min (2.500 Att/wk)    **Labs:** 7 @ 120 min

**Special Requirements:** None

**Prerequisite(s):** MA104 PH205  
-Or-  
MA104 PH255

**Disqualifier(s):** EE302  
-Or-  
EE301

<b>EE360</b>	<b>DIGITAL LOGIC W/ EMBEDDED SYS</b>	<b>3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)</b>
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<b>Scope:</b>	2014-1
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**Offerings:**2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

This course covers the analysis, design, simulation, and construction of digital logic circuits and embedded systems. The material in this course provides the necessary tools to design digital hardware circuits based on design techniques such as Karnaugh maps and Finite State Machines. The course begins with the study of binary and hexadecimal number systems, Boolean algebra, and their application to the design of combinational logic circuits. The first half of the course focuses on designs using medium-scale integration (MSI) circuits and Field Programmable Gate Arrays (FPGAs) to implement combinational logic functions. The second half of the course emphasizes sequential logic circuits. Laboratory work in this half of the course focuses on using very high speed integrated circuit hardware description language (VHDL) to simulate digital systems and to program those systems in hardware. As a final project, cadet teams design, build, and test a digital logic system.

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 7 @ 120 min

**Special Requirements:** A two-part design project (0.5 design credits).

<b>Prerequisite(s):</b>	CS105 -Or- CS155 -Or- IT105 -Or- IT155
<b>Disqualifier(s):</b>	EE300

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<b>EE362</b>	<b>INTRODUCTION TO ELECTRONICS</b>	<b>3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)</b>
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<b>Scope:</b>	2014-1	<b>Offerings:</b>
This course continues cadet education in electrical engineering through the study of basic electronic devices and circuits. It begins with an introduction to semiconductor physics. It then covers the operation of the pn-junction diode and the metal-oxide semiconductor field-effect transistor (MOSFET) in DC, large-signal, and small-signal regimes. The course emphasizes single-stage amplifier design. The course concludes with an introduction to bipolar junction transistors (BJT) and the design, analysis, simulation, building, and testing of a two-stage audio amplifier. Six laboratory exercises and computer-aided design and analysis using modern circuit simulation software supplement the lectures with practical circuit analysis, design, construction and testing.		2018-4 2018-5 2019-1 2020-1 2021-1

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 7 @ 120 min

**Special Requirements:** All cadets design, build and test a multistage audio amplifier (0.5 design credits).

**Prerequisite(s):** EE302  
-Or-  
EE301

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<b>EE375</b>	<b>COMPUTER ARCHITECTURE W/MICRO</b>	<b>3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)</b>
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<b>Scope:</b>	2017-1	<b>Offerings:</b>
This course provides an introduction to computer organization and design. It builds on digital logic theory and devices to develop more complex systems. Graded assignments emphasize understanding and applying the basics of computer system organization, design, and operation. Students analyze contemporary computer organization by examining the operation of a program at the register level. Students learn, simulate, and program a modern processor. Assembly language programming provides system function control that bridges the gap between hardware and software. C programming demonstrates a high-level language greatly utilized in computing. The course introduces topics including RISC architectures, arithmetic processing, input/output, memory design, and parallel computing.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** Projects using Assembly Language and C.

**Prerequisite(s):** EE360

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<b>EE377</b>	<b>ELECTRICAL POWER ENGNRNG</b>	<b>3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)</b>
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<b>Scope:</b>	2012-2	<b>Offerings:</b>
This course provides a study of the fundamentals in two areas of electric power engineering: electromechanical energy conversion and electric power systems. Steady-state behavior in single-phase and balanced three-phase power circuits is emphasized. The concept of per unit analysis is introduced and used throughout the course. Transformers, AC & DC machines, transmission lines, power systems, power electronic devices, and renewable energy sources are studied. Laboratory exercises demonstrate the electrical, mechanical, and physical characteristics of several of the systems studied. The cadet will apply analysis, design, build, and/or test techniques to a power related project.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2

**Lessons:** 36 @ 55 min (2.500 Att/wk)    **Labs:** 4 @ 120 min

**Special Requirements:** Computer-aided analysis of a small power system is included.

**Prerequisite(s):** EE302  
-Or-  
EE301

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<b>EE381</b>	<b>SIGNALS AND SYSTEMS</b>	<b>3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)</b>
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<b>Scope:</b>	2012-1	<b>Offerings:</b>
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2019-1 2020-1 2021-1

**Corequisite(s):** MA206 MA364  
-Or-  
MA206 MA365  
-Or-  
MA206X MA364  
-Or-  
MA206X MA365  
-Or-  
MA256 MA364  
-Or-  
MA256 MA365

**Corequisite(s):** MA364  
-Or-  
MA365

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

<b>Special Requirements:</b>	None
<b>Prerequisite(s):</b>	EE401
<b>Corequisite(s):</b>	XE402

<b>EE400</b>	<b>EE PROFESSIONAL CONSIDERATIONS</b>	<b>3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)</b>
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<b>Scope:</b>	2019-2	<b>Offerings:</b>
This course addresses the concerns of professional electrical engineers such as engineering ethics, economics, licensing, manufacturability, sustainability, reliability, safety, and design methodologies. The course will include Fundamentals of Engineering Exam preparation and review. The course includes all first class cadets majoring in electrical engineering. Guest lecturers from military, industrial, and academic communities will present some of the material. (CONDITIONAL APPROVAL in AY 2016 - FULL PROPOSAL AY 2018)		2019-2 2020-2 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

<b>Special Requirements:</b>	None
<b>Prerequisite(s):</b>	XE401
<b>Corequisite(s):</b>	XE402

<b>EE450</b>	<b>MILITARY ELECTRONIC SYSTEMS</b>	<b>3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)</b>
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<b>Scope:</b>	2012-1	<b>Offerings:</b>
This is the capstone course of a three course series of courses designed to introduce non-electrical engineering majors to the fundamentals of electrical engineering. These key concepts are then used to interface various sensors and actuators with a simple microprocessor using experiments that demonstrate some basic applications of a simple robot. Finally, cadets design a robot to autonomously navigate a simple maze that simulates some practical military robotics applications.		2019-1

**Lessons:** 35 @ 55 min (2.500 Att/wk)    **Labs:** 5 @ 120 min

**Special Requirements:** A design project is required. Compensatory time given.

<b>Prerequisite(s):</b>	EE300 EE350 -Or- EE300 EE302 -Or- EE350 EE360 -Or- EE302 EE360 -Or- EE300 EE301 -Or- EE301 EE360
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<b>EE450</b>	<b>MILITARY ROBOTIC SYSTEMS</b>	<b>3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)</b>
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<b>Scope:</b>	2020-1	<b>Offerings:</b>
This is the capstone course of a three course series of courses designed to introduce non-electrical engineering majors to the fundamentals of electrical engineering. These key concepts are then used to interface various sensors and actuators with a simple microprocessor using experiments that demonstrate some basic applications of a simple robot. Finally, cadets design a robot to autonomously navigate a simple maze that simulates some practical military robotics applications.		2020-1 2021-1

**Lessons:** 35 @ 55 min (2.500 Att/wk)    **Labs:** 5 @ 120 min

**Special Requirements:** A design project is required. Compensatory time given.

<b>Prerequisite(s):</b>	EE300 EE350 -Or- EE300 EE302 -Or- EE350 EE360 -Or- EE302 EE360 -Or-
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EE300 EE301  
-Or-  
EE301 EE360

EE462	ELECTRONIC DESIGN	3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)
<b>Scope:</b>	2014-2	<b>Offerings:</b>
<p>This course focuses on the design, simulation, building, and testing of a wide variety of application-oriented circuits based upon the bipolar junction transistor (BJT) and operational amplifier (OPAMP). Applications of the BJT include current sources, active loads, differential amplifiers, and power amplifiers. OPAMP applications include active filters, oscillators, and comparators. Themes common to both the BJT and OPAMP include frequency response and feedback. The classroom material is supplemented with six labs, computer-aided simulations using modern circuit simulation software, and a comprehensive design project.</p> <p><b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)      <b>Labs:</b> 7 @ 120 min</p> <p><b>Special Requirements:</b> A major design project requires cadets to design, build, and test an electrical system.</p> <p><b>Prerequisite(s):</b> EE360 EE362</p>		2019-2 2020-2 2021-2
EE477	DIGITAL COMMUNICATIONS SYSTEMS	3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)
<b>Scope:</b>	2014-2	<b>Offerings:</b>
<p>This course examines modern digital communications networks, with particular emphasis on wired networks at the physical layer and the TCP/IP network model above the physical layer. The study of digital communications systems includes waveform sampling, time multiplexing, line coding, digital modulation, and clock recovery techniques. Time and frequency domain analysis are the basis for study of bandwidth considerations, filtering, and channel and communication system modeling. Network topology, traffic representation, and link capacity assignment schemes are analyzed. Cost and time delay optimization for centralized and distributed networks are investigated. Queuing theory is presented with application to buffer modeling, buffer design considerations, and throughput constraints. Basic network design algorithms and flow control schemes are also covered. A communications system project brings these concepts to reality.</p> <p><b>Lessons:</b> 37 @ 55 min (2.500 Att/wk)      <b>Labs:</b> 3 @ 120 min</p> <p><b>Special Requirements:</b> Course project.</p> <p><b>Prerequisite(s):</b> EE362 EE381 MA206 -Or- EE363 EE381 MA206 -Or- EE363A EE381 MA206</p>		2019-2 2020-2 2021-2
EE480	OPTICAL FIBER COMMUNICATIONS	3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)
<b>Scope:</b>	2017-1	<b>Offerings:</b>
<p>The study of fiber optics provides insight into the enabling technology of the global Internet and modern day telecommunications. This course develops understanding of the devices and key components that comprise a fiber based optical communications system. Students will develop an understanding of the fundamental properties of optical fibers and the principal components required to exploit this medium. Topical coverage of the fiber medium includes modal fields, attenuation, and dispersion for both single mode and multimode fibers. Several device types will be studied to include transmitters, receivers, multiplexers, amplifiers, specialty optical fibers, and selected state-of-the-art components. Software tools and measurement equipment will be used to characterize fiber and device properties. The course culminates with students designing, building, and characterizing a fiber optic communications link.</p> <p><b>Lessons:</b> 32 @ 55 min (2.500 Att/wk)      <b>Labs:</b> 8 @ 120 min</p> <p><b>Special Requirements:</b> None</p> <p><b>Prerequisite(s):</b> EE383 -Or- XE383</p>		2019-1 2020-1 2021-1
EE482	WIRELESS COMM SYS ENGINEERING	3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)
<b>Scope:</b>	2014-2	<b>Offerings:</b>

This course provides an introduction to wireless systems engineering with applications to voice and data networks. Description of well known systems such as cell phones, pagers, and wireless LAN's is presented along with the design considerations for deployment of wireless networks. Wireless radio channel modeling along with common impairments such as multipath fading are introduced and modulation techniques well suited to the wireless applications are presented. Receivers for the various modulation schemes are analyzed in terms of performance and the trade-offs offered by source and channel coding are presented. Multiple access techniques used in wireless applications are introduced and the design of networks described. The course concludes with an analysis and description of deployed systems along with their standards and services provided.

2019-2 2020-2 2021-2

**Lessons:** 38 @ 55 min (2.500 Att/wk)      **Labs:** 2 @ 110 min

**Special Requirements:** Course Project.

**Prerequisite(s):** EE381

**Corequisite(s):** EE383

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<b>EE483</b>	<b>PHOTONICS ENGINEERING</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=3.0,MA=0.0)</b>
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**Scope:** 2005-1

**Offerings:**

2019-2 2020-2 2021-2

This course is an introduction to optoelectronic devices and systems. It begins with a review of the fundamental electromagnetic field theory, quantum mechanics, and solid state electronics that characterize optoelectronic device behavior. The course then addresses essential concepts from geometrical and physical (wave) optics. Building upon these fundamental principles, the course addresses the operating principles and design considerations of photoemitters (lasers and LED's), photodetectors, optical waveguides and signal modulators. Finally, the cadet incorporates the individual devices in the design, building and testing of a fiber optic data link.

**Lessons:** 33 @ 55 min (2.500 Att/wk)      **Labs:** 7 @ 120 min

**Special Requirements:** None

**Corequisite(s):** EE362 EE383  
-Or-  
EE362 PH382

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<b>EE485</b>	<b>SPEC TOPICS IN EE</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=3.0,MA=0.0)</b>
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**Scope:** 2011-1

**Offerings:**

2019-1 2020-1 2021-1

This course provides an in-depth study of special topics in electrical engineering not offered elsewhere in the USMA curriculum. Course content will be based on expertise of a senior electrical engineering faculty member or a Visiting Professor.

**Lessons:** 36 @ 55 min (2.500 Att/wk)      **Labs:** 4 @ 120 min

**Special Requirements:** To be determined by the senior faculty member or visiting professor.

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<b>EE486</b>	<b>SOLID STATE ELECTRONICS</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=3.0,MA=0.0)</b>
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**Scope:** 2011-2

**Offerings:**

2019-2 2020-2 2021-2

The course covers device physics, operating principles and applications of diodes, bipolar junction transistors, and field effect transistors (FET). It begins with basic properties of crystalline solids, energy diagrams, and thermal physics. P-N junction diodes are the first semiconducting device explored with further study into MOS capacitor and MOSFET based digital circuits. The course normally covers layout of complementary metal oxide semiconductor (CMOS) gates on an integrated circuit chip. Throughout the course, a number of modern electronic devices are introduced including digital memories, charge coupled devices, solar cells, photodiodes, and light emitting diodes. The laboratories are focused on integrated circuit design and layout, device characterization, and simulation using computer aided design (CAD) tools.

**Lessons:** 35 @ 55 min (2.500 Att/wk)      **Labs:** 5 @ 120 min

**Special Requirements:** Layout and fabrication of an integrated circuit chip.

**Prerequisite(s):** EE362

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<b>EE487</b>	<b>EMBEDDED SYSTEMS DEVELOPMENT</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=3.0,MA=0.0)</b>
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**Scope:** 2014-2

**Offerings:**

This course teaches students how to employ microcontrollers in the design of an embedded system. Cadets are introduced to the C programming language, which is the foundation for programming embedded systems. Students conduct a detailed study of common microcontroller peripheral devices with emphasis on their application to real-time control design. Cadets practice top-down design of both hardware and software components of moderately complex digital systems throughout the semester. Cadets are exposed to addressing, serial and parallel input and output, timing, interrupts, A-to-D and D-to-A conversion. Additionally, real-time operating systems will be introduced through the use of programmable devices and soft-processors. The cadets will learn the basics of implementing an operating system on an embedded device and linking peripherals to the processor via the operating system.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Lessons:** 33 @ 55 min (2.500 Att/wk)      **Labs:** 7 @ 120 min

**Special Requirements:** None

**Prerequisite(s):** CS380  
-Or-  
EE375  
-Or-  
EE475

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<b>EE489</b>	<b>ADV IND STUDY IN ELECT ENGR</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 1974-1

**Offerings:**

Course requirements will be tailored to the needs and qualifications of the individual cadet. The course will normally involve a project requiring research, experimentation, and the submission of a report under the guidance of a departmental advisor. Alternatively, study may take the form of a tutorial course covering material not available in the regular elective course offerings.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Lessons:** 0 @ 0 min (0.000 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** To be determined.

**Prerequisite(s):** EE363  
-Or-  
EE363A  
-Or-  
EE362

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<b>EE489A</b>	<b>ADV IND STUDY IN ELECT ENGR</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 1974-1

**Offerings:**

Temp

2019-1 2019-2

**Lessons:** 0 @ 0 min (0.000 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** EE489

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<b>EE490</b>	<b>ELEC ENGRNG SUMMER RESEARCH</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 1990-4

**Offerings:**

This course is designed to familiarize the cadet with advanced techniques for independent research in electrical engineering. The course will normally require research, development, and experimental implementation of a novel idea or concept. An oral presentation and a written project report will be completed under the supervision of a usma faculty member who serves as project advisor. The course requires three full weeks of study, completed in conjunction with the academic individual advanced development program. Scope, depth, and material covered will meet the requirements of a three-credit course in electrical engineering.

No Course Offerings

**Lessons:** 0 @ 0 min (0.000 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** Oral and written reports.

**Prerequisite(s):** EE363A

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<b>EE490A</b>	<b>ELEC ENGRNG SUMMER RESEARCH</b>	<b>2.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 1990-4

**Offerings:**



This course is designed to familiarize the cadet with advanced techniques for independent research in computer science. No Course Offerings  
The course will normally require research, development, and implementation of a novel idea or concept. An oral presentation and a written project report will be completed under the supervision of a usma faculty member who serves as project advisor. The course requires three weeks of study, completed in conjunction with the academic individual advanced development program. Scope, depth, and material covered will be equivalent to two credits of course work in electrical engineering.

**Lessons:** 0 @ 0 min (0.000 Att/wk)

**Labs:** 0 @ 0 min

**Special Requirements:**

Oral and written reports.

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<b>EE490B</b>	<b>ELEC ENGRNG SUMMER RESEARCH</b>	<b>1.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 1990-4

**Offerings:**

This course is designed to familiarize the cadet with advanced techniques for independent research in electrical engineering. The course will normally require research, development, and experimental implementation of a novel idea or concept. An oral presentation and a written project report will be completed under the supervision of a usma faculty member who serves as project advisor. The course requires three weeks of study, completed in conjunction with the academic individual advanced development program. Scope, depth, and material covered will be equivalent to one credit of course work in electrical engineering.

2018-4

**Lessons:** 0 @ 0 min (0.000 Att/wk)

**Labs:** 0 @ 0 min

**Special Requirements:**

Oral and written reports.

**Prerequisite(s):**

EE363A

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<b>IT105</b>	<b>INTRO TO COMPUTING &amp; INFO TECH</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.5,MA=0.0)</b>
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**Scope:** 2016-1

**Offerings:**

This course provides an introduction to the principles and practices of computing and information technology. The course presents foundational program design and construction techniques, with consideration given to principles of software engineering. Problem solving using computing devices as tools is a central theme throughout the course as students employ various design methodologies. Students utilize an integrated development environment and contemporary application software. Emphasis is placed on critical thinking, creativity, and learning how to learn. Students are introduced to legal, ethical, professional, and security issues and the challenges, opportunities, and attributes of the cyber domain.

2018-4 2019-1 2019-2  
2020-1 2020-2 2021-1  
2021-2

**Lessons:** 34 @ 55 min (2.500 Att/wk)

**Labs:** 6 @ 120 min

**Special Requirements:**

None

**Disqualifier(s):**

IT155

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<b>IT105X</b>	<b>INTRO TO COMPUTING &amp; INFO TECH</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2012-1

**Offerings:**

Pilot Course for revised IT105. Designed to meet the needs of the core curriculum, this fundamental course provides an introduction to the principles behind the use, function, and operation of digital computers and information technology. The course presents program design and construction techniques in moderate detail, with consideration given to principles of software engineering. Cadets will use a PC-based, integrated program development environment and sophisticated application software. Problem solving using the computer as a tool is a central theme throughout the course as cadets will employ a design methodology to solve problems efficiently and logically. Emphasis is placed on learning how to learn and individual discovery. Cadets are introduced to the internet, the use of the World Wide Web, other information technology tools, and information security.

No Course Offerings

**Lessons:** 34 @ 55 min (2.500 Att/wk)

**Labs:** 6 @ 120 min

**Special Requirements:**

None

**Disqualifier(s):**

IT105 IT155

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<b>IT105X</b>	<b>INTRO TO COMPUTING &amp; INFO TECH</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.5,MA=0.0)</b>
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**Scope:** 2018-2

**Offerings:**

Designed to meet the needs of the core curriculum, this course provides an introduction to the principles and practices of computing and information technology. The course presents foundational program design and construction techniques, with consideration given to principles of software engineering. Problem solving using computing devices as tools is a central theme throughout the course as students employ various design methodologies. Students utilize an integrated development environment and contemporary application software. Emphasis is placed on critical thinking, creativity, and learning how to learn. Students are introduced to legal, ethical, professional, and security issues and the challenges, opportunities, and attributes of the cyber domain. PILOT COURSE FOR REVISED IT105 BASED ON 75 MINUTE FORMAT.

**Lessons:** 30 @ 75 min (2.000 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

**Disqualifier(s):** IT105 IT155

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<b>IT155</b>	<b>ADV INTRO TO COMP &amp; INFO TECH</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.5,MA=0.0)</b>
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**Scope:** 2016-1

**Offerings:**

This course provides a more advanced study of the principles and practices of computing and information technology. The course presents foundational program design and construction techniques, with consideration given to principles of software engineering. Problem solving using computing devices as tools is a central theme throughout the course as students employ various design methodologies. Students utilize an integrated development environment and contemporary application software. Emphasis is placed on critical thinking, creativity, and learning how to learn. Students are introduced to legal, ethical, professional, and security issues and the challenges, opportunities, and attributes of the cyber domain.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Lessons:** 34 @ 55 min (2.500 Att/wk)      **Labs:** 6 @ 120 min

**Special Requirements:** None

**Disqualifier(s):** IT105

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<b>IT383</b>	<b>USER INTERFACE DEVELOPMENT</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=3.0,MA=0.0)</b>
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**Scope:** 2008-2

**Offerings:**

This course provides a practical introduction to user interface development and usability engineering of interactive applications. The disciplines of Human-Computer Interaction (HCI) and Software Engineering guide these endeavors, but our focus here is more applied than theoretical. Major emphasis is on the principles and techniques for human-centered design and implementation of graphical user interfaces (GUIs) within a software development lifecycle. Cadets will extend their knowledge of programming in a high-level language by learning how to use an interface builder to create a fully functional GUI. Cadets will learn and practice human-centered problem analysis techniques and usability testing methodologies to ensure that their interfaces are usable. A hypothetico-deducto approach to design is emphasized throughout their development efforts. Fundamentals taught in this course will prepare cadets for more advanced software development, development of physical devices, or a deeper theoretical look at HCI topics.

2019-2 2020-2 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** CS300  
-Or-  
CS301  
-Or-  
IT300  
-Or-  
CY300

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<b>IT384</b>	<b>NETWORK SYSTEM PROG</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=3.0,MA=0.0)</b>
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**Scope:** 2012-2

**Offerings:**

This course applies fundamental programming skills to automate interactions with a computer, a local operating system, or the Internet and so use and manage resources and services. Examples of the resources and services that the programming in this course will address include file systems, web servers, mail servers, database servers, image and audio files, compressed and encrypted files and files used in common office environments (documents, presentations, spreadsheets).

2019-2 2020-2 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** IT300  
-Or-  
CS300  
-Or-  
CY300

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<b>IT392</b>	<b>NETWORK SERVICES MGT</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=3.0,MA=0.0)</b>
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<b>Scope:</b>	2012-2	<b>Offerings:</b>
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Cadets study network services in terms of design, implementation, maintenance and security of computer servers. The learning process in this course builds on IT382 and assumes a functional network with basic connectivity. This course first covers the design and selection of hardware and software to provide network services based on identified user requirements. Cadets then learn to support the Army Enterprise through the implementation and maintenance of network services, including naming, addressing, resource management, voice over IP, and web services. Security is a pervasive theme throughout the course. While this course focuses on the practical aspect of network services, it also gives cadets a foundational understanding of the theories behind those services.

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** IT382  
-Or-  
IT350  
-Or-  
CY350

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<b>IT393</b>	<b>DATABASE SYSTEMS</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=3.0,MA=0.0)</b>
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<b>Scope:</b>	2019-1	<b>Offerings:</b>
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This course addresses the analysis, design and implementation of relational and non-relational databases. Structured query language (SQL) is covered in depth along with standard problem domain and data modeling techniques. Implementation techniques and considerations are discussed and practiced extensively. Key concepts include analysis and design using a standardized notation such as the unified modeling language (UML), data model to logical schema conversion techniques, normalization, client-server architectures and web-based access to database systems (e.g. XML). Additional advanced topics covered include system security, transaction processing, web data extraction, Big Data, MapReduce framework and key-value stores.

**Lessons:** 30 @ 75 min (2.000 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** CY300 CY305  
-Or-  
CY300 CY355

**Disqualifier(s):** CS393

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<b>IT394</b>	<b>DISTRIB APPLICATION DEVELOPMNT</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2015-2	<b>Offerings:</b>
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Building on the foundations of algorithm implementation, data representation, web development, and basic networking, this course focuses on the principles of constructing a modern distributed application. Cadets study the principles, construction, and interaction of user interface, network, web server, and database components to produce an effective distributed application. Cadets will learn new tools and skills working as a team to analyze, design, and implement a system that solves a given problem.

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** CS301 CS350  
-Or-  
CS301 CS393  
-Or-  
CS350 IT300  
-Or-  
CS393 IT300  
-Or-  
CS393 CY300

**Disqualifier(s):** CS450  
-Or-  
CS394

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<b>IT400</b>	<b>IT SEMINAR</b>	<b>2.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2013-1

**Offerings:**

This seminar will meet once or twice a week and will include all First Class cadets majoring in information technology. The seminar's instruction consists of relevant reading assignments, class discussions based on readings and case studies, and numerous distinguished guest speakers. Content will address the concerns of IT professionals as well as recent Department of Defense initiatives and new developments in the discipline. Students will develop the ability to identify, explain, and interpret local and global (professional, ethical, social, security, legal, economic, political) impacts of IT on individuals, organizations, and society. They will also be able to outline and defend the values and responsibilities of a member of the IT profession and to summarize avenues through which they can continue to grow professionally.

No Course Offerings

**Lessons:** 27 @ 55 min (1.700 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

**Corequisite(s):** IT401

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<b>IT400</b>	<b>IT PROFESSIONAL CONSIDERATIONS</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=3.0,MA=0.0)</b>
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**Scope:** 2019-2

**Offerings:**

This course addresses the concerns of information technology professionals, primarily focusing on non-technical considerations and the development of communication skills. Coursework includes a heavy emphasis on iterative written and oral presentation assignments, based on relevant reading assignments, class discussions, case studies, and distinguished guest speakers. Content will address recent Department of Defense initiatives and new developments in the computing discipline. Students will develop the ability to identify, explain, and interpret local and global (professional, ethical, social, security, legal, economic, political) impacts of computing on individuals, organizations and society. They will also be able to defend the values and responsibilities of a member of the computing profession and to summarize avenues through which they can continue to grow professionally. (CONDITIONAL APPROVAL AY16 - Full Proposal AY18)

2019-2 2020-2 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** XE401

**Corequisite(s):** XE402

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<b>IT401</b>	<b>IT SYSTEM DESIGN</b>	<b>3.5 Credit Hours</b> <b>(BS=0.0,ET=3.0,MA=0.0)</b>
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**Scope:** 2013-1

**Offerings:**

This course is the first in the senior-level integrative capstone experience. Its purpose is to prepare cadets for a coherent system integration experience. Conceptual material stresses requirements elicitation including aspects of the social, political, economic and ethical dimensions, project planning, and integration of information technologies to meet the needs of the user organization.

No Course Offerings

**Lessons:** 40 @ 55 min (3.000 Att/wk)      **Labs:** 7 @ 120 min

**Special Requirements:** IT major with First Class Standing.

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<b>IT460</b>	<b>CYBER POLICY, STRATEGY &amp; OPNS</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=1.5,MA=0.0)</b>
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**Scope:** 2017-1

**Offerings:**

This course addresses the entire spectrum of information warfare from the political, legal, and ethical aspects to the technology and techniques of cyber attack. The Political Science and Computer Science faculty jointly teach this course. The course covers how digitization has changed the world and the national security environment of the United States. Students also learn how attack and defense are conducted in cyberspace through classroom discussion and hands-on exercises in the IWAR Laboratory. The course culminates with a group project in which cadets are given a real scenario and possible U.S. objectives and then develop and brief an information operation plan.

2019-1 2020-1 2021-1

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):**

-Or-

-Or-

-Or-

-Or-

IT105 SS307

-Or-

IT105 SS357

-Or-

IT155 SS307

-Or-

IT155 SS357

<b>IT485</b>	<b>SPEC TOPIC IN INFORMATION TECH</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2004-1

**Offerings:**

This course provides in-depth study of a special topic in information technology not offered elsewhere in the USMA curriculum. Course content will be based on the special expertise of the visiting professor or a senior information technology faculty member.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

**Special Requirements:** To be determined by the program director

<b>IT491</b>	<b>IT INDEPENDENT STUDY</b>	<b>1.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2007-1

**Offerings:**

This elective will be tailored to the specific project and to qualifications of the cadet. The research, study program, or special project will be proposed by the cadet or selected from those proposed by the department. The cadet will formalize a proposal, develop a viable research plan, and conduct project design under the guidance and supervision of a faculty advisor. The Head of the Department will approve cadet projects. Lessons and labs established through consultation between cadet and advisor.

No Course Offerings

**Lessons:** 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

**Special Requirements:** Grades based largely on research paper or project report and presentation to faculty.

<b>IT492</b>	<b>IT INDEPENDENT STUDY</b>	<b>2.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2007-1

**Offerings:**

This elective will be tailored to the specific project and to qualifications of the cadet. The research, study program, or special project will be proposed by the cadet or selected from those proposed by the department. The cadet will formalize a proposal, develop a viable research plan, and conduct project design under the guidance and supervision of a faculty advisor. The Head of the Department will approve cadet projects. Lessons and labs established through consultation between cadet and advisor.

No Course Offerings

**Lessons:** 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

**Special Requirements:** Grades based largely on research paper or project report and presentation to faculty

<b>IT493</b>	<b>IT INDEPENDENT STUDY</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2007-1

**Offerings:**

This elective will be tailored to the specific project and to qualifications of the cadet. The research, study program, or special project will be proposed by the cadet or selected from those proposed by the department. The cadet will formalize a proposal, develop a viable research plan, and conduct project design under the guidance and supervision of a faculty advisor. The Head of the Department will approve cadet projects. Lessons and labs established through consultation between cadet and advisor.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Lessons:** 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

**Special Requirements:** Grades based largely on research paper or project report and presentation to faculty.

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<b>XE383</b>	<b>ELECTROMAGNETIC WAVES</b>	<b>3.0 Credit Hours</b> <b>(BS=3.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2018-2	<b>Offerings:</b>
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This course is an introduction to electromagnetic waves, which are the foundation of electrical engineering and applied physics. The course begins with transmission line analysis using circuit models and reviews the mathematical tools (vector algebra and calculus) that are used to describe electromagnetic phenomena. Maxwell's equations are solved to describe time-harmonic fields under various boundary conditions and at interfaces between dissimilar media. Additional topics include the applications of electromagnetic wave theory to transmission lines, antennas and waveguides, as well as the role of electromagnetics in science, technology and society. Laboratory exercises are conducted to experimentally characterize transmission lines and antennas, and to provide instructor-assisted problem solving sessions. Additionally, Cadets complete a computer project on finding the numerical solutions to Maxwell's equations.

**Lessons:** 32 @ 55 min (2.500 Att/wk)    **Labs:** 4 @ 120 min

**Special Requirements:** None

**Prerequisite(s):** PH382

**Corequisite(s):** MA364  
-Or-  
MA365

**Disqualifier(s):** EE383

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<b>XE401</b>	<b>INTEGRATIVE SYSTEM DESIGN I</b>	<b>3.5 Credit Hours</b> <b>(BS=0.0,ET=3.5,MA=0.0)</b>
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<b>Scope:</b>	2019-1	<b>Offerings:</b>
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This course is the first part of a two-semester team-based capstone design experience in electrical engineering, computer science and information technology. It provides an integrative experience, presenting each cadet team with a professionally relevant, open-ended situation including professional, ethical, social, security, legal, economic, and political dimensions, where an engineering approach has strong potential to produce benefits. Under the guidance of a faculty advisor for each project team, cadets develop client-focused products, applying the principles of design and implementation to effect an optimal outcome for the circumstances presented to the team by creating a product or service that meets requirements and constraints negotiated with the client. (CONDITIONALLY APPROVED in AY16 - FULL PROPOSAL AY18)

**Lessons:** 40 @ 110 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** A senior design project is required in this course.

**Prerequisite(s):** CS403  
-Or-  
EE362  
-Or-  
IT394

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<b>XE402</b>	<b>INTEGRATIVE SYSTEM DESIGN</b>	<b>3.5 Credit Hours</b> <b>(BS=0.0,ET=3.5,MA=0.0)</b>
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<b>Scope:</b>	2013-1	<b>Offerings:</b>
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This course is team-based capstone design experience in electrical engineering, computer science and information technology. It provides an integrative experience, presenting each cadet team with a professionally relevant, open-ended situation including professional, ethical, social, security, legal, economic, and political dimensions, where an engineering approach has strong potential to produce benefits. Under the guidance of a faculty advisor for each project team, cadets develop client-focused products, applying the principles of design and implementation to effect an optimal outcome for the circumstances presented to the team by creating a product or service that meets requirements and constraints negotiated with the client.

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 8 @ 120 min

**Special Requirements:** Prerequisite for this course is First Class standing in an academic major offered by the Department of Electrical Engineering and Computer Science.

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<b>XE402</b>	<b>INTEGRATIVE SYSTEM DESIGN II</b>	<b>3.5 Credit Hours</b> <b>(BS=0.0,ET=3.5,MA=0.0)</b>
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<b>Scope:</b>	2019-2	<b>Offerings:</b>
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This course is team-based capstone design experience in electrical engineering, computer science and information technology. It provides an integrative experience, presenting each cadet team with a professionally relevant, open-ended situation including professional, ethical, social, security, legal, economic, and political dimensions, where an engineering approach has strong potential to produce benefits. Under the guidance of a faculty advisor for each project team, cadets develop client-focused products, applying the principles of design and implementation to effect an optimal outcome for the circumstances presented to the team by creating a product or service that meets requirements and constraints negotiated with the client.

**Lessons:** 40 @ 55 min (2.500 Att/wk)

**Labs:** 8 @ 120 min

**Special Requirements:**

Prerequisite for this course is First Class standing in an academic major offered by the Department of Electrical Engineering and Computer Science.

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<b>XE442</b>	<b>ALTERNATIVE ENERGY ENGINEERING</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=3.0,MA=0.0)</b>
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**Scope:**

2015-1

**Offerings:**

This course provides a study of the fundamentals of alternative energy generation, storage, integration and efficient use. Solar power (both solar thermal and photovoltaic), wind power, hydro power, fuel cells and other sources of energy are covered. Focus is placed on energy conversion, modeling alternative energy sources, and integration of these sources into the power grid. The technical, economic, and political challenges associated with these alternative energies is covered in depth.

2019-1 2020-1 2021-1

**Lessons:** 36 @ 55 min (2.500 Att/wk)

**Labs:** 4 @ 120 min

**Special Requirements:**

None

**Prerequisite(s):**

EE301  
-Or-  
EE302

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<b>XE472</b>	<b>DYNAMIC MODELING AND CONTROL</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=3.0,MA=0.0)</b>
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**Scope:**

2011-1

**Offerings:**

This course covers dynamic modeling and control of linear systems. The course provides an overview of classical control theory as the foundation for control applications in electrical, mechanical, and aeronautical systems. Topics here include system modeling using Laplace transform, frequency domain, and state variable methods. Mathematical models are developed for electrical, mechanical, aeronautical, chemical and other physical control systems. Control systems analysis and design techniques are studied within the context of how each system is physically controlled in practice. Laboratory exercises include feedback design and system identification. Computer design exercises include dynamic modeling and control of various engineering systems.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Lessons:** 36 @ 55 min (2.500 Att/wk)

**Labs:** 4 @ 120 min

**Special Requirements:**

Computer interactive exercises.

**Prerequisite(s):**

EE301  
-Or-  
EE302  
-Or-  
EE350 MA205  
-Or-  
EE350 MA255

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<b>XE492</b>	<b>DISRUPTIVE INNOVATIONS</b>	<b>3.0 Credit Hours</b> <b>(BS=0.5,ET=2.5,MA=0.0)</b>
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**Scope:**

2013-1

**Offerings:**

The course begins by developing the background understanding of what disruptive technology is and a historical context about successes and failures of social, cultural, and religious acceptance of technological innovation. To develop this framework, students read several texts underlying the innovator's dilemma, how scientific revolutions are structured, and cultural distinctions found between the sciences and humanities. For each class meeting, students read current scientific and technical literature and come prepared to discuss current events related to technological innovation. Each student researches potential disruptive technologies and prepares a compelling argument of why the specific technologies are disruptive so they can defend their choice and rationale. Cadets also interact with national level innovators throughout academia, industry, and government.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)

**Labs:** 0 @ 0 min

**Special Requirements:**

None

**XE497****CRITICAL SCIENTIFIC REASONING****3.0 Credit Hours**  
**(BS=0.0,ET=0.0,MA=0.0)****Scope:**

2013-1

**Offerings:**

The purpose of XE497, Critical Scientific Reasoning, is to improve the students' ability to analyze complex problems in a variety of applied physical science applications using mathematical, scientific, and engineering principles and clearly articulate their analysis and results verbally and in writing. The process of pursuing this goal will make cadets better officers, scholars, and citizens. Several methods will be applied to assist in the pursuit of these goals. Fundamental scientific laws, principles, and theorems and their application to scientific and engineering problem solving will be reviewed. Breadth across a variety of scientific and engineering disciplines will be achieved by studying and discussing current research activities from a variety of fields as well as examining the limitations to scientific advancement in each field. The course will draw from several disciplines including Biology, Chemistry, Civil Engineering, Computing Sciences, Electrical Engineering, Mathematical Science, Mechanical Engineering and Physics. In order to take advantage of the diverse skills of the USMA faculty and selected experts from outside USMA, some classes will be led by guest instructors, each of whom will recommend readings in support of his or her topic.

No Course Offerings

**Lessons:** 40 @ 55 min (2.500 Att/wk)**Labs:** 0 @ 0 min**Special Requirements:**

Department Head approval to enroll. Open only to First Class cadets.



## Department of English and Philosophy

### 71 Courses

EN100	FOUNDATIONAL WRITING	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2017-1	<b>Offerings:</b>
This foundational course will provide cadets with the basic critical reading and writing skills necessary to enter EN101. EN100 aims to develop an awareness of substance, organization, style, and correctness through close, critical reading and by focusing on sentence- and paragraph- level composition. Through daily writing, exercises, and one-on-one conferences, cadets will develop the clear, logical, and grammatically correct writing that will enable them to succeed in EN101.		2019-1 2020-1 2021-1
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
EN101	COMPOSITION	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2016-1	<b>Offerings:</b>
This course aims to develop clear, logical, and grammatically correct expression in written discourse. Augmented by one-on-one writing conferences, daily writing and revision reinforce instruction in the writing process. Organization, substance, style, and correctness in written communication are major concerns of the course, but the course improves other modes of discourse through a process-oriented approach to composition.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
EN102	LITERATURE	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2016-2	<b>Offerings:</b>
As an introduction to the study of literature, EN102 provides Cadets the opportunity to refine the skills of oral and written communication practiced in EN101 and to develop certain foundational capacities essential to undergraduate learning and to professional development: critical thinking, close reading, empathy, intellectual agility, emotional intelligence, and creativity. By studying the most challenging and complex employment of language in its most difficult forms, Cadets confront ambiguity and hone their interpretive skills through the judicious interpretation of evidence. Rigorous immersion in literature enables Cadets to increase their command of the English language and to deepen their appreciation for the power and beauty of literary expression. By engaging with major literary genres Cadets cultivate awareness of the central importance of literature to their own culture and to the cultures of various regions and nations across the globe. In their encounter with diverse perspectives Cadets acquire insight into the human condition and begin to grapple with the ethical issues that are the focus of study in PY201.		2018-5 2019-1 2019-2 2019-3 2020-1 2020-2 2020-3 2021-1 2021-2 2021-3
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	EN101 -Or- EN151	
EN151	ADVANCED COMPOSITION	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2018-1	<b>Offerings:</b>
This advanced course, into which the Department of English and Philosophy places select cadets, further develops the skills of accomplished writers. This course demands a rigorous and disciplined approach to writing through intensive study and research. It also demands attention to the nuances and persuasiveness of language itself. The course challenges cadets to push their writing beyond basic, first-year academic prose through an emphasis on advanced figures of speech and thought, through a deliberate attention to style, and through an in-depth approach to reading and research. This course expects cadets to think critically and to discover and articulate new ideas and original arguments through persuasive, polished, and mature writing. Finally, this course instills habits of mind that will serve cadets throughout their academic and military careers. Because this is an advanced version of EN101, cadets will be placed in EN151 individually, based on the results of a placement exam given in the summer prior to enrollment and by approval of the Head of the Department of English and Philosophy.		2019-1 2020-1 2021-1

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** Cadets who have credit for EN101 are disqualified from taking EN151.

**Disqualifier(s):** EN101

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<b>EN152</b>	<b>ADVANCED LITERATURE</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2016-1

**Offerings:**

This course is an advanced version of EN102 for Cadets who validate EN101. The course revolves around the innovative interpretation of literary texts, though it simultaneously acquaints Cadets with strategies for grounding these interpretations in concrete textual evidence and logical inferences. EN152 promotes close, deliberate reading of literary works, and presents a comprehensive overview of the terms and tenets of literary studies. Due to the fact that students enrolled in EN152 will have placed out of EN101, the course places less emphasis on learning the steps in the writing process and more emphasis on how writing, as a process, allows for the further development of one's critical thinking and analytical skills. Finally, EN152 explores the power of literature to promote ethical awareness, cultivate empathy, and emphasize a shared sense of humanity.

No Course Offerings

**Lessons:** 40 @ 55 min (0.000 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** None

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<b>EN300</b>	<b>LITERARY METHODOLOGIES</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2018-1

**Offerings:**

This course provides cadets the methodological tools required to analyze and evaluate primary and secondary sources. Through the study of representative primary sources ranging from the ancient to the postmodern, cadets will learn the critical vocabularies and theoretical contexts necessary for the meaningful study of literature. Attention to the nature and history of literary genres, the historical development of literary criticism, and a variety of theoretical approaches to literature will provide cadets with the foundational knowledge required of an English major.

2019-1 2019-2 2020-1  
2021-1

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** A few essays of moderate length.

**Corequisite(s):** EN102

**Disqualifier(s):** EN333

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<b>EN302</b>	<b>ADVANCED COMP THROUGH CULTURE</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2014-1

**Offerings:**

This interdisciplinary writing course refines basic composition skills, develops sophisticated techniques of written expression, and establishes a critical editorial sense with respect to the cadet's own composition and the writing of others. It also serves as a vehicle for the development of cross-cultural competency and understanding as students learn productive ways to negotiate cultural differences, interpret unfamiliar cultural expressions, and to contextualize new cultural knowledge within an expanding comprehension of globalization. Exemplary readings, representative of a specified cultural destination, give focus to writing assignments, while revision and student-teacher conferences emphasize the writing process and the constitutive elements of substance, organization, style, correctness, and the conventions of written academic assignments, including documentation standards.

No Course Offerings

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** PY201  
-Or-  
PY251

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<b>EN311</b>	<b>ANCIENT TO EARLY MODERN LIT</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2018-1

**Offerings:**

This course will focus primarily on the development of the Western literary canon from antiquity to the Early Modern period. Cadets may read from the works of Greek and Roman authors such as Homer, Sophocles, Thucydides, Cicero, Virgil, Ovid, from Medieval authors such as St. Thomas Aquinas, Sir Thomas Malory, Geoffrey Chaucer, and from Early Modern authors such as John Donne, George Herbert, Ben Johnson, and Miguel de Cervantes. Cadets will explore a variety of genres including, but not limited to, epic poetry, histories, drama, and lyric poetry. This course may take its focus from a central theme or idea and trace that theme or idea in the course texts.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

**Corequisite(s):** EN102  
-Or-  
EN152

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<b>EN321</b>	<b>AMERICAN LITERATURE I</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2018-1 **Offerings:**

The course will focus on the development of American literature from early contact to the Civil War. Students will read from works by such authors as the Puritans, Jefferson, Lincoln, the Transcendentalists, Dickinson, Whitman, and Melville, as well as literature outside of the New England canon: for example, works by Native Americans, French and Spanish colonizers, and African captives. All works will be considered in the context of cultural and intellectual history. We will consider a broad range of genres and modes of writing, including (but not limited to) colonial theory, ethnography, autobiography, fiction, essays, and poetry. A central concern of the course will be the question of what constitutes American literature.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** A few essays of moderate length.

**Corequisite(s):** PY201

**Disqualifier(s):** EN343

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<b>EN322</b>	<b>AMERICAN LITERATURE II</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2018-2 **Offerings:**

This course will examine both traditional and nontraditional writings from the Civil War to the present. We will examine post-Civil War literature and the myriad, often contradictory desires--economic, aesthetic, sexual, spiritual, and intellectual--to which it gives expression. The course will provide a framework within which students may examine the literature in an historical context. As does American Literature I, the course stresses the diversity of experience and poetics that characterizes American literature. In addition, students will trace the evolution of important literary movements and philosophical influences, as well as the metamorphosis of certain genres over time.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** A few essays of moderate length.

**Corequisite(s):** PY201

**Disqualifier(s):** EN348

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<b>EN331</b>	<b>BRITISH LITERATURE I</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2019-1 **Offerings:**

This course is an introduction to the study of British literature, ranging from the Anglo-Saxon period through the eighteenth century. Cadets will encounter representative masterworks from the Old English, Medieval, Renaissance, and Neoclassical periods, exploring in the process the development of literary forms, the culture of the British Isles, and the English language itself. Possible areas of emphasis include narrative and lyric poetry from all these periods, drama from the Middle Ages and Renaissance, the periodical essay from the Neoclassical period, and the emergence of the novel as a distinct form of literature in the eighteenth century.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

**Corequisite(s):** PY201

**Disqualifier(s):** EN341

EN332	BRITISH LITERATURE II	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2019-2	<b>Offerings:</b>
<p>This course continues the survey initiated in British Literature I by considering major authors and works of the nineteenth and twentieth centuries. Through representative but necessarily selective readings, cadets will trace the development of British literature from the Romantic Period into the Victorian Age and then to the present day. Possible areas of emphasis include poetry of the English Romantics; Victorian poetry and prose, to include the novel; and poetry, short fiction, and drama from the twentieth century. Study will emphasize the relation of the works considered to the cultural history of Great Britain and the British Empire and will attend as well to the wider influence of the British tradition.</p>		2019-2 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	A few essays of moderate length.	
<b>Corequisite(s):</b>	PY201	
<b>Disqualifier(s):</b>	EN346	
EN340	CONTEMPORARY LITERATURE	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2019-1	<b>Offerings:</b>
<p>This course examines literature of the later 20th and the 21st centuries. In addition, it may explore the implications of contemporary information technologies for traditional literary forms, the role of globalization in literary production and reception, or the relation of literature to pressing current issues such as persistent violent conflict, immigration, and climate change. Possible genres and modes of writing include (but are not limited to) short fiction, the novel, poetry, graphic narrative, and electronic literature. A central concern of the course will be the question of what constitutes literature in the contemporary period, a time marked by developing and often differing trends.</p>		2019-1 2021-1
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Corequisite(s):</b>	EN102 -Or- EN152	
EN351	WORLD LITERATURE	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2017-1	<b>Offerings:</b>
<p>This course enhances cadets' cultural awareness and refines their disciplinary knowledge and interpretive skills by introducing them to major literary texts from around the globe. As an advanced exercise in comparative study and synthesis, World Literature builds on core courses such as EN302 and foreign language offerings. The prose and poetry of a variety of periods and a range of countries provide contexts for and contrasts to the Anglo-American tradition. In a given semester typical texts could include epics and tragedies of Ancient Greece and Rome, Russian novels, works of medieval Islamic literature, haiku of Japan, Continental European novels of the nineteenth century, or postmodern fiction of South America. This course familiarizes students not only with important literary forms and genres but also with cultural and historical contexts for many of the most pressing issues in our volatile world.</p>		2019-1 2021-1
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	A few essays of moderate length.	
<b>Corequisite(s):</b>	PY201	
EN352	POWER AND DIFFERENCE	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2018-1	<b>Offerings:</b>
<p>This course examines the complex relationship between language and power through in-depth study of texts. The course focus may include but is not limited to Indigenous literature, Asian-American literature, African-American literature, and LGBTQ literature.</p>		2019-2 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	A few essays of moderate length.	
<b>Corequisite(s):</b>	PY201	

<b>Disqualifier(s):</b>	EN392	
<b>EN353</b>	<b>WAR LITERATURE</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2019-2	<b>Offerings:</b>
This course ranges widely across cultures and historical periods in studying how human creative imagination has dealt with war. The works in this course are especially illuminating to professional soldiers.		2019-2 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	A few essays of moderate length.	
<b>Corequisite(s):</b>	PY201	
<b>Disqualifier(s):</b>	EN374	
<b>EN354</b>	<b>SPECIAL TOPICS COLLOQUIUM</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2018-1	<b>Offerings:</b>
This course explores an special topic in Literature. Specific subject matter will vary with the expertise of the senior faculty member conducting the course.		2019-2 2020-2 2021-2
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Corequisite(s):</b>	PY201	
<b>EN355</b>	<b>CRITICISM COLLOQUIUM</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2018-2	<b>Offerings:</b>
This course introduces cadets to the theory of interpretation and the practice of literary criticism. Through the study of critics ranging from the ancient to the postmodern, Cadets investigate mimetic, pragmatic, expressive, and objective schools. They also cultivate their own philosophies of interpretation and apply them to primary texts. Readings may focus on aesthetic, cultural, and ethical dimensions of literature, on the role of the critic, and on the proliferation of competing theories during the latter half of the twentieth century.		No Course Offerings
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	A few essays of moderate length.	
<b>Corequisite(s):</b>	PY201	
<b>Disqualifier(s):</b>	EN344	
<b>EN361</b>	<b>POETRY</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2018-1	<b>Offerings:</b>
Embracing a wide variety of authors, works, periods, traditions, and forms, this course considers the literary genre through which human beings have expressed their most intensely imaginative visions of themselves and the world, and connections between the two. Some consideration of poetics and prosody will complement the cadets' reading of verse that ranges from Japanese haiku through the Shakespearean sonnet to the free-verse creations of modern and contemporary poets.		2020-1
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	A few essays of moderate length.	
<b>Corequisite(s):</b>	PY201	
<b>Disqualifier(s):</b>	EN391	
<b>EN362</b>	<b>FILM AND FILM THEORY</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>

<b>Scope:</b>	2018-2	<b>Offerings:</b>
This course examines film as the major new art form of the twentieth century. Screenings of important films and readings in film theory introduce cadets to the origins, evolution, and cultural influence of cinema. Cadets explore connections between film and the other arts as well as the relationship between art and technology. Topics may include the Hollywood studio system, the transition to sound, world cinema, auteur theory, screenwriting, censorship, and propaganda.		2020-2
<b>Lessons:</b>	34 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 6 @ 120 min
<b>Special Requirements:</b>	A few essays of moderate length.	
<b>Corequisite(s):</b>	PY201	
<b>Disqualifier(s):</b>	EN342	
<b>EN363</b>	<b>THE NOVEL</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2018-2	<b>Offerings:</b>
In this course the word novel designates any extended fictional narrative, almost always in prose. Cadets will explore the novel of kind or time or both, and, in addition to becoming better readers, will work toward understanding the culturally complex world around them.		2020-2
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	A few essays of moderate length	
<b>Corequisite(s):</b>	PY201	
<b>Disqualifier(s):</b>	EN385	
<b>EN364</b>	<b>DRAMA</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2019-1	<b>Offerings:</b>
This course surveys significant plays from a variety of periods and traditions to give cadets an appreciation of a genre that exists as both written literature and creative interpretation. Works to be studied range from the classical tragedies of ancient Greece through the great products of the English renaissance to modern efforts by British and American playwrights. Although the primary focus rests upon the Anglo-American tradition, the course will not neglect dramatists from other countries and cultures.		2019-1 2021-1
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	A few essays of moderate length.	
<b>Corequisite(s):</b>	PY201	
<b>Disqualifier(s):</b>	EN367	
<b>EN367</b>	<b>DRAMA</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2017-1	<b>Offerings:</b>
This course surveys significant plays from a variety of periods and traditions to give cadets an appreciation of a genre that exists as both written literature and creative interpretation. Works to be studied range from the classical tragedies of ancient Greece through the great products of the English renaissance to modern efforts by British and American playwrights. Although the primary focus rests upon the Anglo-American tradition, the course will not neglect dramatists from other countries and cultures.		No Course Offerings
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	A few essays of moderate length.	
<b>Corequisite(s):</b>	PY201	
<b>EN370</b>	<b>SHAKESPEARE</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2019-2	<b>Offerings:</b>

This course surveys representative Shakespearean plays, including great tragedies, histories, and comedies. Study stresses the nature of Shakespeare's genius and the relation of his works to the cultures of all ages.

2019-2 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** A few essays of moderate length.

**Corequisite(s):** PY201

**Disqualifier(s):** EN394

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<b>EN371</b>	<b>SINGLE-AUTHOR COLLOQUIUM</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2018-2	<b>Offerings:</b>
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This elective course provides in-depth study of a single author's life and work. The featured author will vary depending on instructor expertise and preference as well as department need. The course allows cadets to gain an insight into the life and work of important authors deeper than the necessarily limited exposure within a survey or genre course affords. The course invites cadets to explore the relationships between biography and creative output, to understand individual works within the context of a writer's larger oeuvre, and to see individual authors as both agents and products of their world.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

**Corequisite(s):** EN102  
-Or-  
EN152

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<b>EN371A</b>	<b>SINGLE AUTHOR COLLOQUIUM</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2018-2	<b>Offerings:</b>
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This elective course provides in-depth study of a single author's life and work. The featured author will vary depending on instructor expertise and preference as well as department need. The course allows cadets to gain an insight into the life and work of important authors deeper than the necessarily limited exposure within a survey or genre course affords. The course invites cadets to explore the relationships between biography and creative output, to understand individual works within the context of a writer's larger oeuvre, and to see individual authors as both agents and products of their world.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** Students may take EN371A only after completing EN371, and with permission of the English Program Director.

**Prerequisite(s):** EN371

**Corequisite(s):** EN102  
-Or-  
EN152

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<b>EN385</b>	<b>THE NOVEL</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2016-2	<b>Offerings:</b>
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In this course the word novel designates any extended fictional narrative, almost always in prose. Cadets will explore the novel of kind or time or both, and, in addition to becoming better readers, will work toward understanding the culturally complex world around them.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** A few essays of moderate length.

**Corequisite(s):** PY201

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<b>EN400</b>	<b>SEMINAR IN ADV LITERARY STUDY</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2019-1	<b>Offerings:</b>
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This course provides cadets with the opportunity for advanced study in the discipline. Through a focus on a particular topic in literature, cadets will build on the foundation established in EN300. They will deepen their mastery of critical methods and theoretical models and grow as scholars by closely examining an author, period, theme, issue, or debate from multiple perspectives. Through intensive study of primary and secondary texts, this course broadens the knowledge base by bridging disciplinary approaches and setting the stage for cadets' continued educational development.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** A major project and a few essays of moderate length.

**Corequisite(s):** EN300  
-Or-  
EN333  
-Or-  
EP333

**Disqualifier(s):** EN433

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<b>EN401</b>	<b>SENIOR THESIS I</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2019-1	<b>Offerings:</b>
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This course permits cadets with the requisite energy and talent to initiate a yearlong project requiring research in depth that culminates in a substantial thesis of high scholarly quality.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

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<b>EN402</b>	<b>SENIOR THESIS II</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2019-2	<b>Offerings:</b>
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This course permits cadets to complete a yearlong project requiring research in depth that culminates in a substantial thesis of high scholarly quality.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** Oral defense of thesis.

**Prerequisite(s):** EN401

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<b>EN433</b>	<b>SEMINAR IN ADV LITERARY STUDY</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2016-1	<b>Offerings:</b>
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No Course Offerings

This course provides cadets with the opportunity for advanced study in the discipline. Through a focus on a particular topic in literature, cadets will build on the foundation established in EN333. They will deepen their mastery of critical methods and theoretical models and grow as scholars by closely examining an author, period, theme, issue, or debate from multiple perspectives. Through intensive study of primary and secondary texts, this course broadens the knowledge base by bridging disciplinary approaches and setting the stage for cadets' continued educational development.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** A major project and a few essays of moderate length.

**Corequisite(s):** EN333  
-Or-  
EP333

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<b>EN490</b>	<b>INDEPENDENT STUDY: LITERATURE</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2016-1	<b>Offerings:</b>
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No Course Offerings

This optional elective offers the cadet an opportunity for in-depth study of an advanced topic in Literature under the mentorship of a senior faculty advisor. The scope and topic of the course are developed in consultation with the faculty advisor and appropriately build upon academic work already completed in the regular Literature electives. Since such a course is beyond normal teaching duties, an agreement to serve as a faculty advisor will be at the discretion of the faculty member. Enrollment is subject to Department approval.

**Lessons:** 0 @ 0 min (0.000 Att/wk)      **Labs:** 0 @ 0 min



<b>Special Requirements:</b>	None	
<b>EP487</b>	<b>SENIOR THESIS I</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2005-1	<b>Offerings:</b>
This course permits cadets with the requisite energy and talent to initiate a yearlong project requiring research in depth that culminates in a substantial thesis of high scholarly quality.		No Course Offerings
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>EP488</b>	<b>SENIOR THESIS II</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2005-2	<b>Offerings:</b>
This course permits cadets to complete a yearlong project requiring research in depth that culminates in a substantial thesis of high scholarly quality.		No Course Offerings
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	Oral defense of thesis.	
<b>Prerequisite(s):</b>	EP487	
<b>PY201</b>	<b>PHILOSOPHY &amp; ETHICAL REASONING</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2016-1	<b>Offerings:</b>
This course helps third-class Cadets develop their capacities to think clearly and critically and to write in a logically rigorous and conceptually precise manner. The course acquaints Cadets with various viewpoints on major philosophic issues, a significant part of it is devoted to developing Cadets' ethical reasoning ability. The study of ethical theory provides the foundation for this ability as well as the foundation for their Academy's character development efforts. The course also includes a substantial block on the ethical application of military power through the study of the Just War Tradition.		2018-5 2019-1 2019-2 2019-3 2019-5 2020-1 2020-2 2020-3 2021-1 2021-2 2021-3
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	A few essays of moderate length.	
<b>Prerequisite(s):</b>	EN102 -Or- EN152	
<b>Disqualifier(s):</b>	PY251	
<b>PY251</b>	<b>ADVANCED PHILOSOPHY AND ETHICS</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2016-1	<b>Offerings:</b>
This course is an advanced introduction to philosophy and ethics. It helps third-class Cadets develop their capacities to think clearly and critically and to write in a logically rigorous and conceptually precise manner. The course acquaints Cadets with various viewpoints on major philosophic issues, and a significant part of the course is devoted to developing Cadets' ethical reasoning ability. The study of ethical theory provides the foundation for this ability as well as the foundation for the Academy's character development efforts. The course also includes a substantial block on the ethical application of military power through the study of the Just War Tradition.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	EN102 -Or- EN152	
<b>Disqualifier(s):</b>	PY201	
<b>PY300</b>	<b>PHILOSOPHICAL METHODS</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>

<b>Scope:</b>	2017-1	<b>Offerings:</b>
This course provides cadets the methodological tools required to analyze and understand the important moments and topics in philosophy, developing the philosophical language necessary for success within the philosophy curriculum. Through the study of philosophy within the western tradition, cadets will learn about major developments in logic, metaphysics, epistemology, and ethics, among other areas. This background provides the foundational knowledge required of a philosophy major.		2019-1 2020-1 2021-1
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	A few essays of moderate length.	
<b>Corequisite(s):</b>	PY201 -Or- PY251	
<b>Disqualifier(s):</b>	PY333	
<b>PY305</b>	<b>LOGICAL REASONING</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2017-2	<b>Offerings:</b>
This course blends two areas of study that are often kept separate in university courses on logic: informal logic and formal (or symbolic) logic. Informal logic's emphasis is on natural language arguments relatively simple in structure, on rules of valid inference as codified in what is called traditional logic, and on the identification of mistakes in reasoning that make arguments logically weak though possibly persuasive (fallacies). Formal logic builds a symbolic representation of sentences and arguments, describes rigorous tests for determining whether symbolized arguments are valid, and provides the means to assess arguments of far greater complexity than the rules of traditional logic are able to manage.		2019-2 2020-2 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	A few essays of moderate length.	
<b>Corequisite(s):</b>	PY201 -Or- PY251	
<b>Disqualifier(s):</b>	PY359	
<b>PY310</b>	<b>REALITY AND KNOWLEDGE</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2018-1	<b>Offerings:</b>
This course will address the perennial questions concerning the nature of reality (metaphysics) and what we can know about it (epistemology). How do we acquire knowledge of the physical world, the nonphysical world? Are there noncorporeal entities (souls, deities, angels)? If so, what can we claim to know about them? How are belief and knowledge related? A systematic and comprehensive approach to these problems and others will entail reading works by Plato, Aristotle, Descartes, Locke, Leibniz, Hume, and Kant, as well as more recent metaphysicians and epistemologists.		2020-1
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	A few essays of moderate length.	
<b>Corequisite(s):</b>	PY201 -Or- PY251	
<b>Disqualifier(s):</b>	PY383	
<b>PY320</b>	<b>ETHICS</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2019-2	<b>Offerings:</b>
This course offers a systematic examination and comparison of standard Ethical doctrines as well as an analysis of some of the fundamental concepts and assumptions belonging to the nature of ethical thinking itself (Meta-ethics). The ethical doctrines to be studied include those associated with renowned philosophers such as Aristotle (virtue theory), Kant (deontology), and Mill (utilitarianism). The focus will be not only on original texts which advance the doctrines but also on criticisms and defenses of them by contemporary philosophers. The texts of Meta-ethics to be studied belong to the analytic tradition of Philosophy and concern the meaning and status of normative language in general. PY320 provides a worthwhile background Cadets may apply in any course in applied Ethics, such as PY325 Military Ethics and PY326 Cyber Ethics. It will also prove useful to Cadets in other academic majors, particularly in Political Theory, Law, and History.		2019-2 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** PY201  
-Or-  
PY251

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<b>PY325</b>	<b>MILITARY ETHICS</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2019-1	<b>Offerings:</b>
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The fundamental values and principles of the warrior ethos can be traced back to ancient Greece and Rome. These values provide the moral boundaries of the military profession and distinguish members of this profession from other individuals and groups who employ violence to achieve their ends. Cadets in this course will examine the moral principles that define the profession of arms, both in terms of when the use of force is permissible (or even obligatory) to achieve political objectives, and what, if any, limits ought to govern how that force is used.

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** A few essays of moderate length.

**Corequisite(s):** PY201  
-Or-  
PY251

**Disqualifier(s):** PY365

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<b>PY326</b>	<b>CYBER ETHICS</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2017-1	<b>Offerings:</b>
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This multi-disciplinary course will examine the current ethical, social and legal issues related to cyberspace, with a particular focus on: (1) the regulation or regulability of cyberspace; (2) the inherent tensions between traditional government surveillance and public safety efforts and the growing necessity for strong cyber security practices; (3) the ethical concerns surrounding government secrecy; (4) privacy and anonymization in cyberspace; and (5) cyber weapons and cyberwar.

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** PY201

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<b>PY329</b>	<b>TOPICS IN ETHICS</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2018-2	<b>Offerings:</b>
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This course provides cadets an opportunity for reading and analysis in depth of some of the seminal philosophical works in ethics. Taught in seminar format, the course challenges first-class and second-class cadets to take responsibility for discussion and analysis and for drawing connections between ideas as they occur throughout history and across cultures. The cadets will gain a deeper understanding of the human condition and of the complex world of values.

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** None

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<b>PY330</b>	<b>POLITICAL PHILOSOPHY</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2019-1	<b>Offerings:</b>
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Examining the major theories and problems in the history of political philosophy from Plato to Rawls and emphasizing contemporary theory, this course includes such topics as liberty, equality, political authority, the obligation to obey the State, civil disobedience, anarchism, liberalism, conservatism, democracy, meritocracy, affirmative action, and global politics.

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** A few essays of moderate length.

<b>Corequisite(s):</b>	PY201 -Or- PY251
<b>Disqualifier(s):</b>	PY363

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<b>PY345</b>	<b>PHILOSOPHY OF RELIGION</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2018-1	<b>Offerings:</b>
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This course examines the nature of religion and its truth claims from the perspective of philosophical analysis. It examines such perennial questions as: is there a God? What are the arguments for and against the existence of a Supreme Being? How can a good God permit Evil? Is there life after death? Is it rational to believe in God or does faith stand above or against reason? What is the relationship of religion to ethics? Is the Good good because God commands it, or does God command the Good because it is good?

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** A few essays of moderate length.

**Corequisite(s):** PY201  
-Or-  
PY251

**Disqualifier(s):** PY381

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<b>PY350</b>	<b>PHILOSOPHY OF SCIENCE</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2018-2	<b>Offerings:</b>
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Mathematics and the sciences (especially the natural sciences) have often been portrayed in the modern era as paradigmatic sources of knowledge. Nevertheless, one can still pose a number of lively and much-debated questions: what makes something a science? Is there a single "scientific method" or ideal way of discovering, confirming, or disconfirming scientific truths? Are there limitations to the knowledge the sciences can provide? Indeed, do the sciences provide knowledge? Does science make any presuppositions about the nature of the world or about what exists (ontology)? What is the nature of mathematics? Does it apply to a world of ideal objects, to rules for using symbols, or to the physical world? What kinds of things are numbers? Readings will include works by Peirce, Frege, the Vienna Circle, and Kuhn, as well as contemporary readings in the philosophy of science and mathematics and in the philosophies of physics, biology, the social sciences, and logic.

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** A few essays of moderate length.

**Corequisite(s):** PY201  
-Or-  
PY251

**Disqualifier(s):** PY386

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<b>PY355</b>	<b>PHILOSOPHY OF MIND</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2019-2	<b>Offerings:</b>
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This course will jointly address major topics in the traditional philosophy of mind and questions created by recent developments in artificial intelligence: what is mind? What is the relationship of a mind to the physical world, including the brain? What is consciousness and self-consciousness? What are the definitions of mental states and processes, such as perception, desire, belief, emotion, reasoning, and action, and their relationship? Can computers be constructed to think or behave like human beings, or to have consciousness? Readings will come from classical sources, such as Descartes, as well as contemporary literature in philosophy, cognitive science, and artificial intelligence.

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** A few essays of moderate length.

**Corequisite(s):** PY201

**Disqualifier(s):** PY366

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<b>PY360</b>	<b>ANCIENT PHILOSOPHY</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2018-1	<b>Offerings:</b>
The heritage from ancient Greece and Rome provides the foundation for the Western concept of the universe and the place of people in it. This course examines the origins of philosophy; the essentially secular view of man and the world established during the classical period; and major figures whose views continue to shape Western thought.		2020-1
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	A few essays of moderate length.	
<b>Corequisite(s):</b>	PY201 -Or- PY251	
<b>Disqualifier(s):</b>	PY388	
<b>PY369</b>	<b>EASTERN THOUGHT</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2018-2	<b>Offerings:</b>
This course examines primary sources in its quest for an understanding of the many, often bewildering varieties of Eastern thought. The Analects, the works of Mencius and Chuang Tzu, the Bhagavadgita, Tao Te Ching, and Digha Nikaya, I Ching, Zen writings in Zen Flesh, Zen Bones, The Tale of Genji, Chushingura, Essays in Idleness, The Narrow Road to Oku, and Code of the Samurai-all of those works challenge and enlighten a serious student seeking knowledge about a major part of our planet's population.		2020-2
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	A few essays of moderate length.	
<b>Corequisite(s):</b>	PY201	
<b>Disqualifier(s):</b>	EP380 -Or- PY380	
<b>PY370</b>	<b>17TH &amp; 18TH CENTURY PHILOSOPHY</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2019-1	<b>Offerings:</b>
This course examines a selection of texts written by central figures in the formative centuries of modern European philosophy. Their ideas have had continuing influence on philosophers down to our present day, as well as profound influence on the development of political thought and on the scientific understanding of human beings. Two schools of thought will be covered: Rationalism and Empiricism. Associated with the first school are the continental philosophers Descartes (widely accepted as the founder of Modern Philosophy), Spinoza and Leibniz. The school of Empiricism includes the British philosophers Hobbes, Locke, Berkeley and Hume.		2019-1 2021-1
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	None	
<b>Disqualifier(s):</b>	-Or- EP375	
<b>PY375</b>	<b>KANT &amp; 19TH CENTURY PHILOSOPHY</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2019-2	<b>Offerings:</b>
This course gives primary attention to the systematic philosophy of the German thinker, Immanuel Kant, whose influence on Nineteenth Century thinking was widespread and who is commonly recognized as one of the pillars of Modern Philosophy. The course will also devote attention to other important areas of philosophical thinking in the Nineteenth Century, whether within the Kantian tradition or lying outside it in other movements, such as Utilitarianism or Pragmatism, which had a continuing and significant influence on later philosophical thinking.		2019-2 2021-2
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	None	
<b>Disqualifier(s):</b>	PY376	
<b>PY380</b>	<b>20TH CENTURY PHILOSOPHY</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>

<b>Scope:</b>	2019-2	<b>Offerings:</b>
This course will introduce cadets to a representative sample major of figures and topics which have set the stage for understanding contemporary Philosophy in the so-called Analytic Tradition. Major figures include Frege, Russell, Wittgenstein, Moore, the philosophers of the Vienna Circle, and American philosophers such as Quine, Putnam, Davidson and Kripke. Topics include the ideal of a logically perfect language, meaning and reference, the nature of truth, the distinction between analytic and synthetic statements, the common sense analysis of metaphysical concepts, and the rule-centered social nature of language. As appropriate, leading figures and ideas drawn from Continental Philosophy will be introduced.		2019-2 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Corequisite(s):</b>	PY201	
<b>Disqualifier(s):</b>	PY377 -Or- EP377	
<b>PY390</b>	<b>INTER-DEPARTMENT SEMINAR</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2018-2	<b>Offerings:</b>
PY390 brings together a faculty member from DEP and one other department with Cadets majoring in those two departments with the aim of conducting a joint investigation of an important topic or cluster of topics, or the work of a single author, of recognized significance and shared interest. It will be taught every other year, on each occasion combining Philosophy with another discipline. Examples of second disciplines include History, Political Theory, Psychology, and Law. Examples of topics include: justice, philosophies of history, the evolution of human rights theory, the relationship between morality and law, cognition and mental phenomena, and evolving conceptions of citizenship. Examples of single author investigations include: Locke, Rousseau, Hume. The course will count as credit towards the major in both of the paired departments.		2020-2
<b>Lessons:</b> 20 @ 110 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	PY201	
<b>PY395</b>	<b>SPECIAL TOPICS IN PHILOSOPHY</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2016-1	<b>Offerings:</b>
This course explores an advanced topic in Philosophy. Specific subject matter will vary with the expertise of the senior faculty member conducting the course.		No Course Offerings
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>PY400</b>	<b>SENIOR SEMINAR IN PHILOSOPHY</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2019-2	<b>Offerings:</b>
This course provides cadets with the opportunity for advanced study in the discipline. Through the advanced study of a topic in philosophy, cadets will build on the foundation established in PY300 and throughout their academic career at West Point. They will deepen their mastery of philosophical concepts and methods and grow as scholars by applying those concepts and methods to a number of different disciplinary perspectives. Through intensive study of primary and secondary texts, this course broadens the knowledge base by bridging disciplinary approaches and setting the stage for cadets' continued educational development.		2019-2 2020-2 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	A major project and a few essays of moderate length.	
<b>Corequisite(s):</b>	PY300 -Or- PY333	
<b>Disqualifier(s):</b>	PY433	

PY433	PHILOSOPHY SENIOR SEMINAR	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2016-1	<b>Offerings:</b>
This course provides cadets with the opportunity for advanced study in the discipline. Through the advanced study of a topic in philosophy, cadets will build on the foundation established in PY333 and throughout their academic career at West Point. They will deepen their mastery of philosophical concepts and methods and grow as scholars by applying those concepts and methods to a number of different disciplinary perspectives. Through intensive study of primary and secondary texts, this course broadens the knowledge base by bridging disciplinary approaches and setting the stage for cadets' continued educational development.		No Course Offerings
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	A major project and a few essays of moderate length.	
<b>Corequisite(s):</b>	PY333 -Or- EP333	
PY490	THESIS RESEARCH	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2019-1	<b>Offerings:</b>
This course permits cadets with the requisite energy and talent to initiate a yearlong project requiring research in depth that culminates in a substantial thesis of high scholarly quality.		2019-1 2020-1 2021-1
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
PY491	SENIOR THESIS	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2019-2	<b>Offerings:</b>
This course permits cadets to complete a yearlong project requiring research in depth that culminates in a substantial thesis of high scholarly quality.		2019-2 2020-2 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	Oral defense of thesis.	
<b>Prerequisite(s):</b>	PY490	
PY495	INDEPENDENT STUDY: PHILOSOPHY	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2016-1	<b>Offerings:</b>
This optional elective offers the cadet an opportunity for in-depth study of an advanced topic in Philosophy under the mentorship of a senior faculty advisor. The scope and topic of the course are developed in consultation with the faculty advisor and appropriately build upon academic work already completed in the regular Philosophy electives. Since such a course is beyond normal teaching duties, an agreement to serve as a faculty advisor will be at the discretion of the faculty member. Enrollment is subject to Department approval.		No Course Offerings
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
XH303	WRITING PROCESS AND PEDAGOGY	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2016-1	<b>Offerings:</b>
XH330 is an elective offered by the Department of English and Philosophy as the gateway seminar for its Writing Fellows Program. The course involves three main components: seminar-based examinations of contemporary scholarship in college composition and its pedagogy, individual mentorships with experienced faculty, and peer consultations conducted with fellow cadets in the West Point Writing Center.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	Cadets will conduct peer consultations in the West Point Writing Center.	

**Corequisite(s):** EN102

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<b>XH313</b>	<b>ADVANCED WRITING PEDAGOGY</b>	<b>2.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2016-1

**Offerings:**

XH313 is a follow-on elective offered by the Department of English and Philosophy as a continuation of XH303 and an integral part of the Writing Fellows Program. This course involves three main components: continuing seminar-based examinations of contemporary scholarship in college composition and pedagogy, regular peer consultations in the West Point Writing Center with fellow cadets, and the construction of research essays and group writing workshops that reflect the Writing Fellows Program's principal combination of theory and practice.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Lessons:** 31 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** Cadets are expected to conduct peer consultations and writing workshops in the West Point Writing Center.

**Prerequisite(s):** XH303

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<b>XH400</b>	<b>INTERCOLLEGIATE SEMINAR</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2017-2

**Offerings:**

The focus of the course is a topic such importance that it deserves a multi-disciplinary examination. Previous iterations of the course carried out with Bard College, examined the nature and cultural traditions of a Just War, and the complex nature of human intolerance. The course has included faculty and Cadets from the departments of English and Philosophy, History, Law, and Social Sciences. Intended for cows and firsties, it counts for credit towards the major in their respective departments. The course is conducted as a seminar course meeting in two-hour blocks during which the Cadets have chief responsibility for the discussion. A parallel course at the other institution engages undergraduates and faculty representing a comparably wide range of disciplines.

No Course Offerings

**Lessons:** 20 @ 110 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** None

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<b>ZH303</b>	<b>BRITISH LITERATURE</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2009-1

**Offerings:**

This course, taken abroad by the cadet as part of a foreign study program approved by West Point, falls within the disciplinary area covered by the Department of English and has been determined by the Department as suitable to earn West Point academic credit.

No Course Offerings

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** None

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<b>ZH313</b>	<b>AMERICAN LITERATURE</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2010-1

**Offerings:**

This course, taken abroad by the cadet as part of a foreign study program approved by West Point, falls within the disciplinary area covered by the Department of English and has been determined by the Department as suitable to earn West Point academic credit.

No Course Offerings

**Lessons:** 40 @ 55 min (0.000 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** None

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<b>ZH323</b>	<b>TOPICS IN LITERATURE</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2010-1

**Offerings:**

This course, taken abroad by the cadet as part of a foreign study program approved by West Point, falls within the disciplinary area covered by the Department of English and has been determined by the Department as suitable to earn West Point academic credit.

No Course Offerings

**Lessons:** 40 @ 55 min (0.000 Att/wk)    **Labs:** 0 @ 0 min



<b>Special Requirements:</b>	None	
<b>ZH333</b>	<b>LITERARY CRITICISM</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2010-1	<b>Offerings:</b>
This course, taken abroad by the cadet as part of a foreign study program approved by West Point, falls within the disciplinary area covered by the Department of English and has been determined by the Department as suitable to earn West Point academic credit.		No Course Offerings
<b>Lessons:</b> 40 @ 55 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>ZH343</b>	<b>PHILOSOPHICAL PROBLEMS</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2010-1	<b>Offerings:</b>
This course, taken abroad by the cadet as part of a foreign study program approved by West Point, falls within the disciplinary area covered by the Department of English and has been determined by the Department as suitable to earn West Point academic credit.		No Course Offerings
<b>Lessons:</b> 40 @ 55 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>ZH353</b>	<b>HISTORY OF PHILOSOPHY</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2010-1	<b>Offerings:</b>
This course, taken abroad by the cadet as part of a foreign study program approved by West Point, falls within the disciplinary area covered by the Department of English and has been determined by the Department as suitable to earn West Point academic credit.		No Course Offerings
<b>Lessons:</b> 40 @ 55 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>ZH363</b>	<b>ETHICS</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2010-1	<b>Offerings:</b>
This course, taken abroad by the cadet as part of a foreign study program approved by West Point, falls within the disciplinary area covered by the Department of English and has been determined by the Department as suitable to earn West Point academic credit.		No Course Offerings
<b>Lessons:</b> 40 @ 55 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>ZH373</b>	<b>WESTERN ART</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2010-1	<b>Offerings:</b>
This course, taken abroad by the cadet as part of a foreign study program approved by West Point, falls within the disciplinary area covered by the Department of English and has been determined by the Department as suitable to earn West Point academic credit.		No Course Offerings
<b>Lessons:</b> 40 @ 55 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>ZH383</b>	<b>EASTERN ART</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2010-1	<b>Offerings:</b>

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This course, taken abroad by the cadet as part of a foreign study program approved by West Point, falls within the disciplinary area covered by the Department of English and has been determined by the Department as suitable to earn West Point academic credit.

No Course Offerings

**Lessons:** 40 @ 55 min (0.000 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:**                      None

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## Department of Foreign Languages

### 122 Courses

LA203	ARABIC I (STANDARD)	4.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2017-1	<b>Offerings:</b>
In the standard course sequence, Cadets acquire a basic proficiency in speaking, listening, reading and writing skills in Arabic. Learning activities focus on situations Cadets are likely to encounter in Arabic society. Cadets are taught how to express simple ideas and basic needs, comprehend the language in everyday contexts, and read simplified texts and brief, authentic selections. In addition to speaking, listening and reading skills, Cadets learn how to write sentences, paragraphs and/or short compositions on familiar topics. Through readings and discussions, Cadets are introduced to the cultures and history of the Arabic-speaking world. Cadets acquire a command of basic Arabic vocabulary and gain a general understanding of how the language works, and they become able to apply that knowledge when learning other foreign languages.		2019-1 2020-1 2021-1
<b>Lessons:</b> 80 @ 55 min (5.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
LA204	ARABIC II (STANDARD)	4.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2017-2	<b>Offerings:</b>
Continuation of LA203.		2019-2 2020-2 2021-2
<b>Lessons:</b> 80 @ 55 min (5.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	LA203	
LA371	INTENSIVE INTERMEDIATE ARABIC	4.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2013-1	<b>Offerings:</b>
In the intensive intermediate course, cadets develop proficiency in those skills necessary for communicating effectively in Arabic and for pursuing upper-level courses. Cadets develop speaking skills that enable them to engage in conversations on a variety of topics with other class members and with native speakers. Cadets reinforce and expand their language skills by reading, viewing, discussing, and writing about contemporary life, current events, and other cultural and historical topics as presented in selected materials of the Arabic-speaking world. In addition, cadets gain an overview of the profession of arms in Arabic-speaking regions by reading, discussing, and writing about pertinent materials that focus on the mission and history of the military in those countries. Cadets also review the basic rules of Arabic grammar and continue to acquire a corpus of Arabic vocabulary. They will be able to use computer-assisted learning resources to strengthen and maintain their language proficiency. This course serves as a bridge to advanced elective Arabic courses.		2019-1 2020-1 2021-1
<b>Lessons:</b> 80 @ 55 min (5.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	LA204	
LA372	ARABIC FOR ORAL & WRITTEN COMM	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2017-2	<b>Offerings:</b>
This course addresses students' specific needs in the development of listening, speaking, reading, and writing skills in Arabic. Cadets expand their active vocabulary, gain greater command of complex grammatical structures, and develop appropriate styles of written and oral communication. Special emphasis is placed on conversational and expository speaking. Cadets increase their oral proficiency through dialogues, role play, group discussions, formal presentations, and simulations of everyday language tasks likely to be encountered in the target region. Guided writing activities develop Cadets' competence in the application of critical language structures. Listening and reading comprehension are strengthened via engagement with film, music, short stories, news reports, and other popular media. Course topics typically focus on regional culture, the military, and society.		2019-2 2020-2 2021-2

<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	LA371	
<b>LA470</b>	<b>SPECIAL TOPIC IN ARABIC</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2013-1	<b>Offerings:</b>
This course is taught by a member of senior faculty and provides cadets an opportunity to further develop their language proficiency, regional expertise, and cultural capabilities.		No Course Offerings
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	LA475	
<b>LA472</b>	<b>COLLOQUIAL ARABIC</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2000-2	<b>Offerings:</b>
This course introduces the dialect of a particular Arab country. Oral proficiency gained in this course is complementary to previously learned modern standard Arabic. The course may be taken twice for credit if two different dialects are offered. Consult department counselor.		2019-2 2020-2 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	-Or- LA475	
<b>LA472A</b>	<b>ADVANCED ARABIC</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2012-2	<b>Offerings:</b>
This course introduces the dialect of a particular Arab country. Oral proficiency gained in this course is complementary to previously learned modern standard Arabic. The course may be taken twice for credit if two different dialects are offered. Consult department counselor. This course covers material not included in LA472 taken abroad		No Course Offerings
<b>Lessons:</b> 40 @ 55 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	Must have already taken LA472 abroad	
<b>Prerequisite(s):</b>	LA475	
<b>LA475</b>	<b>ARABIC RDG/WRTG THRU MEDIA</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2010-1	<b>Offerings:</b>
In this course cadets enhance their reading and writing skills through study and discussion of contemporary Arabic media (e.g. the Internet, television, film, radio, newspapers and magazines), as well as short literary selections. Reading strategies and textual analysis are addressed. Writing tasks develop organization, substance, and style. Graded work typically includes oral and written summaries of authentic texts and short compositions or reaction papers. The course is conducted in Arabic.		2019-1 2020-1 2021-1
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	LA372	
<b>LA476</b>	<b>MILITARY SPKG/RDG - ARABIC</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2010-2	<b>Offerings:</b>

Cadets gain an understanding of the profession of arms in the Arabic-speaking world through lectures and selected reading materials (e.g. journal articles, Internet media, training manuals, biographies, and historical documents). Course content may encompass the mission and role, training, operations, tactics, and organization of the armed forces. Oral proficiency is enhanced through in-class discussion as well as role-plays and simulations focusing on scenarios likely to be encountered while an officer is deployed in an Arabic-speaking region. Media complement instruction. Graded work may include briefings, role-plays, and simulation. The course is conducted in Arabic.		2019-2 2020-2 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	LA475	
<b>LA482</b>	<b>THE MEDIA IN ARABIC</b>	<b>3.0 Credit Hours</b> (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	1992-2	<b>Offerings:</b> No Course Offerings
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>LA483</b>	<b>ARAB CIVILIZATION I</b>	<b>3.0 Credit Hours</b> (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2000-1	<b>Offerings:</b> 2019-1 2020-1 2021-1
This course and the following one, LA484, constitute an integrated study of the culture, history, and geography of the Arabic-speaking world. Readings, lectures, discussions, and audio-visual materials encompass this civilization's representative artistic and intellectual accomplishments, its present-day political institutions, economy, and popular culture. In addition, the courses focus on the values and attitudes, the customs and traditions, and the social structures of Arabic people. At the same time, cadets continue to develop greater proficiency in Arabic. Graded work may include giving oral presentations, writing short essays or preparing a term paper. A majority of the work is done in Arabic.		
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Corequisite(s):</b>	-Or- LA475	
<b>LA484</b>	<b>ARAB CIVILIZATION II</b>	<b>3.0 Credit Hours</b> (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	1993-2	<b>Offerings:</b> 2019-2 2020-2 2021-2
Continuation of LA483.		
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	LA483	
<b>LA485</b>	<b>ARABIC LITERATURE I</b>	<b>3.0 Credit Hours</b> (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2006-1	<b>Offerings:</b> 2019-1 2020-1 2021-1
In this course cadets gain basic competence in the knowledge and comprehension of representative literary works and their relationship to the cultural context of the target society. Selected examples of various literary genres are read, discussed, and analyzed. At the same time, cadets continue to develop greater proficiency in the target language. Video and film presentations supplement readings, where possible. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. A majority of the work is done in the target language.		
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Corequisite(s):</b>	LA475	

LA486	ARABIC LITERATURE II	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2006-2	<b>Offerings:</b>
In this course cadets gain basic competence in the knowledge and comprehension of representative literary works and their relationship to the cultural context of the target society. Selected examples of various literary genres are read, discussed, and analyzed. At the same time, cadets continue to develop greater proficiency in the target language. Video and film presentations supplement readings, where possible. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. A majority of the work is done in the target language.		2019-2 2020-2 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	LA485	
LA492	ARABIC LITERATURE III	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2006-2	<b>Offerings:</b>
In this course cadets gain basic competence in the knowledge and comprehension of representative literary works and their relationship to the cultural context of the target society. Selected examples of various literary genres are read, discussed, and analyzed. At the same time, cadets continue to develop greater proficiency in the target language. Video and film presentations supplement readings, where possible. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. A majority of the work is done in the target language.		2019-2 2020-2 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	LA486	
LC203	CHINESE I (STANDARD)	4.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2017-1	<b>Offerings:</b>
In the standard course sequence, Cadets acquire a basic proficiency in speaking, listening, reading and writing skills in Chinese. Learning activities focus on situations Cadets are likely to encounter in Chinese society. Cadets are taught how to express simple ideas and basic needs, comprehend the language in everyday contexts, and read simplified texts and brief, authentic selections. In addition to speaking, listening and reading skills, Cadets learn how to write sentences, paragraphs and/or short compositions on familiar topics. Through readings and discussions, Cadets are introduced to the cultures and history of the Chinese-speaking world. Cadets acquire a command of basic Chinese vocabulary and gain a general understanding of how the language works, and they become able to apply that knowledge when learning other foreign languages.		2019-1 2020-1 2021-1
<b>Lessons:</b> 80 @ 55 min (5.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
LC204	CHINESE II (STANDARD)	4.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2017-2	<b>Offerings:</b>
Continuation of LC203.		2019-2 2020-2 2021-2
<b>Lessons:</b> 80 @ 55 min (5.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	LC203	
LC371	INTENSIVE INTERMEDIATE CHINESE	4.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2013-1	<b>Offerings:</b>

In the intensive intermediate course, cadets develop proficiency in those skills necessary for communicating effectively in Chinese and for pursuing upper-level courses. Cadets develop speaking skills that enable them to engage in conversations on a variety of topics with other class members and with native speakers. Cadets reinforce and expand their language skills by reading, viewing, discussing, and writing about contemporary life, current events, and other cultural and historical topics as presented in selected materials of the Chinese-speaking world. In addition, cadets gain an overview of the profession of arms in Chinese-speaking regions by reading, discussing, and writing about pertinent materials that focus on the mission and history of the military in those countries. Cadets also review the basic rules of Chinese grammar and continue to acquire a corpus of Chinese vocabulary. They will be able to use computer-assisted learning resources to strengthen and maintain their language proficiency. This course serves as a bridge to advanced elective Chinese courses.

**Lessons:** 80 @ 55 min (5.000 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** LC204

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<b>LC372</b>	<b>CHINESE FOR ORAL &amp; WRIT COMM</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2017-2

**Offerings:**

This course addresses students' specific needs in the development of listening, speaking, reading, and writing skills in Chinese. Cadets expand their active vocabulary, gain greater command of complex grammatical structures, and develop appropriate styles of written and oral communication. Special emphasis is placed on conversational and expository speaking. Cadets increase their oral proficiency through dialogues, role play, group discussions, formal presentations, and simulations of everyday language tasks likely to be encountered in the target region. Guided writing activities develop Cadets' competence in the application of critical language structures. Listening and reading comprehension are strengthened via engagement with film, music, short stories, news reports, and other popular media. Course topics typically focus on regional culture, the military, and society.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** LC371

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<b>LC470</b>	<b>SPECIAL TOPIC IN CHINESE</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2013-1

**Offerings:**

This course is taught by a member of senior faculty and provides cadets an opportunity to further develop their language proficiency, regional expertise, and cultural capabilities.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

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<b>LC475</b>	<b>CHINESE RDG/WRITG THRU MEDIA</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2010-1

**Offerings:**

In this course cadets enhance their reading and writing skills through study and discussion of contemporary Chinese media (e.g. the Internet, television, film, radio, newspapers and magazines), as well as short literary selections. Reading strategies and textual analysis are addressed. Writing tasks develop organization, substance, and style. Graded work typically includes oral and written summaries of authentic texts and short compositions or reaction papers. The course is conducted in Chinese.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

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<b>LC476</b>	<b>MILITARY SPKG/RDG - CHINESE</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2010-2

**Offerings:**

Cadets gain an understanding of the profession of arms in the Chinese-speaking world through lectures and selected reading materials (e.g. journal articles, Internet media, training manuals, biographies, and historical documents). Course content may encompass the mission and role, training, operations, tactics, and organization of the armed forces. Oral proficiency is enhanced through in-class discussion as well as role-plays and simulations focusing on scenarios likely to be encountered while an officer is deployed in a Chinese-speaking region. Media complement instruction. Graded work may include briefings, role-plays, and simulation. The course is conducted in Chinese.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

2019-2 2020-2 2021-2

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<b>LC483</b>	<b>CHINESE CIVILIZATION I</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2002-1

**Offerings:**

This course and the following one, LC484, constitute an integrated study of the culture, history, and geography of the Chinese-speaking world. Readings, lectures, discussions, and audio-visual materials encompass this civilization's representative artistic and intellectual accomplishments, its present-day political institutions, economy, and popular culture. In addition, the courses focus on the values and attitudes, the customs and traditions, and the social structures of Chinese-speaking people. At the same time, cadets continue to develop greater language proficiency. Graded work may include giving oral presentations, writing short essays or preparing a term paper. A majority of the work is done in Chinese.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** LC372

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<b>LC484</b>	<b>CHINESE CIVILIZATION II</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2002-2

**Offerings:**

Continuation of LC483.

2019-2 2020-2 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** LC475

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<b>LC485</b>	<b>CHINESE LITERATURE I</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2006-1

**Offerings:**

In this course cadets gain basic competence in the knowledge and comprehension of representative literary works and their relationship to the cultural context of the target society. Selected examples of various literary genres are read, discussed, and analyzed. At the same time, cadets continue to develop greater proficiency in the target language. Video and film presentations supplement readings, where possible. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. A majority of the work is done in the target language.

2019-1 2020-1 2021-1

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

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<b>LC486</b>	<b>CHINESE LITERATURE II</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2006-2

**Offerings:**

In this course cadets gain basic competence in the knowledge and comprehension of representative literary works and their relationship to the cultural context of the target society. Selected examples of various literary genres are read, discussed, and analyzed. At the same time, cadets continue to develop greater proficiency in the target language. Video and film presentations supplement readings, where possible. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. A majority of the work is done in the target language.

2019-2 2020-2 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None



LC492	CHINESE LITERATURE III	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2006-2	<b>Offerings:</b>
In this course cadets gain basic competence in the knowledge and comprehension of representative literary works and their relationship to the cultural context of the target society. Selected examples of various literary genres are read, discussed, and analyzed. At the same time, cadets continue to develop greater proficiency in the target language. Video and film presentations supplement readings, where possible. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. A majority of the work is done in the target language.		2019-2 2020-2 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	LC486	
LE101	ACDMC RDG/WRTG INTL CDTs I	3.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2016-1	<b>Offerings:</b>
This course seeks to enhance the language proficiency of non-native English speakers within the cognitively rigorous demands of a military-academic environment. While essentially a writing course, significant rhetorical, oratorical, and analytical skills are developed through extensive reading and systematic analysis of culturally relevant texts. At the same time, research and documentation skills are stressed to develop positive control over linguistic and professional conventions expected of Cadets in subsequent or concurrent courses at the Academy.		2019-1 2020-1 2021-1
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 15 @ 60 min	
<b>Special Requirements:</b>	None	
LE102	ACDMC RDG/WRTG INTL CDTs II	3.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2016-2	<b>Offerings:</b>
Continuation of LE101.		2019-2 2020-2 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 15 @ 60 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	LE101	
LF203	FRENCH I (STANDARD)	4.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2017-1	<b>Offerings:</b>
In the standard course sequence, Cadets acquire a basic proficiency in speaking, listening, reading, and writing skills in French. Learning activities focus on situations Cadets are likely to encounter in French society. Cadets are taught how to express simple ideas and basic needs, comprehend the language in everyday contexts, and read simplified texts and brief, authentic selections. In addition to speaking, listening and reading skills, Cadets learn how to write short sentences on familiar topics. Through readings and discussions, Cadets are introduced to the culture and history of the French-speaking world. Cadets acquire a command of basic French vocabulary and gain a general understanding of how the language works, and become able to apply that knowledge when learning other foreign languages.		2019-1 2020-1 2021-1
<b>Lessons:</b> 80 @ 55 min (5.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
LF204	FRENCH II (STANDARD)	4.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2017-2	<b>Offerings:</b>
Continuation of LF203.		2019-2 2020-2 2021-2
<b>Lessons:</b> 80 @ 55 min (5.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	

<b>Prerequisite(s):</b>	LF203	
<b>LF371</b>	<b>INTENSIVE INTERMEDIATE FRENCH</b>	<b>4.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2013-1	<b>Offerings:</b>
<p>In the intensive intermediate course, cadets develop proficiency in those skills necessary for communicating effectively in French and for pursuing upper-level courses. Cadets develop speaking skills that enable them to engage in conversations on a variety of topics with other class members and with native speakers. Cadets reinforce and expand their language skills by reading, viewing, discussing, and writing about contemporary life, current events, and other cultural and historical topics as presented in selected materials of the French-speaking world. In addition, cadets gain an overview of the profession of arms in French-speaking regions by reading, discussing, and writing about pertinent materials that focus on the mission and history of the military in those countries. Cadets also review the basic rules of French grammar and continue to acquire a corpus of French vocabulary. They will be able to use computer-assisted learning resources to strengthen and maintain their language proficiency. This course serves as a bridge to advanced elective French courses.</p>		
<b>Lessons:</b> 80 @ 55 min (5.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	2019-1 2020-1 2021-1
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	LF204	
<b>LF372</b>	<b>FRENCH FOR ORAL &amp; WRITTEN COMM</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2017-2	<b>Offerings:</b>
<p>This course addresses students' specific needs in the development of listening, speaking, reading, and writing skills in French. Cadets expand their active vocabulary, gain greater command of complex grammatical structures, and develop appropriate styles of written and oral communication. Special emphasis is placed on conversational and expository speaking. Cadets increase their oral proficiency through dialogues, role play, group discussions, formal presentations, and simulations of everyday language tasks likely to be encountered in the target region. Guided writing activities develop Cadets' competence in the application of critical language structures. Listening and reading comprehension are strengthened via engagement with film, music, short stories, news reports, and other popular media. Course topics typically focus on regional culture, the military, and society.</p>		
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	2019-2 2020-2 2021-2
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	LF371	
<b>LF470</b>	<b>SPECIAL TOPIC IN FRENCH</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2013-1	<b>Offerings:</b>
<p>This course is taught by a member of senior faculty and provides cadets an opportunity to further develop their language proficiency, regional expertise, and cultural capabilities.</p>		
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	No Course Offerings
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	LF372	
<b>LF475</b>	<b>FRENCH RDG/WRTG THRU MEDIA</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2010-1	<b>Offerings:</b>
<p>In this course cadets enhance their reading and writing skills through study and discussion of contemporary French media (e.g. the Internet, television, film, radio, newspapers and magazines), as well as short literary selections. Reading strategies and textual analysis are addressed. Writing tasks develop organization, substance, and style. Graded work typically includes oral and written summaries of authentic texts and short compositions or reaction papers. The course is conducted in French.</p>		
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	2019-1 2020-1 2021-1
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	LF372	

LF476	MILITARY SPKG/RDG - FRENCH	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2010-2	<b>Offerings:</b>
Cadets gain an understanding of the profession of arms in the French-speaking world through lectures and selected reading materials (e.g. journal articles, Internet media, training manuals, biographies, and historical documents). Course content may encompass the mission and role, training, operations, tactics, and organization of the armed forces. Oral proficiency is enhanced through in-class discussion as well as role-plays and simulations focusing on scenarios likely to be encountered while an officer is deployed in a French-speaking region. Media complement instruction. Graded work may include briefings, role-plays, and simulation. The course is conducted in French.		2019-2 2020-2 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Corequisite(s):</b>	LF475	
LF483	FRENCH CIVILIZATION I	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	1999-1	<b>Offerings:</b>
This course constitutes an integrated study of the culture, history, and geography of France from its beginnings to the end of World War II. Readings, lectures, discussions, and audio-visual materials encompass this civilization's representative artistic and intellectual accomplishments, its present-day political institutions, economy, and popular culture. In addition, the course focuses on the values and attitudes, the customs and traditions, and the social structures of the people of France. At the same time, cadets continue to develop greater language proficiency. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. A majority of the work is done in French.		2019-1 2020-1 2021-1
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Corequisite(s):</b>	-Or- LF475	
LF484	FRENCH CIVILIZATION II	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	1971-2	<b>Offerings:</b>
This course constitutes an integrated study of the culture, history, and geography of France since the end of World War II. Readings, lectures, discussions, and audio-visual materials encompass this civilization's representative artistic and intellectual accomplishments, its present-day political institutions, economy, and popular culture. In addition, the course focuses on the values and attitudes, the customs and traditions, and the social structures of France. At the same time, cadets continue to develop greater language proficiency. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. A majority of the work is done in French.		2019-2 2020-2 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Corequisite(s):</b>	LF475	
LF485	SURVEY OF FRENCH LIT I	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2001-1	<b>Offerings:</b>
This course is a survey of French literature tracing its development from the Middle Ages through the 18th century. Cadets gain basic competence in the knowledge and comprehension of representative literary works and their relationship to the cultural context of French society. Selected examples of various literary genres are read, discussed, and analyzed. At the same time, cadets continue to develop greater proficiency in French. Video and film presentations supplement readings, where possible. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. A majority of the work is done in French.		2019-1 2020-1 2021-1
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	

**Corequisite(s):**-Or-  
LF475

<b>LF486</b>	<b>SURVEY OF FRENCH LIT II</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 1984-2**Offerings:**

2019-2 2020-2 2021-2

This course is a survey of French literature of the 19th and 20th centuries. Cadets gain basic competence in the knowledge and comprehension of representative literary works and their relationship to the cultural context of French society. Selected examples of various literary genres are read, discussed, and analyzed. At the same time, cadets continue to develop greater language proficiency. Video and film presentations supplement readings, where possible. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. A majority of the work is done in French.

**Lessons:** 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min**Special Requirements:** None**Corequisite(s):** LF475

<b>LF492</b>	<b>MASTERWORKS OF FRENCH LIT</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 1984-2**Offerings:**

2019-2 2020-2 2021-2

Cadets develop competence in the knowledge and comprehension of representative French literary works and their relationship to the cultural context of French society. Selected examples of various literary genres that focus on events pertaining to the two World Wars, conflicts in the former French colonies and other experiences are read, discussed, and analyzed. Video and film presentations supplement readings, where possible. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. A majority of the work is done in French.

**Lessons:** 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min**Special Requirements:** None**Corequisite(s):** LF475

<b>LG203</b>	<b>GERMAN I (STANDARD)</b>	<b>4.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2017-1**Offerings:**

2019-1 2020-1 2021-1

In the standard course sequence, Cadets acquire a basic proficiency in speaking, listening, reading and writing skills in German. Learning activities focus on situations Cadets are likely to encounter in German society. Cadets are taught how to express simple ideas and basic needs, comprehend the language in everyday contexts, and read simplified texts and brief, authentic selections. In addition to speaking, listening and reading skills, Cadets learn how to write sentences, paragraphs and/or short compositions on familiar topics. Through readings and discussions, Cadets are introduced to the cultures and history of the German-speaking world. Cadets acquire a command of basic German vocabulary and gain a general understanding of how the language works, and they become able to apply that knowledge when learning other foreign languages.

**Lessons:** 80 @ 55 min (5.000 Att/wk) **Labs:** 0 @ 0 min**Special Requirements:** None

<b>LG204</b>	<b>GERMAN II (STANDARD)</b>	<b>4.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2017-2**Offerings:**

2019-2 2020-2 2021-2

Continuation of LG203.

**Lessons:** 80 @ 55 min (5.000 Att/wk) **Labs:** 0 @ 0 min**Special Requirements:** None**Prerequisite(s):** LG203

<b>LG371</b>	<b>INTENSIVE INTERMEDIATE GERMAN</b>	<b>4.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2013-1	<b>Offerings:</b>
In the intensive intermediate course, cadets develop proficiency in those skills necessary for communicating effectively in German and for pursuing upper-level courses. Cadets develop speaking skills that enable them to engage in conversations on a variety of topics with other class members and with native speakers. Cadets reinforce and expand their language skills by reading, viewing, discussing, and writing about contemporary life, current events, and other cultural and historical topics as presented in selected materials of the German-speaking world. In addition, cadets gain an overview of the profession of arms in German-speaking regions by reading, discussing, and writing about pertinent materials that focus on the mission and history of the military in those countries. Cadets also review the basic rules of German grammar and continue to acquire a corpus of German vocabulary. They will be able to use computer-assisted learning resources to strengthen and maintain their language proficiency. This course serves as a bridge to advanced elective German courses.		2019-1 2020-1 2021-1
<b>Lessons:</b>	80 @ 55 min (5.000 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	LG204	
<b>LG372</b>	<b>GERMAN FOR ORAL &amp; WRITTEN COMM</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2017-2	<b>Offerings:</b>
This course addresses students' specific needs in the development of listening, speaking, reading, and writing skills in German. Cadets expand their active vocabulary, gain greater command of complex grammatical structures, and develop appropriate styles of written and oral communication. Special emphasis is placed on conversational and expository speaking. Cadets increase their oral proficiency through dialogues, role play, group discussions, formal presentations, and simulations of everyday language tasks likely to be encountered in the target region. Guided writing activities develop Cadets' competence in the application of critical language structures. Listening and reading comprehension are strengthened via engagement with film, music, short stories, news reports, and other popular media		2019-2 2020-2 2021-2
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	LG371	
<b>LG470</b>	<b>SPECIAL TOPIC IN GERMAN</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2013-1	<b>Offerings:</b>
This course is taught by a member of senior faculty and provides cadets an opportunity to further develop their language proficiency, regional expertise, and cultural capabilities.		No Course Offerings
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	None	
<b>LG475</b>	<b>GERMAN RDG/WRTG THRU MEDIA</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2010-1	<b>Offerings:</b>
In this course cadets enhance their reading and writing skills through study and discussion of contemporary German media (e.g. the Internet, television, film, radio, newspapers and magazines), as well as short literary selections. Reading strategies and textual analysis are addressed. Writing tasks develop organization, substance, and style. Graded work typically includes oral and written summaries of authentic texts and short compositions or reaction papers. The course is conducted in German.		2019-1 2020-1 2021-1
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	LG372	
<b>LG476</b>	<b>MILITARY SPKG/RDG - GERMAN</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2010-2	<b>Offerings:</b>

Cadets gain an understanding of the profession of arms in the German-speaking world through lectures and selected reading materials (e.g. journal articles, Internet media, training manuals, biographies, and historical documents). Course content may encompass the mission and role, training, operations, tactics, and organization of the armed forces. Oral proficiency is enhanced through in-class discussion as well as role-plays and simulations focusing on scenarios likely to be encountered while an officer is deployed in a German-speaking region. Media complement instruction. Graded work may include briefings, role-plays, and simulation. The course is conducted in German.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** LG475

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<b>LG483</b>	<b>GERMAN CIVILIZATION I</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2005-1

**Offerings:**

This course constitutes an integrated study of the culture, history, and geography of Germany, Austria, and Switzerland from their beginnings to the end of World War II. Readings, lectures, discussions, and audio and visual materials encompass this civilization's representative artistic and intellectual accomplishments, its present-day political institutions, economy, and popular culture. In addition, the course focuses on the values and attitudes, the customs and traditions, and the social structures of the people of Germany, Austria, and Switzerland. At the same time, cadets continue to develop greater language proficiency. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. A majority of the work is done in German.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** LG475

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<b>LG484</b>	<b>GERMAN CIVILIZATION II</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2001-2

**Offerings:**

This course constitutes an integrated study of the culture, history, and geography of Germany, Austria, and Switzerland since the end of World War II. Readings, lectures, discussions, and audio-visual materials encompass this civilization's representative artistic and intellectual accomplishments, its present-day political institutions, economy, and popular culture. In addition, the course focuses on the values and attitudes, the customs and traditions, and the social structures of the people of Germany, Austria, and Switzerland. At the same time, cadets continue to develop greater language proficiency. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. A majority of the work is done in German.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** LG475

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<b>LG485</b>	<b>SURVEY OF GERMAN LIT I</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2000-1

**Offerings:**

This course is a survey of German literature tracing its development from the 19th century through post-World War II. Cadets gain basic competence in the knowledge and comprehension of representative literary works and their relationship to the cultural context of German society. Selected examples of various literary genres are read, discussed, and analyzed. At the same time, cadets continue to develop greater language proficiency. Video and film presentations supplement readings, where possible. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. A majority of the work is done in German.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** LG475

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<b>LG486</b>	<b>SURVEY OF GERMAN LIT II</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 1984-2

**Offerings:**

2019-2 2020-2 2021-2

**Prerequisite(s):** LG475

**3.0 Credit Hours**  
(BS=0.0,ET=0.0,MA=0.0)

**Offerings:**

2019-2 2020-2 2021-2

Prerequisite(s): LG475

**3.0 Credit Hours**  
(BS=0.0,ET=0.0,MA=0.0)

**Offerings:**

No Course Offerings

**Prerequisite(s):**

- LA204
- Or-
- LS204
- Or-
- LF204
- Or-
- LC204
- Or-
- LG204
- Or-
- LP204
- Or-
- LR204
- Or-
- LA362
- Or-
- LC362
- Or-
- LF362
- Or-
- LG362
- Or-
- LR362
- Or-
- LP362
- Or-
- LS362

<b>LN380</b>	<b>NATURE OF MODERN LANGUAGES</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2017-1	<b>Offerings:</b>
Cadets learn that human language is a rule-based and universal system. They examine languages like those taught at USMA from the perspective of linguists, teachers and Army officers. Topics include the origin of and the basis for language, the nature of grammar, language sounds, the phenomenon of meaning, and how language attains communication. Knowledge gained is frequently interdisciplinary and relevant to courses offered at USMA in psychology, communication, English and foreign or second languages. Graded work may include giving oral presentations and completing a term project or paper.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	Individual oral or written reports.	
<b>LN400</b>	<b>LANGUAGE IN CULTURAL CONTEXT</b>	<b>2.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2004-4	<b>Offerings:</b>
Cadets travel to selected sites where cultural and linguistic immersion is an opportunity. Cadets engage in structured activities and instruction in the target language. They visit sites of cultural and historical significance, and pursue a program of learning as approved by the Department of Foreign Languages that is similar to other IAD course experiences except for the number of credit hours awarded.		No Course Offerings
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>LN440A</b>	<b>ARABIC IN CULTURAL CONTEXT</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2004-4	<b>Offerings:</b>
Cadets travel to and reside in a linguistic and cultural community for three weeks. There they use their knowledge of Arabic, its varieties and connected cultures to accomplish learning tasks, solve problems and live daily routines. A structured program of immersion may include visits to sites of military, political, historical, or social significance; official orientations and lectures; meetings with local or national civilian and military leaders; and directed language learning activities. A department instructor accompanies the participating cadets who are obliged to use Arabic during this extended stay.		2018-7 2019-7 2020-7 2021-7
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	LA204	
<b>LN440C</b>	<b>CHINESE IN CULTURAL CONTEXT</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2010-7	<b>Offerings:</b>
Cadets travel to and reside in a linguistic and cultural community for three weeks. There they use their knowledge of Chinese, its varieties and connected cultures to accomplish learning tasks, solve problems and live daily routines. A structured program of immersion may include visits to sites of military, political, historical, or social significance; official orientations and lectures; meetings with local or national civilian and military leaders; and directed language learning activities. A department instructor accompanies the participating cadets who are obliged to use Chinese during this extended stay.		2018-7 2019-7 2020-7 2021-7
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	LC204	
<b>LN440F</b>	<b>FRENCH IN CULTURAL CONTEXT</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2004-4	<b>Offerings:</b>



Cadets travel to and reside in a linguistic and cultural community for three weeks. There they use their knowledge of French, its varieties and connected cultures to accomplish learning tasks, solve problems and live daily routines. A structured program of immersion may include visits to sites of military, political, historical, or social significance; official orientations and lectures; meetings with local or national civilian and military leaders; and directed language learning activities. A department instructor accompanies the participating cadets who are obliged to use French during this extended stay.

2018-7 2019-7 2020-7  
2021-7

**Lessons:** 0 @ 0 min (0.000 Att/wk)

**Labs:** 0 @ 0 min

**Special Requirements:**

None

**Prerequisite(s):**

LF204

#### LN440G

#### GERMAN IN CULTURAL CONTEXT

**3.0 Credit Hours**  
(BS=0.0,ET=0.0,MA=0.0)

**Scope:**

2004-4

**Offerings:**

No Course Offerings

Cadets travel to and reside in a linguistic and cultural community for three weeks. There they use their knowledge of German, its varieties and connected cultures to accomplish learning tasks, solve problems and live daily routines. A structured program of immersion may include visits to sites of military, political, historical, or social significance; official orientations and lectures; meetings with local or national civilian and military leaders; and directed language learning activities. A department instructor accompanies the participating cadets who are obliged to use German during this extended stay.

**Lessons:** 0 @ 0 min (0.000 Att/wk)

**Labs:** 0 @ 0 min

**Special Requirements:**

None

**Prerequisite(s):**

LG204

#### LN440P

#### PORTUGUESE IN CULTURAL CONTEXT

**3.0 Credit Hours**  
(BS=0.0,ET=0.0,MA=0.0)

**Scope:**

2004-4

**Offerings:**

2018-7 2019-7 2020-7  
2021-7

Cadets travel to and reside in a linguistic and cultural community for three weeks. There they use their knowledge of Portuguese, its varieties and connected cultures to accomplish learning tasks, solve problems and live daily routines. A structured program of immersion may include visits to sites of military, political, historical, or social significance; official orientations and lectures; meetings with local or national civilian and military leaders; and directed language learning activities. A department instructor accompanies the participating cadets who are obliged to use Portuguese during this extended stay.

**Lessons:** 0 @ 0 min (0.000 Att/wk)

**Labs:** 0 @ 0 min

**Special Requirements:**

None

#### LN440R

#### RUSSIAN IN CULTURAL CONTEXT

**3.0 Credit Hours**  
(BS=0.0,ET=0.0,MA=0.0)

**Scope:**

2014-7

**Offerings:**

2018-7 2019-7 2020-7  
2021-7

Cadets travel to and reside in a linguistic and cultural community for three weeks. There they use their knowledge of Russian, its varieties and connected cultures to accomplish learning tasks, solve problems and live daily routines. A structured program of immersion may include visits to sites of military, political, historical, or social significance; official orientations and lectures; meetings with local or national civilian and military leaders; and directed language learning activities. A department instructor usually accompanies participating cadets who complete all work in the language during this extended stay.

**Lessons:** 0 @ 0 min (0.000 Att/wk)

**Labs:** 0 @ 0 min

**Special Requirements:**

None

**Prerequisite(s):**

LR204

#### LN440S

#### SPANISH IN CULTURAL CONTEXT

**3.0 Credit Hours**  
(BS=0.0,ET=0.0,MA=0.0)

**Scope:**

2012-7

**Offerings:**

Cadets travel to and reside in a linguistic and cultural community for three weeks. There they use their knowledge of Spanish, its varieties and connected cultures to accomplish learning tasks, solve problems and live daily routines. A structured program of immersion may include visits to sites of military, political, historical, or social significance; official orientations and lectures; meetings with local or national civilian and military leaders; and directed language learning activities. A Department instructor accompanies the participating cadets, who are obliged to use Spanish during this extended stay.

2018-7 2019-7 2020-7  
2021-7

**Lessons:** 0 @ 0 min (0.000 Att/wk)

**Labs:** 0 @ 0 min

**Special Requirements:**

None

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### LN440Z PERSIAN IN CULTURAL CONTEXT

**3.0 Credit Hours**  
(BS=0.0,ET=0.0,MA=0.0)

**Scope:**

2012-7

**Offerings:**

Cadets travel to and reside in a linguistic and cultural community where they use their knowledge of Persian, its varieties and connected cultures to accomplish research tasks, solve problems and live daily routines. A structured program of immersion may include visits to sites of military, political, historical, or social significance; official orientations and lectures; meetings with local or national civilian and military leaders; as well as research in the language. A Department instructor may accompany participating cadets, who complete all work in the language during this extended stay.

2018-7

**Lessons:** 0 @ 0 min (0.000 Att/wk)

**Labs:** 0 @ 0 min

**Special Requirements:**

None

**Prerequisite(s):**

LZ204

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### LN441F FR LANG ST WTH FR ARM FORCE

**3.0 Credit Hours**  
(BS=0.0,ET=0.0,MA=0.0)

**Scope:**

1992-4

**Offerings:**

2019-7 2020-7 2021-7

**Lessons:** 0 @ 0 min (0.000 Att/wk)

**Labs:** 0 @ 0 min

**Special Requirements:**

None

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### LN441G STUDY GERMAN LANG & CULTURE

**3.0 Credit Hours**  
(BS=0.0,ET=0.0,MA=0.0)

**Scope:**

1992-4

**Offerings:**

Cadets experience an intensive program of study and cultural activities tailored to their skill level at a language institute in Stuttgart, Germany. Classes meet three to four hours per day in small groups of six to eight students. Classes address speaking, listening, reading and writing, and emphasize improvement of speaking and listening proficiency. Students reside with German host families and conduct local cultural excursions.

2019-7 2020-7 2021-7

**Lessons:** 0 @ 0 min (0.000 Att/wk)

**Labs:** 0 @ 0 min

**Special Requirements:**

None

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### LN450 ADVANCED LANGUAGE IN CONTEXT

**3.0 Credit Hours**  
(BS=0.0,ET=0.0,MA=0.0)

**Scope:**

2004-4

**Offerings:**

Cadets travel to and reside in a linguistic and cultural community where they use their knowledge of a second language, its varieties and connected cultures to accomplish research tasks, solve problems and live daily routines. A structured program of immersion may include visits to sites of military, political, historical, or social significance; official orientations and lectures; meetings with local or national civilian and military leaders; as well as research in the language. A department instructor accompanies participating cadets who complete all work in the language during this extended stay.

2018-7 2019-7 2020-7  
2021-7

**Lessons:** 0 @ 0 min (0.000 Att/wk)

**Labs:** 0 @ 0 min

**Special Requirements:**

None

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### LN451 ADV LANG & CULTURE IN CONTEXT

**3.0 Credit Hours**  
(BS=0.0,ET=0.0,MA=0.0)

**Scope:**

2014-1

**Offerings:**

Cadets travel to and, over an extended period, reside in a linguistic and cultural community where they develop further their foreign language proficiency, cultural competence and regional capability. A structured program of experiential learning includes visits to sites of cultural, geographic, political, historical, or social significance. Participation in military training exercises, involvement in service learning, and attendance at cultural events may be part of the immersion experience. Cadets write reflective essays, keep personal/public journals, complete task-based writing assignments, deliver briefings, and produce research papers. A department instructor may conduct a site visit while cadets are abroad.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>LN482H</b>	<b>SPOKEN HEBREW</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	1989-2	<b>Offerings:</b>
This course aims to develop entry-level oral proficiency in Hebrew (approx. 800 words), the ability to read printed Hebrew for all vocabulary covered, and the ability to write simple sentences in Hebrew. Most of the course work will be oral.		2019-1 2019-2 2020-2 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>LN487</b>	<b>ADV IND STUDY-FOREIGN LANGS</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	1990-1	<b>Offerings:</b>
LN487 and LN488 are essentially honors or tutorial courses available only to exceptionally motivated and qualified cadets who have exhausted all other language-specific courses and who wish to pursue a special field of interest in language, linguistics or a language-related field. The minimum completion requirement is a term paper, based on individual research of a length and on a topic upon which instructor and cadet have agreed.		2019-1 2020-1 2021-1
<b>Lessons:</b> 17 @ 55 min (1.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>LN488</b>	<b>ADV IND STUDY-FOREIGN LANGS</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	1990-2	<b>Offerings:</b>
LN487 and LN488 are essentially honors or tutorial courses available only to exceptionally motivated and qualified cadets who have exhausted all other language-specific courses and who wish to pursue a special field of interest in language, linguistics or a language-related field. The minimum completion requirement is a term paper, based on individual research of a length and on a topic upon which instructor and cadet have agreed.		2019-2 2020-2 2021-2
<b>Lessons:</b> 17 @ 55 min (1.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>LN490</b>	<b>LANGUAGE &amp; CULTURE CAP SEM</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2005-2	<b>Offerings:</b>
In this capstone course concentrators integrate their knowledge of language and culture with other aspects of the curriculum. They attend lectures, participate in seminar discussions and complete a project of international import. Cadets develop a regionally focused topic, complete research and present findings for possible application at the joint command level. They make use of their acquired language skills while completing a course that is interdisciplinary in nature and meets academic program goals.		2019-2 2020-2 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	Research paper and presentation.	
<b>Prerequisite(s):</b>	LA475 -Or- LC475 -Or- LF475 -Or- LG475 -Or-	

LP475

-Or-

LR475

-Or-

LS475

LN491	SEM ABROAD: ADV LANG & CULT I	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2007-1	<b>Offerings:</b>
Cadets attend a military academy or an undergraduate institution abroad and enroll in courses that enhance their language proficiency and cultural literacy. Courses may focus on language acquisition, literature, military science, history or the social sciences. If appropriate, cadets participate in military development activities. They attend lectures and seminars and complete all course requirements. The course grade becomes part of their Academic Summary.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
LN492	SEM ABROAD: ADV LANG & CULT II	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2007-1	<b>Offerings:</b>
Cadets attend a military academy or an undergraduate institution abroad and enroll in courses that enhance their language proficiency and cultural literacy. Courses may focus on language acquisition, literature, military science, history or the social sciences. If appropriate, cadets participate in military development activities. They attend lectures and seminars and complete all course requirements. The course grade becomes part of their Academic Summary.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
LN493	SEM ABROAD: ADV LANG&CULT III	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2007-1	<b>Offerings:</b>
Cadets attend a military academy or an undergraduate institution abroad and enroll in courses that enhance their language proficiency and cultural literacy. Courses may focus on language acquisition, literature, military science, history or the social sciences. If appropriate, cadets participate in military development activities. They attend lectures and seminars and complete all course requirements. The course grade becomes part of their Academic Summary.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
LN494	SEM ABROAD: ADV LANG & CULT IV	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2007-1	<b>Offerings:</b>
Cadets attend a military academy or an undergraduate institution abroad and enroll in courses that enhance their language proficiency and cultural literacy. Courses may focus on language acquisition, literature, military science, history or the social sciences. If appropriate, cadets participate in military development activities. They attend lectures and seminars and complete all course requirements. The course grade becomes part of their Academic Summary.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
LN495	SEM ABROAD: ADV LANG & CULT V	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2007-1	<b>Offerings:</b>
Cadets attend a military academy or an undergraduate institution abroad and enroll in courses that enhance their language proficiency and cultural literacy. Courses may focus on language acquisition, literature, military science, history or the social sciences. If appropriate, cadets participate in military development activities. They attend lectures and seminars and complete all course requirements. The course grade becomes part of their Academic Summary.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	

<b>Special Requirements:</b>	None	
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LP203	PORTUGUESE I (STANDARD)	4.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2017-1	<b>Offerings:</b>
<p>In the standard course sequence, Cadets acquire a basic proficiency in speaking, listening, reading and writing skills in Portuguese. Learning activities focus on situations Cadets are likely to encounter in Portuguese society. Cadets are taught how to express simple ideas and basic needs, comprehend the language in everyday contexts, and read simplified texts and brief, authentic selections. In addition to speaking, listening and reading skills, Cadets learn how to write sentences, paragraphs and/or short compositions on familiar topics. Through readings and discussions, Cadets are introduced to the cultures and history of the Portuguese-speaking world. Cadets acquire a command of basic Portuguese vocabulary and gain a general understanding of how the language works, and they become able to apply that knowledge when learning other foreign languages.</p>		2019-1 2020-1 2021-1
<b>Lessons:</b> 80 @ 55 min (5.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	

LP204	PORTUGUESE II (STANDARD)	4.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2017-2	<b>Offerings:</b>
Continuation of LP203.		2019-2 2020-2 2021-2
<b>Lessons:</b> 80 @ 55 min (5.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	LP203	

LP371	INTENSIVE INTERMED. PORTUGUESE	4.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2013-1	<b>Offerings:</b>
<p>In the intensive intermediate course, cadets develop proficiency in those skills necessary for communicating effectively in Portuguese and for pursuing upper-level courses. Cadets develop speaking skills that enable them to engage in conversations on a variety of topics with other class members and with native speakers. Cadets reinforce and expand their language skills by reading, viewing, discussing, and writing about contemporary life, current events, and other cultural and historical topics as presented in selected materials of the Portuguese-speaking world. In addition, cadets gain an overview of the profession of arms in Portuguese-speaking regions by reading, discussing, and writing about pertinent materials that focus on the mission and history of the military in those countries. Cadets also review the basic rules of Portuguese grammar and continue to acquire a corpus of Portuguese vocabulary. They will be able to use computer-assisted learning resources to strengthen and maintain their language proficiency. This course serves as a bridge to advanced elective Portuguese courses.</p>		2019-1 2020-1 2021-1
<b>Lessons:</b> 80 @ 55 min (5.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	LP204	
<b>Disqualifier(s):</b>	LP361 LP362	

LP372	PORTUGUESE FOR ORAL/WRIT COMM	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2017-2	<b>Offerings:</b>
<p>This course addresses students' specific needs in the development of listening, speaking, reading, and writing skills in Portuguese. Cadets expand their active vocabulary, gain greater command of complex grammatical structures, and develop appropriate styles of written and oral communication. Special emphasis is placed on conversational and expository speaking. Cadets increase their oral proficiency through dialogues, role play, group discussions, formal presentations, and simulations of everyday language tasks likely to be encountered in the target region. Guided writing activities develop Cadets' competence in the application of critical language structures. Listening and reading comprehension are strengthened via engagement with film, music, short stories, news reports, and other popular media. Course topics typically focus on regional culture, the military, and society.</p>		2019-2 2020-2 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	

<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	LP371	
<b>LP470</b>	<b>SPECIAL TOPIC IN PORTUGUESE</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2013-1	<b>Offerings:</b>
This course is taught by a member of senior faculty and provides cadets an opportunity to further develop their language proficiency, regional expertise, and cultural capabilities.		
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	No Course Offerings
<b>Special Requirements:</b>	None	
<b>LP475</b>	<b>PORTUGUESE RDG/WRTG THRU MEDIA</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2010-1	<b>Offerings:</b>
In this course cadets enhance their reading and writing skills through study and discussion of contemporary Portuguese media (e.g. the Internet, television, film, radio, newspapers and magazines), as well as short literary selections. Reading strategies and textual analysis are addressed. Writing tasks develop organization, substance, and style. Graded work typically includes oral and written summaries of authentic texts and short compositions or reaction papers. The course is conducted in Portuguese.		
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	2019-1 2020-1 2021-1
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	LP372	
<b>LP476</b>	<b>MILITARY SPKG/RDG - PORTUGUESE</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2010-2	<b>Offerings:</b>
Cadets gain an understanding of the profession of arms in the Portuguese-speaking world through lectures and selected reading materials (e.g. journal articles, Internet media, training manuals, biographies, and historical documents). Course content may encompass the mission and role, training, operations, tactics, and organization of the armed forces. Oral proficiency is enhanced through in-class discussion as well as role-plays and simulations focusing on scenarios likely to be encountered while an officer is deployed in a Portuguese-speaking region. Media complement instruction. Graded work may include briefings, role-plays, and simulation. The course is conducted in Portuguese.		
<b>Lessons:</b> 40 @ 55 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	2019-2 2020-2 2021-2
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	LP372 -Or- LP475	
<b>LP481</b>	<b>SHORT STORY IN PORTUGUESE</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	1999-1	<b>Offerings:</b>
In this course cadets gain basic competence in the knowledge and comprehension of representative Brazilian and Portuguese short stories and of their relationship to the cultural contexts of Brazilian and Portuguese society. At the same time, cadets continue to develop greater language proficiency. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. A majority of the work is done in Portuguese.		
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	No Course Offerings
<b>Special Requirements:</b>	None	
<b>Corequisite(s):</b>	LP385 -Or- LP475	
<b>LP483</b>	<b>PORTUGUESE CIVILIZATION I</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>

<b>Scope:</b>	2016-2	<b>Offerings:</b>
This course constitutes an integrated study of the culture, history, and geography of Portugal and the Lusophone countries. Readings, lectures, discussions, and audio-visual materials encompass the representative artistic and intellectual accomplishments, political institutions, economy, and popular culture of those regions. In addition, the course focuses on the values and attitudes, the customs and traditions, and the social structures of the Portuguese-speaking people. At the same time, cadets continue to develop greater proficiency in Portuguese. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. A majority of the work is done in Portuguese.		2019-1 2020-1 2021-1
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	LP372	
<b>LP484</b>	<b>PORTUGUESE CIVILIZATION II</b>	<b>3.0 Credit Hours</b> (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2016-2	<b>Offerings:</b>
This course constitutes an integrated study of the culture, history, and geography of Brazil. Readings, lectures, discussions, and audio-visual materials encompass the representative artistic and intellectual accomplishments, political institutions, economy, and popular culture of Brazil. In addition, the course focuses on the values and attitudes, the customs and traditions, and the social structures of the Brazilian people. At the same time, cadets continue to develop greater proficiency in Portuguese. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. A majority of the work is done in Portuguese.		2019-2 2020-2 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	LP372	
<b>LP485</b>	<b>SURVEY OF PORTUGUESE LIT I</b>	<b>3.0 Credit Hours</b> (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2016-1	<b>Offerings:</b>
In this course cadets gain basic competence in the knowledge and comprehension of representative Brazilian and Portuguese short stories and of their relationship to the cultural contexts of Brazilian and Portuguese society. At the same time, cadets continue to develop greater language proficiency. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. A majority of the work is done in Portuguese.		2019-1 2020-1 2021-1
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	LP372	
<b>LP492</b>	<b>LIT OF PORT-SPKG WORLD</b>	<b>3.0 Credit Hours</b> (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	1995-2	<b>Offerings:</b>
Cadets develop competence in the knowledge and comprehension of representative Portuguese and Brazilian literary works and their relationship to the cultural contexts of Portuguese and Brazilian society. Selected examples of various literary genres are read, discussed, and analyzed. At the same time, cadets continue to develop greater language proficiency. Video and film presentations supplement readings, where possible. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. A majority of the work is done in Portuguese.		2019-2 2020-2 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	LP372	
<b>LR203</b>	<b>RUSSIAN I (STANDARD)</b>	<b>4.0 Credit Hours</b> (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2017-1	<b>Offerings:</b>

In the standard course sequence, Cadets acquire a basic proficiency in speaking, listening, reading and writing skills in Russian. Learning activities focus on situations Cadets are likely to encounter in Russian society. Cadets are taught how to express simple ideas and basic needs, comprehend the language in everyday contexts, and read simplified texts and brief, authentic selections. In addition to speaking, listening and reading skills, Cadets learn how to write sentences, paragraphs and/or short compositions on familiar topics. Through readings and discussions, Cadets are introduced to the cultures and history of the Russian-speaking world. Cadets acquire a command of basic Russian vocabulary and gain a general understanding of how the language works, and they become able to apply that knowledge when learning other foreign languages.

**Lessons:** 80 @ 55 min (5.000 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

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<b>LR204</b>	<b>RUSSIAN II (STANDARD)</b>	<b>4.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2017-2	<b>Offerings:</b>
Continuation of LR203.		2019-2 2020-2 2021-2

**Lessons:** 80 @ 55 min (5.000 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** LR203

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<b>LR371</b>	<b>INTENSIVE INTERMEDIATE RUSSIAN</b>	<b>4.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2013-1	<b>Offerings:</b>
In the intensive intermediate course, cadets develop proficiency in those skills necessary for communicating effectively in Russian and for pursuing upper-level courses. Cadets develop speaking skills that enable them to engage in conversations on a variety of topics with other class members and with native speakers. Cadets reinforce and expand their language skills by reading, viewing, discussing, and writing about contemporary life, current events, and other cultural and historical topics as presented in selected materials of the Russian-speaking world. In addition, cadets gain an overview of the profession of arms in Russian-speaking regions by reading, discussing, and writing about pertinent materials that focus on the mission and history of the military in those countries. Cadets also review the basic rules of Russian grammar and continue to acquire a corpus of Russian vocabulary. They will be able to use computer-assisted learning resources to strengthen and maintain their language proficiency. This course serves as a bridge to advanced elective Russian courses.		2019-1 2020-1 2021-1

**Lessons:** 80 @ 55 min (5.000 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** LR204

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<b>LR372</b>	<b>RUSSIAN FOR ORAL &amp; WRIT COMM</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2017-2	<b>Offerings:</b>
This course addresses students' specific needs in the development of listening, speaking, reading, and writing skills in Russian. Cadets expand their active vocabulary, gain greater command of complex grammatical structures, and develop appropriate styles of written and oral communication. Special emphasis is placed on conversational and expository speaking. Cadets increase their oral proficiency through dialogues, role play, group discussions, formal presentations, and simulations of everyday language tasks likely to be encountered in the target region. Guided writing activities develop Cadets' competence in the application of critical language structures. Listening and reading comprehension are strengthened via engagement with film, music, short stories, news reports, and other popular media. Course topics typically focus on regional culture, the military, and society.		2019-2 2020-2 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** LR371

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<b>LR470</b>	<b>SPECIAL TOPIC IN RUSSIAN</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2013-1	<b>Offerings:</b>
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This course is taught by a member of senior faculty and provides cadets an opportunity to further develop their language proficiency, regional expertise, and cultural capabilities. No Course Offerings

**Lessons:** 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

**Special Requirements:** None

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<b>LR475</b>	<b>RUSSIAN RDG/WRTG THRU MEDIA</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2010-1

**Offerings:**

In this course cadets enhance their reading and writing skills through study and discussion of contemporary Russian media (e.g. the Internet, television, film, radio, newspapers and magazines), as well as short literary selections. Reading strategies and textual analysis are addressed. Writing tasks develop organization, substance, and style. Graded work typically includes oral and written summaries of authentic texts and short compositions or reaction papers. The course is conducted in Russian.

2019-1 2020-1 2021-1

**Lessons:** 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** LR372

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<b>LR476</b>	<b>MILITARY SPKG/RDG - RUSSIAN</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2010-2

**Offerings:**

Cadets gain an understanding of the profession of arms in the Russian-speaking world through lectures and selected reading materials (e.g. journal articles, Internet media, training manuals, biographies, and historical documents). Course content may encompass the mission and role, training, operations, tactics, and organization of the armed forces. Oral proficiency is enhanced through in-class discussion as well as role-plays and simulations focusing on scenarios likely to be encountered while an officer is deployed in a Russian-speaking region. Media complement instruction. Graded work may include briefings, role-plays, and simulation. The course is conducted in Russian.

2019-2 2020-2 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

**Special Requirements:** None

**Corequisite(s):** LR475

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<b>LR483</b>	<b>RUSSIAN CIV I</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 1979-1

**Offerings:**

This course constitutes an integrated study of the culture, history, and geography of Russia and the Soviet Union from its beginnings to the end of World War II. Readings, lectures, discussions, and audio-visual materials encompass this civilization's representative artistic and intellectual accomplishments, its political institutions, economy, and popular culture. In addition, the course focuses on the values and attitudes, the customs and traditions, and the social structures in Russia. At the same time, cadets continue to develop greater language proficiency. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. A majority of the work is done in Russian.

2019-1 2020-1 2021-1

**Lessons:** 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

**Special Requirements:** None

**Corequisite(s):** LR475

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<b>LR484</b>	<b>RUSSIAN CIV II</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 1980-2

**Offerings:**

This course constitutes an intensive study of the culture, history, and geography of Russia and the Soviet Union since the end of World War II. Readings, lectures, discussions, and audio-visual materials encompass this civilization's representative artistic and intellectual accomplishments, its present-day political institutions, economy, and popular culture. In addition, the course focuses on the values and attitudes, the customs and traditions, and the social structures of Russia. At the same time, cadets continue to develop greater language proficiency. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. A majority of the work is done in Russian.

2019-2 2020-2 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

<b>Special Requirements:</b>	None	
<b>Corequisite(s):</b>	LR476	
<b>LR485</b>	<b>SURVEY OF RUSSIAN LITERATURE I</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2002-1	<b>Offerings:</b>
<p>This course is a survey of Russian literature, tracing its development from the early 19th century to the beginning of WWI. Cadets gain basic competence in the knowledge and comprehension of representative literary works and their relationship to the cultural context of Russian society. Selected examples of various literary genres are read, discussed, and analyzed. At the same time, cadets continue to develop greater language proficiency. Video and film presentations supplement readings, where possible. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. A majority of the work is done in Russian.</p>		2019-1 2020-1 2021-1
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Corequisite(s):</b>	-Or- LR475	
<b>LR486</b>	<b>SURVEY OF RUSSIAN LIT. II</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2002-2	<b>Offerings:</b>
<p>This course is a survey of Russian and Soviet literature from the time of the Russian Revolution through the post-World War II "Thaw" period. Cadets gain basic competence in the knowledge and comprehension of representative literary works and their relationship to the cultural context of that society. Selected examples of various literary genres are read, discussed, and analyzed. At the same time, cadets continue to develop greater language proficiency. Video and film presentations supplement readings, where possible. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. A majority of the work is done in Russian.</p>		2019-2 2020-2 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Corequisite(s):</b>	LR476	
<b>LR492</b>	<b>RUSSIAN LIFE IN FICTION</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	1999-2	<b>Offerings:</b>
<p>Cadets develop competence in the knowledge and comprehension of representative Russian literary works and their relationship to the cultural context of Russian society. Selected examples of various literary genres are read, discussed, and analyzed. At the same time, cadets continue to develop greater language proficiency in the Russian language. Video and film presentations supplement readings. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. A majority of the work is done in Russian.</p>		2019-2 2020-2 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Corequisite(s):</b>	LR476	
<b>LS203</b>	<b>SPANISH I (STANDARD)</b>	<b>4.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2017-1	<b>Offerings:</b>
<p>In the standard course sequence, cadets acquire a basic proficiency in speaking, listening, reading and writing skills in Spanish. Learning activities focus on situations Cadets are likely to encounter in Spanish society. Cadets are taught how to express simple ideas and basic needs, comprehend the language in everyday contexts, and read simplified texts and brief, authentic selections. In addition to speaking, listening and reading skills, Cadets learn how to write sentences, paragraphs and/or short compositions on familiar topics. Through readings and discussions, Cadets are introduced to the cultures and history of the Spanish-speaking world. Cadets acquire a command of basic Spanish vocabulary and gain a general understanding of how the language works, and they become able to apply that knowledge when learning other foreign languages.</p>		2019-1 2020-1 2021-1
<b>Lessons:</b> 80 @ 55 min (5.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	

Special Requirements:	None	
LS204	SPANISH II (STANDARD)	4.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
Scope:	2017-2	Offerings:
Continuation of LS203.		2019-2 2020-2 2021-2
Lessons: 80 @ 55 min (5.000 Att/wk)	Labs: 0 @ 0 min	
Special Requirements:	None	
Prerequisite(s):	LS203	
LS371	INTENSIVE INTERMEDIATE SPANISH	4.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
Scope:	2013-1	Offerings:
In the intensive intermediate course, cadets develop proficiency in those skills necessary for communicating effectively in Spanish and for pursuing upper-level courses. Cadets develop speaking skills that enable them to engage in conversations on a variety of topics with other class members and with native speakers. Cadets reinforce and expand their language skills by reading, viewing, discussing, and writing about contemporary life, current events, and other cultural and historical topics as presented in selected materials of the Spanish-speaking world. In addition, cadets gain an overview of the profession of arms in Spanish-speaking regions by reading, discussing, and writing about pertinent materials that focus on the mission and history of the military in those countries. Cadets also review the basic rules of Spanish grammar and continue to acquire a corpus of Spanish vocabulary. They will be able to use computer-assisted learning resources to strengthen and maintain their language proficiency. This course serves as a bridge to advanced elective Spanish courses.		2019-1 2020-1 2021-1
Lessons: 80 @ 55 min (5.000 Att/wk)	Labs: 0 @ 0 min	
Special Requirements:	None	
Prerequisite(s):	LS204	
LS372	SPANISH FOR ORAL & WRIT COMM	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
Scope:	2017-2	Offerings:
This course addresses students' specific needs in the development of listening, speaking, reading, and writing skills in Spanish. Cadets expand their active vocabulary, gain greater command of complex grammatical structures, and develop appropriate styles of written and oral communication. Special emphasis is placed on conversational and expository speaking. Cadets increase their oral proficiency through dialogues, role play, group discussions, formal presentations, and simulations of everyday language tasks likely to be encountered in the target region. Guided writing activities develop Cadets' competence in the application of critical language structures. Listening and reading comprehension are strengthened via engagement with film, music, short stories, news reports, and other popular media. Course topics typically focus on regional culture, the military, and society.		2019-2 2020-2 2021-2
Lessons: 40 @ 55 min (2.500 Att/wk)	Labs: 0 @ 0 min	
Special Requirements:	None	
Prerequisite(s):	LS371	
LS470	SPECIAL TOPIC IN SPANISH	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
Scope:	2013-1	Offerings:
This course is taught by a member of senior faculty and provides cadets an opportunity to further develop their language proficiency, regional expertise, and cultural capabilities.		No Course Offerings
Lessons: 40 @ 55 min (2.500 Att/wk)	Labs: 0 @ 0 min	
Special Requirements:	None	
Prerequisite(s):	LS372	
LS475	SPANISH RDG/WRTG THRU MEDIA	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)

<b>Scope:</b>	2010-1	<b>Offerings:</b>
In this course cadets enhance their reading and writing skills through study and discussion of contemporary Spanish media (e.g. the Internet, television, film, radio, newspapers and magazines), as well as short literary selections. Reading strategies and textual analysis are addressed. Writing tasks develop organization, substance, and style. Graded work typically includes oral and written summaries of authentic texts and short compositions or reaction papers. The course is conducted in Spanish.		2019-1 2020-1 2021-1
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	LS372	
<b>LS476</b>	<b>MILITARY SPKG/RDG - SPANISH</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2010-2	<b>Offerings:</b>
Cadets gain an understanding of the profession of arms in the Spanish-speaking world through lectures and selected reading materials (e.g. journal articles, Internet media, training manuals, biographies, and historical documents). Course content may encompass the mission and role, training, operations, tactics, and organization of the armed forces. Oral proficiency is enhanced through in-class discussion as well as role-plays and simulations focusing on scenarios likely to be encountered while an officer is deployed in a Spanish-speaking region. Media complement instruction. Graded work may include briefings, role-plays, and simulation. The course is conducted in Spanish.		2019-2 2020-2 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	LS475	
<b>LS483</b>	<b>SPANISH CIV AND CULTURE</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2013-1	<b>Offerings:</b>
This course constitutes an integrated study of the culture, history, and geography of Spain. Readings, lectures, discussions, and audio-visual materials encompass Spain's representative artistic and intellectual accomplishments, its present-day political institutions, economy, and popular culture. In addition, the course focuses on the values and attitudes, the customs and traditions, and the social structures of the Spanish people. At the same time, cadets continue to develop greater language proficiency. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. The work is done in Spanish.		2019-1 2020-1 2021-1
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	LS475	
<b>LS484</b>	<b>SPANISH AMERICAN CIV AND CULT</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2013-2	<b>Offerings:</b>
This course constitutes an integrated study of the culture, history, and geography of the countries of Spanish America. Readings, lectures, discussions, and audio-visual materials encompass this civilization's representative artistic and intellectual accomplishments, its present-day political institutions, economies, and popular cultures. In addition, the course focuses on the values and attitudes, the customs and traditions, and the social structures of the people in Spanish America. At the same time, cadets continue to develop greater language proficiency. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. The work is done in Spanish.		2019-2 2020-2 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	LS475	
<b>LS485</b>	<b>SPANISH-AMERICAN LITERATURE</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2011-1	<b>Offerings:</b>

In this course cadets gain basic competence in the knowledge and comprehension of representative literary works and their relationship to the Spanish-American cultural context. Selected examples of various literary genres are read and discussed, and analyzed. At the same time, cadets continue to develop greater language proficiency. Video and film presentations supplement readings, where possible. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. The work is done in Spanish.

2019-1 2020-1 2021-1

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):**  
-Or-  
LS475

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<b>LS486</b>	<b>THE LITERATURE OF SPAIN</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2000-2

**Offerings:**

In this course cadets gain basic competence in the knowledge and comprehension of representative Spanish literary works, from the middle ages to the present, and their relationship to the cultural context of Spanish society. Selected examples of various literary genres are read, discussed, and analyzed. At the same time, cadets continue to develop greater proficiency in Spanish. Video and film presentations supplement readings, where possible. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. The work is done in Spanish.

2019-2 2020-2 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):**  
-Or-  
LS475

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<b>LS492</b>	<b>20TH/21ST CENTURY HISPANIC LIT</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2012-2

**Offerings:**

In this course cadets gain basic competence in the knowledge and comprehension of representative literary works and their relationship to the Hispanic context. Selected examples of various literary genres are read, discussed, and analyzed. At the same time, cadets continue to develop greater language proficiency. Video and film presentations supplement readings, where possible. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. The work is done in Spanish.

2019-2 2020-2 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** LS475

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<b>LX300</b>	<b>3RD SEMESTER FOREIGN LANG</b>	<b>0.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2005-1

**Offerings:**

Cadets may enroll in a third semester of foreign language in any course for which the cadet is qualified.

No Course Offerings

**Lessons:** 0 @ 0 min (0.000 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:**

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<b>LX400</b>	<b>4TH SEMESTER FOREIGN LANG</b>	<b>0.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2007-1

**Offerings:**

Cadets may enroll in a fourth semester of foreign language in any course for which qualified.

No Course Offerings

**Lessons:** 0 @ 0 min (0.000 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:**

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<b>LZ203</b>	<b>PERSIAN I (STANDARD)</b>	<b>4.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2017-1	<b>Offerings:</b>
In the standard course sequence, Cadets acquire a basic proficiency in speaking, listening, reading and writing skills in Persian. Learning activities focus on situations Cadets are likely to encounter in Persian society. Cadets are taught how to express simple ideas and basic needs, comprehend the language in everyday contexts, and read simplified texts and brief, authentic selections. In addition to speaking, listening and reading skills, Cadets learn how to write sentences, paragraphs and/or short compositions on familiar topics. Through readings and discussions, Cadets are introduced to the cultures and history of the Persian-speaking world. Cadets acquire a command of basic Persian vocabulary and gain a general understanding of how the language works, and they become able to apply that knowledge when learning other foreign languages.		2019-1 2020-1 2021-1
<b>Lessons:</b> 80 @ 55 min (5.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>LZ204</b>	<b>PERSIAN II (STANDARD)</b>	<b>4.0 Credit Hours</b> (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2017-2	<b>Offerings:</b>
Continuation of LZ203.		2019-2 2020-2 2021-2
<b>Lessons:</b> 80 @ 55 min (5.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	LZ203	
<b>LZ371</b>	<b>INTENSIVE INTERMEDIATE PERSIAN</b>	<b>4.0 Credit Hours</b> (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2013-1	<b>Offerings:</b>
In the intensive intermediate course, cadets develop proficiency in those skills necessary for communicating effectively in Persian and for pursuing upper-level courses. Cadets develop speaking skills that enable them to engage in conversations on a variety of topics with other class members and with native speakers. Cadets reinforce and expand their language skills by reading, viewing, discussing, and writing about contemporary life, current events, and other cultural and historical topics as presented in selected materials of the Persian-speaking world. In addition, cadets gain an overview of the profession of arms in Persian-speaking regions by reading, discussing, and writing about pertinent materials that focus on the mission and history of the military in those countries. Cadets also review the basic rules of Persian grammar and continue to acquire a corpus of Persian vocabulary. They will be able to use computer-assisted learning resources to strengthen and maintain their language proficiency. This course serves as a bridge to advanced elective Persian courses.		2019-1 2020-1 2021-1
<b>Lessons:</b> 80 @ 55 min (5.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	LZ204	
<b>LZ372</b>	<b>PERSIAN FOR ORAL &amp; WRIT COMM</b>	<b>3.0 Credit Hours</b> (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2017-2	<b>Offerings:</b>
This course addresses students' specific needs in the development of listening, speaking, reading, and writing skills in Persian. Cadets expand their active vocabulary, gain greater command of complex grammatical structures, and develop appropriate styles of written and oral communication. Special emphasis is placed on conversational and expository speaking. Cadets increase their oral proficiency through dialogues, role play, group discussions, formal presentations, and simulations of everyday language tasks likely to be encountered in the target region. Guided writing activities develop Cadets' competence in the application of critical language structures. Listening and reading comprehension are strengthened via engagement with film, music, short stories, news reports, and other popular media. Course topics typically focus on regional culture, the military, and society.		2019-2 2020-2 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	LZ371	
<b>LZ470</b>	<b>SPECIAL TOPIC IN PERSIAN</b>	<b>3.0 Credit Hours</b> (BS=0.0,ET=0.0,MA=0.0)

<b>Scope:</b>	2013-1	<b>Offerings:</b>
This course is taught by a member of senior faculty and provides cadets an opportunity to further develop their language proficiency, regional expertise, and cultural capabilities.		No Course Offerings
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>LZ475</b>	<b>PERSIAN RDG/WRTG THRU MEDIA</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2015-2	<b>Offerings:</b>
Cadets strengthen their reading and writing proficiency through study and discussion derived from contemporary Persian media (e.g., Internet, film, newsprint and magazines) and short literary selections. Reading strategies and textual analysis are introduced and practiced. Writing tasks address organization, substance and grammatical accuracy. Graded work typically includes oral and paragraph-length written summaries of Persian texts and short compositions or reaction papers.		2019-1 2020-1 2021-1
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	LZ371 -Or- LN487	
<b>LZ484</b>	<b>PERSIAN CIVILIZATION</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2017-2	<b>Offerings:</b>
This course constitutes an integrated study of the culture, history, geography and political systems of the Persian-speaking world. Readings, lectures, discussions and audio-visual materials encompass the civilization's representative artistic and intellectual accomplishments, its present day political institutions, economy and popular culture. In addition, the course focuses on the values and attitudes, the customs and traditions, and the social structures of the people in the Persian-speaking world. At the same time, Cadets continue to develop greater proficiency in the target language. Graded work will include giving oral presentations, writing short essays, or preparing a term paper. A majority of the work is done in Persian.		2019-2 2019-9 2020-2 2020-9 2021-2 2021-9
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	LZ371 -Or- LN487	

## Department of Geography and Environmental Engineering

### 67 Courses

EV203	PHYSICAL GEOGRAPHY	3.0 Credit Hours (BS=2.5,ET=0.0,MA=0.0)
<b>Scope:</b>	2016-1	<b>Offerings:</b>
<p>This core course provides cadets with a fundamental understanding of scientific principles and processes of earth science, meteorology, climatology, geomorphology and environmental systems, as well as an introduction to cultural geography. Further, the course introduces cadets to technical skills - (terrain analysis, image interpretation and spectral analysis, remote sensing, global positioning system, geographic information systems cartography) - to delineate the geographic distribution of landforms, weather, climate, and culture systems; and evaluate their potential impact on military operations. Lessons are reinforced by use of in- and out-of-class practical exercises, terrain walks and computer exercises to demonstrate the interrelationship between physical and human processes, and their impact on the environment. Historical and contemporary vignettes are employed to demonstrate how weather, climate, terrain, soils, vegetation and culture are important, cogent and frequently decisive in military operations.</p>		2018-4 2019-1 2019-2 2019-3 2020-1 2020-2 2020-3 2021-1 2021-2 2021-3
<b>Lessons:</b>	34 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 6 @ 55 min
<b>Special Requirements:</b>	None	
EV203X	PHYSICAL GEOGRAPHY	3.0 Credit Hours (BS=2.0,ET=0.5,MA=0.0)
<b>Scope:</b>	2013-2	<b>Offerings:</b>
<p>Pilot Course for revised EV203. This core course provides cadets with a fundamental understanding of scientific principles and processes of earth science, meteorology, climatology, geomorphology and environmental systems, as well as an introduction to cultural geography. Further, the course furnishes cadets with the technical skills - digital terrain analysis, image interpretation and spectral analysis, remote sensing, global positioning system, geographic information systems cartography - to delineate the geographic distribution of landforms, weather, climate, and culture systems; and evaluate their potential impact on military operations. Lessons are reinforced by extensive use of in- and out-of-class practical exercises, terrain walks and computer exercises to demonstrate the interrelationship between physical and human systems, and their impact on the environment. Historical vignettes are employed to demonstrate how the factors of weather, climate, terrain, soils, vegetation and culture are important, cogent and frequently decisive in military operations.</p>		No Course Offerings
<b>Lessons:</b>	30 @ 75 min (2.000 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	None	
EV210	WATER	3.0 Credit Hours (BS=3.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2017-2	<b>Offerings:</b>
<p>This course provides disciplinary depth in the science of oceans, estuaries, lakes, rivers, and water ecosystems through the study of physical, chemical and biological principles related to marine and freshwater biomes. Communities of marine and freshwater organisms at various ecological zones are explored, as they are affected by light, nutrients, water chemistry, and other physical and chemical properties. The impacts of humans on these water ecosystems are also evaluated. The course provides the student with a strong foundation in the science of the hydrosphere while introducing students to environmental science lab and field research methods.</p>		No Course Offerings
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	In-class labs and field trips; term project examining aspects of one of the world's aquatic ecosystems. Compensatory time provided.	
<b>Prerequisite(s):</b>	EV203 EV301	
EV300	ENVIRONMENTAL SCIENCE	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2018-1	<b>Offerings:</b>



As the introductory course to the Environmental Engineering Sequence, EV300 provides a broad understanding of current global and local environmental issues. It specifically focuses on natural ecosystems processes, the effects of pollution on human health, assessing the level of risk associated with pollution, and the environmental effects of energy use, air pollution, global climate change, acid rain, and smog. Discussions of anthropogenic influences on the environment also consider social, economic, technological and political impacts. Cadets learn to evaluate environmental issues through current events and interactive debates. A course project requires cadets to apply the scientific method to evaluate a current environmental problem and provides an opportunity to integrate multiple course topics with an in-depth study of an issue of interest.

2019-1 2020-1 2021-1

**Lessons:** 40 @ 55 min (2.500 Att/wk)**Labs:** 0 @ 0 min**Special Requirements:** Design and conduct an environmental study.**Corequisite(s):** EV203**Disqualifier(s):**  
-Or-  
EV301

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<b>EV301</b>	<b>ENV SCIENCE FOR ENGR &amp; SCIEN</b>	<b>3.0 Credit Hours</b> <b>(BS=1.0,ET=2.0,MA=0.0)</b>
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**Scope:** 2017-2**Offerings:**

EV301 provides the cadet with a deep understanding of current global and local environmental issues. It specifically focuses on natural ecosystem processes, the effects of pollution on human health, assessing the level of human health risk associated with pollution, and the strain on natural resources that stem from population growth. Discussions of anthropogenic influences consider social, economic, technological, and political impacts. Cadets evaluate environmental issues through review of scientific literature, current events, and interactive debates. A course project requires cadets to conduct an in-depth study by applying the scientific method to evaluate a current environmental problem of interest. The project results in a foundation of engineering science that facilitates follow-on engineering design.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2**Lessons:** 40 @ 55 min (2.500 Att/wk)**Labs:** 0 @ 0 min**Special Requirements:** Design and conduct an environmental study, one field trip, in-class labs.**Corequisite(s):** EV203**Disqualifier(s):** EV300

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<b>EV303</b>	<b>FOUNDATIONS IN GEOGRAPHY</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 1998-1**Offerings:**

This course presents the basic concepts, theories and methods of inquiry in the discipline of geography as foundation for advanced study in Human/Regional Geography; Environmental Geography; or Geospatial Information Science. The course includes models and concepts from the many sub-disciplinary (systematic) areas of geography to include cultural, historical, economic, urban, political and military geography. The application of concepts to real-world issues is emphasized. Research skills and techniques used by professional geographers are presented. Cadets use these approaches to spatially analyze and map the distribution of human and environmental phenomena. Several short papers will be assigned.

2019-1 2020-1 2021-1

**Lessons:** 40 @ 55 min (2.500 Att/wk)**Labs:** 0 @ 0 min**Special Requirements:** Requires Department Head approval for all cadets not selecting a FOS/MAJ in the Department of Geography & Environmental Engineering.

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<b>EV310</b>	<b>AQUATIC SCIENCE</b>	<b>3.0 Credit Hours</b> <b>(BS=3.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2017-2**Offerings:**

This course provides disciplinary depth in the science of oceans, estuaries, lakes, rivers, and water ecosystems through the study of physical, chemical and biological principles related to marine and freshwater biomes. Communities of marine and freshwater organisms at various ecological zones are explored, as they are affected by light, nutrients, water chemistry, and other physical and chemical properties. The impacts of humans on these water ecosystems are also evaluated. The course provides the student with a strong foundation in the science of the hydrosphere while introducing students to environmental science lab and field research methods.

2019-1 2020-1 2021-1

**Lessons:** 40 @ 55 min (2.500 Att/wk)**Labs:** 0 @ 0 min**Special Requirements:** In-class labs and field trips; term project examining aspects of one of the world's aquatic ecosystems. Compensatory time provided.**Prerequisite(s):** EV203 EV301

EV350	ENVIRONMNTL ENGR TECHNOLOGIES	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2017-1	<b>Offerings:</b>
<p>This course builds on environmental issues introduced in EV300 and further explores environmental engineering from a unit process and materials balance approach. Analyzing water (transport, quality, drinking water treatment, and wastewater treatment); air (transport, quality, and pollutant minimization); and pollutant management (solid and hazardous wastes), the cadet is exposed to the breadth of the environmental discipline. A laboratory experience is integral to the course. In the laboratory, physical, chemical, and biological quality are discussed and measured. An introductory environmental engineering design project on river water quality is developed within the semester.</p>		2019-2 2020-2 2021-2
<b>Lessons:</b>	36 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 6 @ 120 min
<b>Special Requirements:</b>	One design project.	
<b>Prerequisite(s):</b>	CH101 EV300 MA104 -Or- CH151 EV300 MA104 -Or- CH101 EV301 MA104 -Or- CH151 EV301 MA104	
<b>Disqualifier(s):</b>	EV385	
EV365	GEOGRAPHY OF GLOBAL CULTURES	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2006-1	<b>Offerings:</b>
<p>This course provides the geographic foundation for study in interdisciplinary and management academic areas. Contemporary regions of the world political map serve as the framework within which geographic concepts and analytical techniques are applied. Each cadet will develop an awareness of the diversity and distribution of people on the earth, human organization and exploitation of territory, and interactions among culture groups. Particular emphasis is placed on social institutions, their impact on economic development, and the subsequent identification and analysis of developed, emerging, and underdeveloped states.</p>		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b>	38 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 2 @ 55 min
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	EV203 -Or- EV203X	
EV367	GEOGRAPHIC RESEARCH METHODS	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2018-1	<b>Offerings:</b>
<p>This course introduces academic geographic inquiry and the methods, techniques, and ethical considerations needed to effectively design, plan, and conduct geographic research. The course starts with why research is important and the ethics of doing research, which includes an introduction to the institutional review board process. Cadets will then learn how to conduct and write a literature review and develop research questions. Finally, quantitative, qualitative and spatial methods will be introduced. This course is designed to be an applied introduction to geographical research techniques.</p>		2019-1 2020-1 2021-1
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	EV203 EV365	
EV371	GEOGRAPHY OF RUSSIA	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	1983-1	<b>Offerings:</b>
<p>This course examines the political, economic, and cultural geography of Russia and its adjacent neighbors; the Baltic states, east central European region, transcaucasus, and central Asia. Topics covered include: the commonwealth of independent states; ecocide in the former soviet union; disposition of the former soviet military; and ethnic rivalries. The objective of the course is to provide the student with an understanding of the recent past of the traditional soviet system in order to understand, as well as geographically evaluate, Russia's and the other former republics' situation today.</p>		No Course Offerings
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min

**Special Requirements:** 1 field trip; one research paper.

**Prerequisite(s):** EV365

**Disqualifier(s):** EV371A

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<b>EV371</b>	<b>GEOGRAPHY OF RUSSIA</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2018-2

**Offerings:**

This course examines the political, economic, and cultural geography of Russia and its adjacent neighbors; the Baltic states, east central European region, transcaucasus, and central Asia. Topics covered include: the commonwealth of independent states; ecocide in the former soviet union; disposition of the former soviet military; and ethnic rivalries. The objective of the course is to provide the student with an understanding of the recent past of the traditional soviet system in order to understand, as well as geographically evaluate, Russia's and the other former republics' situation today.

2019-1 2020-1 2021-1

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** 1 field trip; one research paper.

**Disqualifier(s):** EV371A

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<b>EV372</b>	<b>GEOGRAPHY OF ASIA</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 1987-2

**Offerings:**

The course studies the physical and cultural environment of Asia with emphasis on those geographic elements related to the region's progress, developing nations, and emerging world and regional powers. Topics covered include a consideration of the physical and resource base, environmental and cultural factors, spatial organization of agricultural and industrial economies, population patterns and problems, and examination of the realm's several major subregions.

No Course Offerings

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** 1 field trip; one written report and one oral presentation.

**Prerequisite(s):** EV365

**Disqualifier(s):** EV372A

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<b>EV372</b>	<b>GEOGRAPHY OF ASIA</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2018-2

**Offerings:**

The course studies the physical and cultural environment of Asia with emphasis on those geographic elements related to the region's progress, developing nations, and emerging world and regional powers. Topics covered include a consideration of the physical and resource base, environmental and cultural factors, spatial organization of agricultural and industrial economies, population patterns and problems, and examination of the realm's several major subregions.

2019-2 2020-2 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** 1 field trip; one written report and one oral presentation.

**Disqualifier(s):** EV372A

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<b>EV373</b>	<b>GEOGRAPHY OF LATIN AMERICA</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 1983-1

**Offerings:**

This course studies the physical and cultural landscape of Latin America, giving special treatment to the diversity and cultural identity of the region. Topics covered include an historical geography of the region, including pre-columbian civilizations, Iberian, African, and European influences; the geography of transportation networks, agriculture, urbanization, and population. National boundaries, major landforms and climatic conditions are discussed to describe their effect on civilization. This course also investigates the historical relationship between the United States and Latin America and covers recent U.S. military interventions in the region.

No Course Offerings

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** One oral report; one research paper.

**Prerequisite(s):** EV365

**Disqualifier(s):** EV373A

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<b>EV373</b>	<b>GEOGRAPHY OF LATIN AMERICA</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2018-2

**Offerings:**

This course studies the physical and cultural landscape of Latin America, giving special treatment to the diversity and cultural identity of the region. Topics covered include an historical geography of the region, including pre-columbian civilizations, Iberian, African, and European influences; the geography of transportation networks, agriculture, urbanization, and population. National boundaries, major landforms and climatic conditions are discussed to describe their effect on civilization. This course also investigates the historical relationship between the United States and Latin America and covers recent U.S. military interventions in the region.

2019-1 2020-1 2021-1

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** One oral report; one research paper.

**Disqualifier(s):** EV373A

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<b>EV375</b>	<b>GEOGRAPHY OF AFRICA</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2012-1

**Offerings:**

This course examines the cultural and natural diversity of African landscapes, with an emphasis on development, population issues, disease, and the origin, dispersal, spatial organization, and interaction of important cultural groups. Africa's physical landscapes will also be introduced as the palette upon which Africa's complex human mosaic has developed. Students will explore, from a geographic perspective, why Africa has seemingly been plagued with problems of economic development, health, and political instability.

No Course Offerings

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** One written research report with brief oral presentation. One field trip is possible.

**Prerequisite(s):** EV365

**Disqualifier(s):** EV374

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<b>EV375</b>	<b>GEOGRAPHY OF AFRICA</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2018-2

**Offerings:**

This course examines the cultural and natural diversity of African landscapes, with an emphasis on development, population issues, disease, and the origin, dispersal, spatial organization, and interaction of important cultural groups. Africa's physical landscapes will also be introduced as the palette upon which Africa's complex human mosaic has developed. Students will explore, from a geographic perspective, why Africa has seemingly been plagued with problems of economic development, health, and political instability.

2019-1 2020-1 2021-1

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** One written research report with brief oral presentation. One field trip is possible.

**Disqualifier(s):** EV374

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<b>EV376</b>	<b>GEOGRAPHY OF THE MIDDLE EAST</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2012-2

**Offerings:**

This course examines the cultural and natural diversity of Southwest Asian landscapes. The realm's cultures and ethnicities are studied in a geographic context, with an emphasis on the origin, dispersal, spatial organization, and interaction of important cultural groups. Among issues examined are the distribution and strategic significance of critical mineral and energy resources, population and resource disparities, cultural conflict, and economic development. Students will learn how geographic issues impact the prospects for peace and stability in the region.

No Course Offerings

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** One written research report with brief oral presentation. One field trip is possible.

**Prerequisite(s):** EV365

<b>Disqualifier(s):</b>	EV374	
<b>EV376</b>	<b>GEOGRAPHY OF THE MIDDLE EAST</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2018-2	<b>Offerings:</b>
<p>This course examines the cultural and natural diversity of Southwest Asian landscapes. The realm's cultures and ethnicities are studied in a geographic context, with an emphasis on the origin, dispersal, spatial organization, and interaction of important cultural groups. Among issues examined are the distribution and strategic significance of critical mineral and energy resources, population and resource disparities, cultural conflict, and economic development. Students will learn how geographic issues impact the prospects for peace and stability in the region.</p>		2019-2 2020-2 2021-2
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	One written research report with brief oral presentation. One field trip is possible.	
<b>Disqualifier(s):</b>	EV374	
<b>EV377</b>	<b>REMOTE SENSING</b>	<b>3.0 Credit Hours (BS=1.0,ET=2.0,MA=0.0)</b>
<b>Scope:</b>	2011-1	<b>Offerings:</b>
<p>Remote Sensing is learning about something without touching it--the most obvious example being the use of satellites to study the Earth. EV377, a techniques course applicable to both the humanities and engineering, studies how and what types of information can be carried by the electromagnetic spectrum. Students enjoy a wide range of practical exercises which introduce them to several remote sensing systems to include conventional and color infrared photography, multispectral scanners, satellite imagery, thermal infrared, and radar. The capstone exercise offers each student the opportunity to perform real-time automated image classification using satellite data on his/her own micro-computer. The course focus is on applying remotely sensed data to solve current problems.</p>		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b>	32 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 8 @ 55 min
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	CS105 EV203 -Or- CS155 EV203 -Or- EV203 IT105 -Or- EV203 IT155 -Or- EV203X IT105	
<b>EV378</b>	<b>CARTOGRAPHY</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2013-1	<b>Offerings:</b>
<p>Cartography teaches the principles of cartographic communication and enables the student to apply map design principles along with computer mapping techniques to solve contemporary problems in geography, economics, international relations, and applied sciences. Cadets will study the basic cartographic design process and use mapping and analysis software in the geographic sciences laboratory to produce topographic and thematic maps. A final course design project presents the opportunity for the cadets to demonstrate their ability to synthesize sound mapping principles.</p>		2019-1 2020-1 2021-1
<b>Lessons:</b>	23 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 17 @ 120 min
<b>Special Requirements:</b>	Course project included in lab periods.	
<b>Prerequisite(s):</b>	CS105 EV203 -Or- CS155 EV203 -Or- EV203 IT105 -Or- EV203 IT155 -Or- EV203X IT105	
<b>EV379</b>	<b>PHOTOGRAMMETRY</b>	<b>3.0 Credit Hours (BS=3.0,ET=0.0,MA=0.0)</b>

<b>Scope:</b>	2013-2	<b>Offerings:</b>
Photogrammetry, the art and science of making accurate measurements on photographs, is an important and fundamental discipline concerned with civilian and military mapping. Students, applying simple geometric principles to the photograph, determine object identity, size, spatial relationship, and position. An abundance of practical exercises, involving the use of sophisticated equipment, provide the opportunity to apply the fundamentals while arriving at solutions to real-world problems. An interesting field trip to a local mapping organization vividly displays how all these techniques may be blended to produce maps in the commercial business world.		2019-2 2020-2 2021-2
<b>Lessons:</b> 33 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 7 @ 55 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	CS105 EV203 -Or- CS155 EV203 -Or- EV203 IT105 -Or- EV203 IT155 -Or- EV203X IT105	
<b>EV380</b>	<b>SURVEYING</b>	<b>3.5 Credit Hours (BS=0.5,ET=3.0,MA=0.0)</b>
<b>Scope:</b>	2005-1	<b>Offerings:</b>
A framework for understanding and applying practical surveying methods is developed. Consideration of error theory and the concepts of precision of and accuracy yields understanding of the probabilistic nature of measurements. The principles of differential leveling, taping, electronic distance measurement and angular measurement are studied and applied using state-of-the-art surveying equipment and software tools. Plane surveys are principally explored, although the fundamentals of geodetic surveys are also presented. Traverse, triangulation, trilateration, level networks and the proper adjustment of related measurements are examined. Control survey, land survey, topographic survey, horizontal and vertical curve design, computer-aided mapping and GIS applications are included. Extensive use of laboratory periods permits application of surveying fundamentals, methods and planning skills to actual field situations. The principles of the global positioning system are explored and applications in the Army and surveying are applied in the final lab exercise.		2019-1 2020-1 2021-1
<b>Lessons:</b> 21 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 19 @ 120 min	
<b>Special Requirements:</b>	None	
<b>EV384</b>	<b>GEOGRAPHY OF NORTH AMERICA</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2004-1	<b>Offerings:</b>
This course provides a regional geography of North America, with balanced coverage of the human and physical geography of the United States and Canada. Lectures are appropriately supplemented with movies, slides, and maps to facilitate understanding of important themes that are prevalent in various subregions. Emphasis is placed on cultural patterns and contemporary environmental issues.		No Course Offerings
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	One oral report.	
<b>Prerequisite(s):</b>	EV365	
<b>EV384</b>	<b>GEOGRAPHY OF NORTH AMERICA</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2018-2	<b>Offerings:</b>
This course provides a regional geography of North America, with balanced coverage of the human and physical geography of the United States and Canada. Lectures are appropriately supplemented with movies, slides, and maps to facilitate understanding of important themes that are prevalent in various subregions. Emphasis is placed on cultural patterns and contemporary environmental issues.		2019-1 2020-1 2021-1
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	One oral report.	
<b>EV385</b>	<b>INTRO TO ENVIRON ENGR</b>	<b>3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)</b>

<b>Scope:</b>	2012-2	<b>Offerings:</b>
<p>This course introduces cadets to the study of environmental engineering from a unit process and a materials balance approach. The focus is design-oriented problem solving to protect human health and the health of ecosystems using fundamental physical, chemical, and biological processes. Through the study of contaminant removal from water and air to integrated management techniques for solid/hazardous wastes, the cadet is exposed to the breadth of the discipline. In the laboratory, the science behind physical, chemical, and biological processes are applied to the engineering discipline. A military oriented design problem allows application of engineered solutions to topical water and air quality issues.</p>		No Course Offerings
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 6 @ 120 min
<b>Special Requirements:</b>	Two field trips; course design project.	
<b>Prerequisite(s):</b>	CH102 MA205 -Or- CH152 MA205 -Or- CH152 MA255 -Or- CH102 MA255	
<b>Corequisite(s):</b>	-Or- PH254 -Or- PH202 -Or- PH252 -Or- PH205 -Or- PH255	
<b>Disqualifier(s):</b>	EV350	
<b>EV385</b>	<b>INTRO TO ENVIRON ENGR</b>	<b>3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)</b>
<b>Scope:</b>	2018-2	<b>Offerings:</b>
<p>This course introduces cadets to the study of environmental engineering from a unit process and a materials balance approach. The focus is design-oriented problem solving to protect human health and the health of ecosystems using fundamental physical, chemical, and biological processes. Through the study of contaminant removal from water and air to integrated management techniques for solid/hazardous wastes, the cadet is exposed to the breadth of the discipline. In the laboratory, the science behind physical, chemical, and biological processes are applied to the engineering discipline. A military oriented design problem allows application of engineered solutions to topical water and air quality issues.</p>		2019-2 2020-2 2021-2
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 6 @ 120 min
<b>Special Requirements:</b>	Two field trips; course design project.	
<b>Prerequisite(s):</b>	CH101 MA205 -Or- CH151 MA205 -Or- CH151 MA255 -Or- CH101 MA255	
<b>Corequisite(s):</b>	-Or- -Or- -Or- -Or- PH205 -Or- PH255	
<b>Disqualifier(s):</b>	EV350	
<b>EV386</b>	<b>GEOGRAPHY OF EUROPE</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>

<b>Scope:</b>	2004-2	<b>Offerings:</b>
The course examines European cultural landscapes, focusing on the environmental and cultural diversity exhibited among the states of modern Europe. Nationalism and the territorial imperative, long recognized as major forces in Europe, are studied from a geographic perspective to include patterns and processes of both regional continuity and change. Emphasis is given to the rapidly developing urbanization and mutual interdependence among countries of Western Europe. West and East European agricultural/industrial resource bases and developmental strategies are compared and contrasted. Specific topics are tailored to current issues and include regional conflict, economic development and trade, and problems of energy and the environment. This course concludes with a study of contemporary European extraregional spatial relationships with other major world culture regions.		No Course Offerings
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	One field trip; one research paper.	
<b>Prerequisite(s):</b>	EV365	
<b>Disqualifier(s):</b>	EV386F	
<b>EV386</b>	<b>GEOGRAPHY OF EUROPE</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2018-2	<b>Offerings:</b>
The course examines European cultural landscapes, focusing on the environmental and cultural diversity exhibited among the states of modern Europe. Nationalism and the territorial imperative, long recognized as major forces in Europe, are studied from a geographic perspective to include patterns and processes of both regional continuity and change. Emphasis is given to the rapidly developing urbanization and mutual interdependence among countries of Western Europe. West and East European agricultural/industrial resource bases and developmental strategies are compared and contrasted. Specific topics are tailored to current issues and include regional conflict, economic development and trade, and problems of energy and the environment. This course concludes with a study of contemporary European extraregional spatial relationships with other major world culture regions.		2019-2 2020-2 2021-2
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	One field trip; one research paper.	
<b>Disqualifier(s):</b>	EV386F	
<b>EV387</b>	<b>METEOROLOGY</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2008-2	<b>Offerings:</b>
This course introduces meteorological processes, systems, and patterns with emphasis on spatial distributions. The course begins with a comprehensive look at the structure of the atmosphere to include the energy budget, heat transfer mechanisms, as well as an examination of daily and seasonal patterns of temperature. A thorough look at atmospheric moisture and stability precedes a study of cloud and precipitation processes followed by a study of the atmosphere in motion, namely air pressure, governing forces, winds, small and local-scale wind systems and the general circulation of the planet. Specific phenomena are then examined, including mid-latitude cyclones, thunderstorms/lightning, tornadoes, severe thunderstorms, hurricanes, air pollution, and a brief look at climate and climate change. The end of the course focuses on the art and science of weather forecasting and its applicability to military operations. In-class labs.		2019-2 2020-2 2021-2
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	Term project.	
<b>Prerequisite(s):</b>	EV203 -Or- EV203X	
<b>EV388A</b>	<b>PHYSICAL GEOLOGY</b>	<b>3.5 Credit Hours (BS=2.0,ET=1.5,MA=0.0)</b>
<b>Scope:</b>	2010-1	<b>Offerings:</b>
This course primarily emphasizes learning to identify minerals and rocks and then applying this knowledge to analyze the significant geologic processes that act on and within the earth. These processes include plate tectonics, rock mechanics, geologic mapping, ground and surface water, and elements of mining and petroleum engineering. Field trips are conducted to illustrate how local geology has influenced development and construction in the Hudson Valley. The course is capstoned by an open-ended engineering problem which requires the creative application of geology to design a practical solution to a stated need. Cadets use a geologic exploration simulation to convert given resources optimally including safety and cost factors.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 12 @ 55 min



<b>Special Requirements:</b>	Two field trips; one design project; compensatory time provided.
<b>Prerequisite(s):</b>	EV203
<b>Disqualifier(s):</b>	EV399A

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<b>EV388B</b>	<b>GEOMORPHOLOGY</b>	<b>3.0 Credit Hours (BS=3.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2013-2	<b>Offerings:</b>
This course studies the processes that create landforms on the surface of the earth and their regional and global distributions. The course focuses on processes and their inter-relationships with geologic structure, soils and climate. Processes emphasized include glaciers, streams, downslope motion caused by gravity, groundwater, coastlines, and eolian landscapes. Each student prepares a final report synthesizing these processes and how they relate to real-world applications.		2019-2 2020-2 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** Two field trips; one written report and one oral report; compensatory time provided.

**Prerequisite(s):** EV203  
-Or-  
EV203X

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<b>EV389B</b>	<b>CLIMATOLOGY</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2017-1	<b>Offerings:</b>
Climatology investigates the earth's atmospheric phenomena, giving special attention to the dynamic physical processes which produce weather and result in distinctive climates across the planet. A primary focus of the course is to examine how the climate system can impact humans, including an examination of human health, agriculture, and military operations. A similar emphasis is placed on ways in which humans can alter the climate through urbanization, pollution, and increasing greenhouse gas concentrations. Climate change policy and mitigation are also explored through scientific readings, and as differing viewpoints are presented, lively discussion and debate are encouraged. Numerous case studies are offered throughout the course, allowing students to apply climate data and information to problem solving in real-world situations.		2019-1 2020-1 2021-1

**Lessons:** 34 @ 55 min (2.500 Att/wk)    **Labs:** 6 @ 55 min

**Special Requirements:** None

**Prerequisite(s):** EV203

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<b>EV390B</b>	<b>URBAN GEOGRAPHY</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2004-2	<b>Offerings:</b>
This course examines the location, function, structure, growth and interaction of urban areas. Spatial techniques are used to explore the internal attributes of cities, as well as their connectivity to other places. While the primary focus is on urbanization in the United States, primate cities abroad are often used for comparative purposes. Emphasis is placed on contemporary urban problems, particularly environmental issues and social disparities.		2019-2 2020-2 2021-2

**Lessons:** 40 @ 55 min (0.000 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** One oral report.

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<b>EV391_</b>		<b>0.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	1983-2	<b>Offerings:</b>
The course offers the cadet a variety of topics in land use planning from a geographic perspective. The topics customarily differ each semester and focus on the spatial aspects of land use planning. See EV391A and EV391B.		No Course Offerings

**Lessons:** 0 @ 0 min (0.000 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** None

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<b>EV391A</b>	<b>LAND USE PLAN &amp; MGT</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.5,MA=0.0)</b>
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<b>Scope:</b>	2012-1	<b>Offerings:</b>
An introduction to land use planning and management with focus on the land-law interfaces between the physical, cultural, and legal realms. The course surveys the policies and legislative basis for land use controls at the local, federal and regional levels to include national parks and forests, agricultural lands, rangelands, and military training areas. Natural resource management issues and strategies are explored. The importance of geographic concepts is emphasized in the conduct of applied case studies addressing land use conflicts and environmental strategies.		2019-1 2020-1 2021-1
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	One field trip; one oral presentation; compensatory time provided.	
<b>Prerequisite(s):</b>	EV203 -Or- EV203X	
<b>EV391B</b>	<b>NATURAL HAZARDS AND RISK</b>	<b>3.0 Credit Hours (BS=3.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2017-2	<b>Offerings:</b>
This course focuses on natural phenomena that pose hazards to people. The cause, nature, and occurrence frequency of natural hazards such as flooding, earthquakes, hurricanes, and volcanic activity will be examined. Emphasis will also be placed on how people perceive and respond to these hazards. Land use policies and practices in these hazard areas will also receive attention. Students participate in map based laboratory exercises and have the opportunity to write a short paper advising a government official how to mitigate local geohazards.		2019-2 2020-2 2021-2
<b>Lessons:</b>	37 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 3 @ 55 min
<b>Special Requirements:</b>	One research paper; compensatory time provided.	
<b>Prerequisite(s):</b>	EV203	
<b>EV394</b>	<b>HYDROGEOLOGY/HYDRAULIC SYSTEMS</b>	<b>3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)</b>
<b>Scope:</b>	2013-1	<b>Offerings:</b>
This course covers the principles governing the movement of subterranean water (groundwater), the interaction of this water with the porous medium, and the transport of chemical constituents (contaminants) in the subsurface. Lesson blocks explore traditional background elements of hydraulic engineering to include flow systems for the conveyance of groundwater and drainage systems for groundwater. Computer models are used to evaluate groundwater problems and conduct sensitivity analyses.		2019-1 2020-1 2021-1
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 12 @ 55 min
<b>Special Requirements:</b>	One course project.	
<b>Prerequisite(s):</b>	EV203 MA206 -Or- EV203 MA205 -Or- EV203 MA255	
<b>EV396</b>	<b>ENVIRONMENTAL BIOLOGICAL SYS</b>	<b>3.5 Credit Hours (BS=1.0,ET=2.5,MA=0.0)</b>
<b>Scope:</b>	2008-2	<b>Offerings:</b>
This course will examine biology from a practical environmental engineering and environmental science perspective. The foci of the course are applied public health, microbiology and microbial energetics. Specific topics include the biological health issues associated with drinking water, microbial aspects of industrial and domestic waste treatment and protection or restoration of natural water bodies from environmental contaminants. Students are also introduced to medical geography and the spatial biological health issues associated with a deployment. Laboratory exercises are used to introduce the student to water quality analyses and practices commonly used in the fields of environmental engineering and the environmental sciences.		2019-1 2020-1 2021-1
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 12 @ 55 min
<b>Special Requirements:</b>	None	

**Prerequisite(s):** CH102 EV300  
 -Or-  
 CH152 EV300  
 -Or-  
 CH102 EV301  
 -Or-  
 CH152 EV301

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<b>EV397</b>	<b>AIR POLLUTION ENGINEERING</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=3.0,MA=0.0)</b>
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<b>Scope:</b>	2008-2	<b>Offerings:</b>
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This course employs a design approach to air pollution control. It begins by defining air pollution problems, to include pollutant types, sources, legislation, and effects on both local and global scales. The course then examines the design of various means of controlling particulate and gaseous air pollution from both mobile and stationary sources. Finally, students study the link between meteorology and air pollution, as well as pollutant dispersion modeling in the atmosphere. The culminating course project involves a numerical approach to dispersion modeling that incorporates modeling and solution optimization.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** Field Trip(s).

**Prerequisite(s):** EV203

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<b>EV398</b>	<b>GEOG INFORMATION SYSTEMS</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=3.0,MA=0.0)</b>
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<b>Scope:</b>	1997-2	<b>Offerings:</b>
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Geographic information systems are hardware/software systems that permit the input, storage, retrieval, manipulation, analysis, and display of geocoded data. Used by environmentalists, engineers, land-use planners, architects, managers of large land holdings, and the military, these highly-intricate "decision support" systems assist managers in answering important "what if" questions. Using digitizers and microcomputers students will build a geocoded database and solve "real-world" problems.

**Lessons:** 33 @ 55 min (2.500 Att/wk)      **Labs:** 7 @ 55 min

**Special Requirements:** Short oral reports, one database design; compensatory time provided.

**Prerequisite(s):** EV203  
 -Or-  
 EV203X

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<b>EV399A</b>	<b>GEOLOGY FIELD COURSE</b>	<b>3.0 Credit Hours</b> <b>(BS=3.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2013-4	<b>Offerings:</b>
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The geology field course is a summer Individual Advanced Development Program normally run in early June. It is taught in a hands-on manner in various geologically appropriate settings throughout the United States. Geologic concepts are presented outdoors in the field where cadets can actively observe them. The course provides the cadet with knowledge of and appreciation for the science of geology as well as practical experience in field observations and an intimate look at how geology affects human civilization.

**Lessons:** 0 @ 0 min (0.000 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** TDY travel to the course location in the western USA; excursions to remote field locations; one graded geologic mapping exercise.

**Prerequisite(s):** EV203

**Disqualifier(s):** EV388A

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<b>EV399A</b>	<b>GEOLOGY FIELD COURSE</b>	<b>3.0 Credit Hours</b> <b>(BS=3.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2018-7	<b>Offerings:</b>
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The geology field course is a three-week long summer Individual Advanced Development Program. It is taught at a variety of field locations as funding and travel opportunities allow, but always directly driven by the location's link to course concepts. Geologic concepts are initially presented in a classroom setting and supplemented with laboratory exercises. The majority of the course, however, is conducted at geologic sites in the field where concepts are illustrated and expanded. The course provides the cadet with knowledge of and appreciation for the science of geology as well as practical experience in geological mapping. Field trips to active mines and active geologic research locations relate classroom learning to the real world.

No Course Offerings

**Lessons:** 0 @ 0 min (0.000 Att/wk)**Labs:** 0 @ 0 min**Special Requirements:**

TDY travel to the course location; excursions to remote field locations; two graded field mapping exercises; graded field notebook.

**Prerequisite(s):**

EV203

**Disqualifier(s):**

EV388A

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<b>EV400</b>	<b>ENVIRONMENTAL ENGINEERING SEM</b>	<b>1.0 Credit Hours</b> <b>(BS=0.0,ET=1.0,MA=0.0)</b>
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**Scope:**

2009-2

**Offerings:**

This seminar will meet once each week and will include all first class cadets majoring in environmental engineering. The seminar topics will address a variety of fundamental engineering science, design, and professional practice topics including engineering ethics, economics, and licensing. Periodically, guest lecturers from the military, industrial, and academic communities will provide their perspective on these topics.

No Course Offerings

**Lessons:** 13 @ 55 min (1.000 Att/wk)**Labs:** 0 @ 0 min**Special Requirements:**

None

**Corequisite(s):**

EV490

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<b>EV401</b>	<b>PHYS &amp; CHEM TREATMENT</b>	<b>3.5 Credit Hours</b> <b>(BS=0.0,ET=3.5,MA=0.0)</b>
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**Scope:**

2008-2

**Offerings:**

This course takes a process approach to environmental engineering using engineering science and design of drinking water treatment systems as the primary foci. Building upon concepts gained in environmental chemistry, cadets study physical and chemical processes used in environmental engineering. Discussion includes the theories behind these processes and the design procedures involved in their application. Cadets develop comprehensive concept design of drinking water treatment processes. While the focus of the course is drinking water treatment, the processes developed are also applicable to wastewater treatment, groundwater remediation, air pollution control, and the treatment of solid and hazardous wastes.

2019-2 2020-2 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)**Labs:** 12 @ 55 min**Special Requirements:**

One term project, one field trip.

**Prerequisite(s):**

XS391

**Corequisite(s):**

-Or-

-Or-

-Or-

MC311

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<b>EV402</b>	<b>BIOCHEMICAL TREATMENT</b>	<b>3.5 Credit Hours</b> <b>(BS=0.0,ET=3.5,MA=0.0)</b>
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**Scope:**

2005-1

**Offerings:**

This course provides cadets with the opportunity to apply the principles of microbiology to the protection and improvement of the environment. This course builds on the concepts learned in EV396, Environmental Biological Systems, and directly applies those concepts to the treatment of wastewater, removal of nutrients from wastewater, anaerobic digestion, bioremediation, industrial waste treatment, and emerging applications of biological treatment and modeling. A comprehensive, multi-step design project serves as the design experience for this course.

2019-1 2020-1 2021-1

**Lessons:** 40 @ 55 min (2.500 Att/wk)**Labs:** 7 @ 120 min**Special Requirements:**

Engineering design project with a written report.

**Prerequisite(s):**

-Or-

-Or-

EV396 ME311

-Or-

EV396 MC311

**EV450****ENV ENG FOR COMMUNITY DEVELOP****3.0 Credit Hours**  
**(BS=0.0,ET=0.0,MA=0.0)****Scope:**

2017-2

**Offerings:**

This course is the capstone experience for a three-course environmental engineering sequence. With a focus on water and sanitation challenges in the developing world, students assess various technologies and their ability to meet community needs. The course highlights the engineering design process to develop appropriate solutions and introduces decision modeling with consideration of social, political, and economic factors. A semester-long term project leverages real world case studies to provide cadet teams an opportunity to apply knowledge and creatively design sustainable solutions to ill-defined problems. Students must make logical assumptions throughout the project, present and evaluate solution designs, and prepare a formal written report defending their selected course of action.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2**Lessons:** 40 @ 55 min (2.500 Att/wk)**Labs:** 0 @ 0 min**Special Requirements:**

Must be a First Class cadet. An engineering design project is completed in multi-disciplinary design groups.

**Prerequisite(s):**

EV350

**EV471****ECOLOGY****3.0 Credit Hours**  
**(BS=3.0,ET=0.0,MA=0.0)****Scope:**

2013-1

**Offerings:**

This course examines ecosystems through the study of ecological principles related to an organism's relationship to its environment, community, and ecosystem. Species, population, community, and ecosystem level interactions and dynamics are emphasized. The fundamental influences of energy flow and material cycling are examined, as well as the unique role of wetlands within ecosystems. The course includes several field trips, which lead to a culminating term project designed to integrate previously acquired environmental science technical skills and ecological principles.

No Course Offerings

**Lessons:** 40 @ 55 min (2.500 Att/wk)**Labs:** 0 @ 0 min**Special Requirements:**

In-class labs and out-of-class field trips; term paper examining aspects of one of the world's ecosystems.

**Prerequisite(s):**

CH385 EV300 EV350

-Or-

CH385 EV300 EV385

-Or-

CH385 EV301 EV350

-Or-

CH385 EV301 EV385

-Or-

CH375 EV300 EV350

-Or-

CH375 EV300 EV385

-Or-

CH375 EV301 EV350

-Or-

CH375 EV301 EV385

**EV471****ECOLOGY****3.0 Credit Hours**  
**(BS=3.0,ET=0.0,MA=0.0)****Scope:**

2019-1

**Offerings:**

This course examines ecosystems through the study of ecological principles related to an organism's relationship to its environment, community, and ecosystem. Species, population, community, and ecosystem level interactions and dynamics are emphasized. The fundamental influences of energy flow and material cycling are examined, as well as the unique role of wetlands within ecosystems. The course includes several field trips, which lead to a culminating term project designed to integrate previously acquired environmental science technical skills and ecological principles.

2019-1 2020-1 2021-1

**Lessons:** 40 @ 55 min (2.500 Att/wk)**Labs:** 0 @ 0 min**Special Requirements:**

In-class labs and out-of-class field trips; term paper examining aspects of one of the world's ecosystems.

**Prerequisite(s):** CH275 EV310 EV350  
-Or-  
CH375 EV310 EV350

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<b>EV477</b>	<b>ADVANCED REMOTE SENSING</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=3.0,MA=0.0)</b>
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**Scope:** 2002-1

**Offerings:**

2019-2 2020-2 2021-2

This course examines advanced remote sensing theory and digital image processing techniques suitable for the processing of remotely sensed data. Emphasis is on the processing and analysis of state-of-the-art high spatial and spectral resolution data gathered by airborne and satellite sensors. Topics covered include geometric and radiometric image rectification, registration and resampling techniques, image enhancements, data merging, image segmentation, and automated feature extraction. A wide range of practical exercises and in-class laboratory assignments provides hands-on experience with a variety of remotely sensed imagery ranging from multi-spectral to hyper-spectral data. The course culminates with a capstone term project that allows cadets to apply digital image processing skills to a scientific problem.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** In-class labs; term project. Compensatory time provided.

**Prerequisite(s):** EV203 EV377  
-Or-  
EV203X EV377

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<b>EV478</b>	<b>MILITARY GEOSPATIAL OPERATIONS</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2013-2

**Offerings:**

2019-2 2020-2 2021-2

This course is designed to teach the most current state of geospatial operations in the military. It is built to provide the student an improved understanding of the cornerstone to the digital force - the "common operational picture" or COP. This course is divided into five major blocks of instruction: (1) a linked discussion of geospatial operations' development, organizations and data systems; (2) the geographic information system (GIS) as a military tool - system input, management, data analysis and production outputs; (3) Army geospatial operations in the garrison environment; (4) Army geospatial operations in combat environments; and (5) geospatial operations for joint/coalition forces. The course includes several relevant practical exercises and laboratories, a field trip, guest lectures and one panel discussion. Due to the currency of the material discussed a secret security clearance is required for all participants.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** EV203  
-Or-  
EV203X

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<b>EV480</b>	<b>HONORS SEMINAR IN GEOGRAPHY</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2007-1

**Offerings:**

2019-1 2020-1 2021-1

This course will examine major research initiatives in the discipline and delineate their data requirements. The primary objective of this course is to identify and outline the senior thesis, which is the culminating event for the Honors Program. Hence, cadets participating in this course will explore research methods and data sources used by geographers, conduct a critical analysis of seminal literature in the field, define a research problem, identify and evaluate data sources, and assemble a research proposal. The final product of this course will be a written research proposal that will define the senior thesis (written during EV489B). The cadet will make a formal presentation of this proposal to senior geography faculty. The course is conducted in a seminar and one-and-one format. Lessons and labs are established by consultation between the cadet and faculty advisor.

**Lessons:** 0 @ 0 min (0.000 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** Senior Thesis or as determined by the faculty advisor.

**Prerequisite(s):** EV203  
-Or-  
EV203X

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<b>EV481</b>	<b>WATER RESOURCES PLAN &amp; DESIGN</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=3.0,MA=0.0)</b>
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**Scope:** 2014-1

**Offerings:**

The course is concerned with effective use of water as a manageable natural resource. It begins with instruction on the tools required by water resource managers to make sound decisions in their field. The course assesses current needs for water and the structural (engineered) and non-structural approaches available to meet these needs. Elements of engineering design and the design process are introduced. The bulk of the course is concerned with assessment of the impacts of various water resources development activities on the economic, socio-cultural and ecological sectors of the environment. Methods for conducting tradeoff analyses among the engineered and environmental aspects of projects are developed and applied in a term project. The course makes use of case studies of current water resource projects. Visiting speakers represent the views of the Federal government and concerned public interest groups.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** Written and oral research reports on a contemporary water resources project.

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<b>EV482</b>	<b>MILITARY GEOGRAPHY</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2003-1

**Offerings:**

History is replete with examples of the impact of terrain, weather and climate on military operations at all scales. National strategies are influenced heavily by geographic realities of relative location, spatial interaction, population dynamics and resource distribution. This course emphasizes the development of a geographic method for systematic analysis of the battlefield that is appropriate for platoon leader and corps commander alike. Students evaluate the elements of national power and examine their geostrategic influences, past and present. The role of the environment in shaping today's Army and its missions is discussed. Jungle, cold region, alpine, riverine, desert, temperate and urban operational environments are examined for their effect on military planning and execution. Finally, cadets review case studies of the impact of these diverse environments on military operations at the tactical level.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** One oral presentation and one written research project.

**Prerequisite(s):** EV203  
-Or-  
EV203X

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<b>EV483</b>	<b>COLLOQUIUM IN GEOGRAPHY</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 1981-1

**Offerings:**

The colloquium is a directed readings course using small group discussions of important literature, methodological traditions, and contemporary research trends in the field of geography. Dependent on instructor preference and individual student interest, in-depth readings will be pursued in one or more of the following areas of geographic study: cultural, political, regional or military geography. Compensatory time is given to permit extra readings.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** A research proposal and its oral presentation.

**Prerequisite(s):** EV203 EV365  
-Or-  
EV203X EV365

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<b>EV485</b>	<b>SPEC TOPICS-GEOG &amp; ENVRNMNT</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 1999-1

**Offerings:**

This course explores an advanced topic in Human and Regional Geography, Environmental Geography, Environmental Science, Environmental Engineering, or Geospatial Information Science. Specific subject matter will vary with the expertise of the visiting professor or senior faculty member conducting the course.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** As specified by the professor.

**Prerequisite(s):** EV203  
-Or-  
EV203X

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<b>EV486</b>	<b>ENVIRONMENT AND DEVELOPMENT</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2015-2

**Offerings:**

Whereas physical geographers focus on the earth's surface and atmosphere, and human geographers concentrate on the spatial aspect of human activities, environmental geographers are interested in both how people adapt to specific environments and how they alter those environments through human activities. To understand these interactions and their implications, environmental geographers must fully appreciate natural processes and landform development within and on the surface of the Earth, as well as the implications of human intervention in the natural system.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** EV203 EV365  
-Or-  
EV203X EV365

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<b>EV487</b>	<b>ENVIRONMENTAL SECURITY</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2017-2

**Offerings:**

This interdisciplinary seminar uses Environmental Security in a case study approach to analyze how environmental issues affect U.S. National Security. Cadets explore environmental security topics such as water, natural resource shortages, energy use and dependency, and global climate change using an interdisciplinary approach from social, political, economic, and scientific-technological perspectives. The course culminates in a student team analysis of a developing country relating environmental security issues to U.S. National Security interests. The final project includes a formal brief and written paper.

2019-2 2020-2 2021-2

**Lessons:** 40 @ 55 min (0.000 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** Standing as a first class cadet required for enrollment.

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<b>EV488</b>	<b>SOLID &amp; HAZ WASTE TREAT &amp; REMD</b>	<b>3.5 Credit Hours</b> <b>(BS=0.0,ET=3.5,MA=0.0)</b>
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**Scope:** 2017-2

**Offerings:**

This course examines the treatment, storage and disposal of solid and hazardous wastes. Both regulatory requirements and evolving technology associated with solving modern solid waste disposal problems are discussed. Design of remediation processes for cleanup of contaminated waste sites are presented. Students design and conduct experiments to assess the efficiency of a hazardous waste treatment process or solve a problem associated with a variety of hazardous waste treatment technologies.

2019-2 2020-2 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 7 @ 120 min

**Special Requirements:** Design of a laboratory experiment.

**Prerequisite(s):** EV402

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<b>EV489A</b>	<b>ADVANCED INDIVIDUAL STUDY I</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2007-1

**Offerings:**

The course is an individually supervised research and study program designed to provide cadets with the opportunity to pursue advanced topics within their discipline. The cadet prepares a research and study proposal setting forth the objectives, scope, and anticipated accomplishments of his/her efforts for the semester. If required for a specific degree, the proposal will include a justification for engineering science or design credit. Once approved, the proposal serves as a basis for the cadet's research and study program. Progress in research reports and observations by the faculty advisor form the basis for grades. The program for each cadet will culminate in one of two outcomes: 1) a discipline-appropriate written product (e.g., senior thesis or design project) with oral defense; or 2) enrollment in EV489B for the completion of the research and study program during the second academic term. Lessons and labs are established by consultation between the cadet and faculty advisor.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Lessons:** 0 @ 0 min (0.000 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** Senior Thesis or as determined by faculty advisor. Project dependent BS, ES, ED credit.

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<b>EV489B</b>	<b>ADVANCED INDIVIDUAL STUDY II</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2008-2

**Offerings:**



The course is an individually supervised research and study program designed to provide cadets with the opportunity to pursue advanced topics within their discipline. The cadet uses a research and study proposal setting forth the objectives, scope, and anticipated accomplishments of his/her efforts for the semester. If required for a specific degree, the proposal will include a justification for engineering science or design credit. The proposal serves as a basis for the cadet's research and study program. Progress in research reports and observations by the faculty advisor form the basis for grades. The program for each cadet will culminate in a discipline-appropriate written product (e.g., senior thesis or design project) with oral defense. Lessons and labs are established by consultation between the cadet and faculty advisor.

**Lessons:** 0 @ 0 min (0.000 Att/wk)

**Labs:** 0 @ 0 min

**Special Requirements:** Written report with oral defense. Project dependent BS, ES, ED credit.

**Prerequisite(s):** EV480  
-Or-  
EV489A

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<b>EV490</b>	<b>ADV ENVIRON ENG DESIGN</b>	<b>3.5 Credit Hours</b> <b>(BS=0.0,ET=3.5,MA=0.0)</b>
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**Scope:** 2013-2

**Offerings:**

This is the final design course for the major in environmental engineering. Cadets experience the complete design experience including defining the project scope, identifying design constraints, comparing alternatives, development of plans and specifications, engineering economics, and project management. The course centers on a senior design project that requires the integration of concepts developed in previous courses. Working in teams, cadets examine projects through the feasibility and concept design phases to evolve and develop concepts that are not only technically feasible, but economically, socially, and politically acceptable. The evaluation of alternatives employs trade-off analysis and the use of multi-attribute decision models. The final product includes a formal oral briefing and written design specifications. In addition to project management, course lectures cover topical coverage of fundamental engineering topics relevant to the problems under study.

No Course Offerings

**Lessons:** 40 @ 55 min (0.000 Att/wk)

**Labs:** 12 @ 55 min

**Special Requirements:** One design problem. Standing as a first class cadet is required for enrollment.

**Prerequisite(s):** EV301  
-Or-  
EV385

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<b>EV490</b>	<b>ENVIRON ENG DESIGN</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=3.0,MA=0.0)</b>
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**Scope:** 2019-1

**Offerings:**

This is the first in a sequence of two courses that comprise the environmental engineering integrative experience. In this senior engineering design course, teams of cadets apply the engineering design process to develop alternative solutions to complex, open-ended environmental engineering problems. In addition, cadets are introduced to techniques, skills, and modern engineering tools required for the engineering design process. The course culminates with a decision brief and report in which teams present a conceptual (35%) design for their recommended solution alternative, as well as their analysis of the engineering, social, economic, and environmental criteria that led them to recommend this course of action. The approved design alternative will be completed the following semester in EV491 Advanced Environmental Engineering Design.

2019-1 2020-1 2021-1

**Lessons:** 40 @ 55 min (2.500 Att/wk)

**Labs:** 0 @ 0 min

**Special Requirements:** Standing as a first class cadet.

**Prerequisite(s):** EV481

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<b>EV491</b>	<b>ADV ENVIRON ENG DESIGN</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=3.0,MA=0.0)</b>
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**Scope:** 2019-2

**Offerings:**

This is the second in a sequence of two courses that comprise the environmental engineering integrative experience. In this senior engineering design course, teams of cadets refine and finalize the conceptual designs they produced at the end of EV490 to solve a complex, open-ended environmental engineering problem. Ensuring that the complete design meets specified engineering, social, environmental, and economic criteria, they present the results both orally and in a written report. This course also introduces cadets to the engineering profession, to include engineering ethics and an emphasis on continued study to earn professional certifications.

2019-2 2020-2 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)

**Labs:** 0 @ 0 min

**Special Requirements:** One design problem. Standing as a first class cadet is required for enrollment.

**Prerequisite(s):** EV490

<b>EV498</b>	<b>ADV GEOGRAPHIC INFORMATION SYS</b>	<b>3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)</b>
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**Scope:** 2005-1

**Offerings:**

This course examines the analytical methods used in Geographic Information systems (GIS) and provides cadets with a clear understanding of the theoretical/conceptual aspects of algorithms found in GIS software. Lectures focus on the underlying mathematical basis for widely used spatial analytical techniques. Among the topics covered are neighborhood operations, map transformation, spatial interpolation, terrain analysis, network analysis, spatial overlay, fuzzy sets, neural networks, and expert systems. In-class practical exercises and laboratory assignments compliment the lectures by providing hands-on experience with a variety of advanced analytical techniques. The course culminates with a capstone term project that allows cadets to identify a scientific problem, formulate a hypothesis, use GIS to solve the problem, and then present the results of their analysis.

**Lessons:** 30 @ 55 min (2.500 Att/wk)      **Labs:** 10 @ 55 min

**Special Requirements:** Term project. Compensatory time provided.

**Prerequisite(s):** EV398

<b>XS391</b>	<b>PRIN &amp; APPL OF ENV CHEM</b>	<b>3.0 Credit Hours (BS=0.5,ET=2.5,MA=0.0)</b>
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**Scope:** 2011-1

**Offerings:**

This course examines chemical interactions of pollutants in air, soil, and water systems. The focus of the course is problem solving with the following topic coverage: approximately 80% applied aquatic chemistry, 15% environmental organic chemistry, and 5% applied analytical chemistry. Specific topics include the chemistry applied in drinking water production and the chemical aspects of industrial and hazardous waste treatment. The fate of heavy metals and organic contaminants in soil and aqueous systems is also discussed.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** One in-class lab.

**Prerequisite(s):** CH102 MA104  
-Or-  
CH152 MA104

## Department of History

### 88 Courses

HI105	HISTORY OF THE UNITED STATES	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2017-1	<b>Offerings:</b>
<p>HI105, History of the United States, addresses the social, political, economic, foreign relations, and sectional of the nation from its colonial roots through the end of the 20th century. The course consists of three blocks of instruction, each followed by a major examination. Although this course is complete in itself, it complements HI108, Regional Studies in World History, by providing cadets an understanding of their own culture as a basis for studying foreign cultures. The course also develops methods of historical research and analysis, critical thinking, lucid writing, and effective participation in classroom discussion.</p>		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Disqualifier(s):</b>	HI155	
HI108	REGIONAL STUDIES IN WORLD HIST	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2017-2	<b>Offerings:</b>
<p>HI108, Regional Studies in World History, is a detailed study of the development and critical events in the history of one of six regions: Africa (stem identifier A), East Asia (E), Latin America (L), the Middle East (M), Russia (R), or Europe (U). The focus on one region enables cadets to develop a deeper understanding of a different culture and unfamiliar ideas and concepts. The course also develops methods of historical research and analysis, critical thinking, lucid writing, and effective participation in classroom discussion. HI108 combines with either HI105 or HI155 to form the plebe history sequence of the Core Academic Program.</p>		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Disqualifier(s):</b>	-Or-  -Or- HI158	
HI108A	RGNL STUDY WORLD HIST - AFRICA	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2017-1	<b>Offerings:</b>
<p>HI108X, Regional Studies in World History, is a detailed study of the development and critical events in the history of one of six regions, each with its own letter designation. As the stems are all a part of one course, cadets may not take multiple stems as electives. The focus on one region enables cadets to develop a deeper understanding of a different culture and unfamiliar ideas and concepts. The course also develops methods of historical research and analysis, critical thinking, lucid writing, and effective participation in classroom discussion. HI108A combines with HI105 or HI155 to form the plebe history sequence of the Core Academic Program. The Africa stem (identifier A) challenges cadets to study how social, political, economic, technological, and military factors have influenced international and multicultural relations and how these relations have influenced the development of specific societies, politics, cultures, economies, technologies, military systems, and gender roles throughout Africa.</p>		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	Critical Analysis of historical literature and a research paper of 1500 words, compensatory time provided.	
<b>Disqualifier(s):</b>	HI108E -Or- HI108L -Or- HI108M -Or- HI108R -Or- HI108U	

HI108E	RGNL STUD WORLD HIST - E. ASIA	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2017-1	<b>Offerings:</b>
<p>HI108X, Regional Studies in World History, is a detailed study of the development and critical events in the history of one of six regions, each with its own letter designation. As the stems are all a part of one course, cadets may not take multiple stems as electives. The focus on one region enables cadets to develop a deeper understanding of a different culture and unfamiliar ideas and concepts. The course also develops methods of historical research and analysis, critical thinking, lucid writing, and effective participation in classroom discussion. HI108E combines with HI105 or HI155 to form the plebe history sequence of the Core Academic Program. The East Asia stem (identifier E) challenges cadets to study how social, political, economic, technological, and military factors have influenced international and multicultural relations and how these relations have influenced the development of specific societies, polities, cultures, economies, technologies, military systems, and gender roles throughout East Asia.</p>		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	Critical Analysis of historical literature and a research paper of 1500 words, compensatory time provided.	
<b>Disqualifier(s):</b>	HI108A -Or- HI108L -Or- HI108M -Or- HI108R -Or- HI108U	
HI108L	RGNL STUD WORLD HIST - L. AMER	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2017-1	<b>Offerings:</b>
<p>HI108X, Regional Studies in World History, is a detailed study of the development and critical events in the history of one of six regions, each with its own letter designation. As the stems are all a part of one course, cadets may not take multiple stems as electives. The focus on one region enables cadets to develop a deeper understanding of a different culture and unfamiliar ideas and concepts. The course also develops methods of historical research and analysis, critical thinking, lucid writing, and effective participation in classroom discussion. HI108L combines with HI105 or HI155 to form the plebe history sequence of the Core Academic Program. The Latin America stem (identifier L) challenges cadets to study how social, political, economic, technological, and military factors have influenced international and multicultural relations and how these relations have influenced the development of specific societies, polities, cultures, economies, technologies, military systems, and gender roles throughout Latin America.</p>		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	Critical Analysis of historical literature and a research paper of 1500 words, compensatory time provided.	
<b>Disqualifier(s):</b>	HI108A -Or- HI108E -Or- HI108M -Or- HI108R -Or- HI108U	
HI108M	RGNL STUD WORLD HIST - M. EAST	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2017-1	<b>Offerings:</b>
<p>HI108X, Regional Studies in World History, is a detailed study of the development and critical events in the history of one of six regions, each with its own letter designation. As the stems are all a part of one course, cadets may not take multiple stems as electives. The focus on one region enables cadets to develop a deeper understanding of a different culture and unfamiliar ideas and concepts. The course also develops methods of historical research and analysis, critical thinking, lucid writing, and effective participation in classroom discussion. HI108M combines with HI105 or HI155 to form the plebe history sequence of the Core Academic Program. The Middle East stem (identifier M) challenges cadets to study how social, political, economic, technological, and military factors have influenced international and multicultural relations and how these relations have influenced the development of specific societies, polities, cultures, economies, technologies, military systems, and gender roles throughout the Middle East.</p>		2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min

**Special Requirements:** Critical Analysis of historical literature and a research paper of 1500 words, compensatory time provided.

**Disqualifier(s):** HI108A  
-Or-  
HI108E  
-Or-  
HI108L  
-Or-  
HI108R  
-Or-  
HI108U

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<b>HI108R</b>	<b>RGNL STUDY WORLD HIST - RUSSIA</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2017-1

**Offerings:**

HI108X, Regional Studies in World History, is a detailed study of the development and critical events in the history of one of six regions, each with its own letter designation. As the stems are all a part of one course, cadets may not take multiple stems as electives. The focus on one region enables cadets to develop a deeper understanding of a different culture and unfamiliar ideas and concepts. The course also develops methods of historical research and analysis, critical thinking, lucid writing, and effective participation in classroom discussion. HI108R combines with HI105 or HI155 to form the plebe history sequence of the Core Academic Program. The Russia stem (identifier R) challenges cadets to study how social, political, economic, technological, and military factors have influenced international and multicultural relations and how these relations have influenced the development of specific societies, polities, cultures, economies, technologies, military systems, and gender roles throughout Russia, Central Asia, and the Caucasus.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** Critical Analysis of historical literature and a research paper of 1500 words, compensatory time provided.

**Disqualifier(s):** HI108A  
-Or-  
HI108E  
-Or-  
HI108L  
-Or-  
HI108M  
-Or-  
HI108U

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<b>HI108U</b>	<b>RGNL STUDY WORLD HIST - EUROPE</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2017-1

**Offerings:**

HI108X, Regional Studies in World History, is a detailed study of the development and critical events in the history of one of six regions, each with its own letter designation. As the stems are all a part of one course, cadets may not take multiple stems as electives. The focus on one region enables cadets to develop a deeper understanding of a different culture and unfamiliar ideas and concepts. The course also develops methods of historical research and analysis, critical thinking, lucid writing, and effective participation in classroom discussion. HI108U combines with HI105 or HI155 to form the plebe history sequence of the Core Academic Program. The Europe stem (identifier U) challenges cadets to study how social, political, economic, technological, and military factors have influenced international and multicultural relations and how these relations have influenced the development of specific societies, polities, cultures, economies, technologies, military systems, and gender roles throughout Europe.

**Lessons:** 44 @ 55 min (0.000 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** Critical Analysis of historical literature and a research paper of 1500 words, compensatory time provided.

**Disqualifier(s):** HI108A  
-Or-  
HI108E  
-Or-  
HI108L  
-Or-  
HI108M  
-Or-  
HI108R

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<b>HI155</b>	<b>ADVANCED HISTORY OF THE U.S.</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2017-1

**Offerings:**

This course encompasses the same chronological period and thematic coverage as HI105, but it does so through monographic and periodical literature and a greater emphasis on classroom discussion. These courses assume some familiarity with American history and consequently place special emphasis on historical analysis and criticism. Moreover, students acquire a broader understanding of American history and the historian's methods.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

**Disqualifier(s):** HI105

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<b>HI158</b>	<b>ADV REG STUD IN WORLD HISTORY</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2013-1

**Offerings:**

This course encompasses the same chronological period and thematic coverage as HI108, but it does so through monographic and periodical literature and a greater emphasis on classroom discussion. These courses assume some familiarity with history and consequently place special emphasis on historical analysis and criticism. Moreover, students acquire a broader understanding of history and the historian's methods.

No Course Offerings

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** Several critical analyses of historical literature in the first term and a research paper of 1500 words in the second; compensatory time provided.

**Disqualifier(s):** HI104  
-Or-  
HI108  
-Or-  
HI154

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<b>HI158A</b>	<b>ADV REG ST WORLD HIST - AFRICA</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2017-1

**Offerings:**

HI158X, Advanced Regional Studies in World History, is a detailed study of the development and critical events in the history of one of six regions, each with its own letter designation. As the stems are all a part of one course, cadets may not take multiple stems as electives. The focus on one region enables cadets to develop a deeper understanding of a different culture and unfamiliar ideas and concepts. The course also develops methods of historical research and analysis, critical thinking, lucid writing, and effective participation in classroom discussion. HI158A combines with HI105 or HI155 to form the plebe history sequence of the Core Academic Program. The Africa stem (identifier A) challenges cadets to study how social, political, economic, technological, and military factors have influenced international and multicultural relations and how these relations have influenced the development of specific societies, polities, cultures, economies, technologies, military systems, and gender roles throughout Africa. The course is for cadets who have demonstrated advanced proficiency in history courses.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** Critical Analysis of historical literature and a research paper of 1500 words, compensatory time provided.

**Disqualifier(s):** HI158E  
-Or-  
HI158L  
-Or-  
HI158M  
-Or-  
HI108R  
-Or-  
HI158U

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<b>HI158E</b>	<b>ADV REG ST WORLD HIST - E ASIA</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2017-1

**Offerings:**

HI158X, Advanced Regional Studies in World History, is a detailed study of the development and critical events in the history of one of six regions, each with its own letter designation. As the stems are all a part of one course, cadets may not take multiple stems as electives. The focus on one region enables cadets to develop a deeper understanding of a different culture and unfamiliar ideas and concepts. The course also develops methods of historical research and analysis, critical thinking, lucid writing, and effective participation in classroom discussion. HI158E combines with HI105 or HI155 to form the plebe history sequence of the Core Academic Program. The East Asia stem (identifier E) challenges cadets to study how social, political, economic, technological, and military factors have influenced international and multicultural relations and how these relations have influenced the development of specific societies, polities, cultures, economies, technologies, military systems, and gender roles throughout East Asia. The course is for cadets who have

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

demonstrated advanced proficiency in history courses.

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** Critical Analysis of historical literature and a research paper of 1500 words, compensatory time provided.

**Disqualifier(s):** HI158A  
-Or-  
HI158L  
-Or-  
HI158M  
-Or-  
HI158R  
-Or-  
HI158U

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<b>HI158L</b>	<b>ADV REG ST WLD HIST - LATIN AM</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2017-1

**Offerings:**

HI158X, Advanced Regional Studies in World History, is a detailed study of the development and critical events in the history of one of six regions, each with its own letter designation. As the stems are all a part of one course, cadets may not take multiple stems as electives. The focus on one region enables cadets to develop a deeper understanding of a different culture and unfamiliar ideas and concepts. The course also develops methods of historical research and analysis, critical thinking, lucid writing, and effective participation in classroom discussion. HI158L combines with HI105 or HI155 to form the plebe history sequence of the Core Academic Program. The Latin America stem (identifier L) challenges cadets to study how social, political, economic, technological, and military factors have influenced international and multicultural relations and how these relations have influenced the development of specific societies, polities, cultures, economies, technologies, military systems, and gender roles throughout Latin America. The course is for cadets who have demonstrated advanced proficiency in history courses.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** Critical Analysis of historical literature and a research paper of 1500 words, compensatory time provided.

**Disqualifier(s):** HI158A  
-Or-  
HI158E  
-Or-  
HI158M  
-Or-  
HI158R  
-Or-  
HI158U

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<b>HI158M</b>	<b>ADV REG ST WLD HIST - MID EAST</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2017-1

**Offerings:**

HI158X, Advanced Regional Studies in World History, is a detailed study of the development and critical events in the history of one of six regions, each with its own letter designation. As the stems are all a part of one course, cadets may not take multiple stems as electives. The focus on one region enables cadets to develop a deeper understanding of a different culture and unfamiliar ideas and concepts. The course also develops methods of historical research and analysis, critical thinking, lucid writing, and effective participation in classroom discussion. HI158M combines with HI105 or HI155 to form the plebe history sequence of the Core Academic Program. The Middle East stem (identifier M) challenges cadets to study how social, political, economic, technological, and military factors have influenced international and multicultural relations and how these relations have influenced the development of specific societies, polities, cultures, economies, technologies, military systems, and gender roles throughout the Middle East. The course is for cadets who have demonstrated advanced proficiency in history courses.

2019-2 2020-1 2020-2  
2021-1 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** Critical Analysis of historical literature and a research paper of 1500 words, compensatory time provided.

**Disqualifier(s):** HI158A  
-Or-  
HI158E  
-Or-  
HI158L  
-Or-  
HI158R  
-Or-  
HI158U

HI158R	ADV REG ST WORLD HIST - RUSSIA	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2017-1	<b>Offerings:</b>
<p>HI158X, Advanced Regional Studies in World History, is a detailed study of the development and critical events in the history of one of six regions, each with its own letter designation. As the stems are all a part of one course, cadets may not take multiple stems as electives. The focus on one region enables cadets to develop a deeper understanding of a different culture and unfamiliar ideas and concepts. The course also develops methods of historical research and analysis, critical thinking, lucid writing, and effective participation in classroom discussion. HI158R combines with HI105 or HI155 to form the plebe history sequence of the Core Academic Program. The Russia stem (identifier R) challenges cadets to study how social, political, economic, technological, and military factors have influenced international and multicultural relations and how these relations have influenced the development of specific societies, polities, cultures, economies, technologies, military systems, and gender roles throughout Russia, Central Asia, and the Caucasus. The course is for cadets who have demonstrated advanced proficiency in history courses. .</p>		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	Critical Analysis of historical literature and a research paper of 1500 words, compensatory time provided.	
<b>Disqualifier(s):</b>	HI158A -Or- HI158E -Or- HI158L -Or- HI158M -Or- HI158U	
HI158U	ADV REG ST WORLD HIST - EUROPE	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2017-1	<b>Offerings:</b>
<p>HI158X Advanced Regional Studies in World History, is a detailed study of the development and critical events in the history of one of six regions, each with its own letter designation. As the stems are all a part of one course, cadets may not take multiple stems as electives. The focus on one region enables cadets to develop a deeper understanding of a different culture and unfamiliar ideas and concepts. The course also develops methods of historical research and analysis, critical thinking, lucid writing, and effective participation in classroom discussion. HI158U combines with HI105 or HI155 to form the plebe history sequence of the Core Academic Program. The Europe stem (identifier U) challenges cadets to study how social, political, economic, technological, and military factors have influenced international and multicultural relations and how these relations have influenced the development of specific societies, polities, cultures, economies, technologies, military systems, and gender roles throughout Europe. The course is for cadets who have demonstrated advanced proficiency in history courses.</p>		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b>	40 @ 55 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	Critical Analysis of historical literature and a research paper of 1500 words, compensatory time provided.	
<b>Disqualifier(s):</b>	HI158A -Or- HI158E -Or- HI158L -Or- HI158M -Or- HI158R	
HI301	HISTORY OF THE MILITARY ART	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	1984-1	<b>Offerings:</b>
<p>This two-term, upperclass core course traces the evolution of the art of war from the ancients through the napoleonic era to the American civil war and the wars of the twentieth century. Emphasis is placed on the changing nature of warfare as nations adjust to social, political, economic and technological developments. Analysis focuses on causation, the interrelationship of events as warfare evolved over the ages, operational and logistical aspects of military history, and the role of society in warfare.</p>		No Course Offerings
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	HI301: Two research papers, one of at least 300 words and one of 1500 words; HI302: A 1500-word research paper tied to a WWII colloquium; compensatory time provided.	



<b>Disqualifier(s):</b>	HI351	
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<b>HI301</b>	<b>HIST OF MILITARY ART TO 1900</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2019-1	<b>Offerings:</b>
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This one-term elective course traces the evolution of the art of war to 1900. Emphasis is placed on the changing character of warfare as nations adjusted to social, political, ideological, economic, and technological developments. The historical method is used as a tool for understanding war as a complex, ambiguous, and unpredictable human phenomenon. Analysis focuses on causation, the interrelationship of events as warfare evolved over the ages, operational and logistical aspects of military history, and the role of society in warfare.

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** A research essay and an analytical review essay; compensatory time provided for both essays.

**Prerequisite(s):** HI108  
-Or-  
HI108A  
-Or-  
HI108E  
-Or-  
HI108L  
-Or-  
HI108M  
-Or-  
HI108R  
-Or-  
HI108U  
-Or-  
HI158  
-Or-  
HI158A  
-Or-  
HI158E  
-Or-  
HI158L  
-Or-  
HI158M  
-Or-  
HI158R  
-Or-  
HI158U

**Disqualifier(s):** HI351

<b>HI301H</b>	<b>HISTORY OF MILITARY ART</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2012-1	<b>Offerings:</b>
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Tempory course for History Majors enrolled in HI301

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** HI301: Two research papers, one of at least 300 words and one of 1500 words; HI302: A 1500-word research paper tied to a WWII colloquium; compensatory time provided.

<b>HI301X</b>	<b>HISTORY OF THE MILITARY ART</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	1984-1	<b>Offerings:</b>
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This two term, upperclass core course traces the evolution of the art of war from the hundred years war through the Napoleonic era to the American civil war and the wars of the twentieth century. Emphasis is placed on the changing nature of warfare as nations adjust to social, political, economic and technological developments. Analysis focuses on causation, the interrelationship of events as warfare evolved over the ages, operational and logistical aspects of military history, and the role of society in warfare.

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** None

<b>Disqualifier(s):</b>	HI351	
<b>HI302</b>	<b>HIST OF MIL ART 1900- PRESENT</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2018-1	<b>Offerings:</b>
This one-term, upperclass core course traces the evolution of the art of war from 1900 to the wars of the present day. Emphasis is placed on the changing character of warfare as nations adjusted to social, political, ideological, economic, and technological developments. The historical method is used as a tool for understanding war as a complex, ambiguous, and unpredictable human phenomenon. Analysis focuses on causation, the interrelationship of events as warfare evolved over the ages, operational and logistical aspects of military history, and the role of society in warfare.		2019-1 2019-2 2019-3 2020-1 2020-2 2020-3 2021-1 2021-2 2021-3
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	A research essay and an analytical review essay, compensatory time provided for both essays.	
<b>Prerequisite(s):</b>	HI108 -Or- HI158 -Or- HI108A -Or- HI108E -Or- HI108L -Or- HI108M -Or- HI108R -Or- HI108U -Or- HI158A -Or- HI158E -Or- HI158L -Or- HI158M -Or- HI158R -Or- HI158U	
<b>Disqualifier(s):</b>	HI352	
<b>HI302A</b>	<b>HIST MIL ART 1900-PRESENT</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2018-2	<b>Offerings:</b>
This one-term, upperclass core course traces the evolution of the art of war from 1900 to the wars of the present day. Emphasis is placed on the changing character of warfare as nations adjusted to social, political, ideological, economic, and technological developments. The historical method is used as a tool for understanding war as a complex, ambiguous, and unpredictable human phenomenon. Analysis focuses on causation, the interrelationship of events as warfare evolved over the ages, operational and logistical aspects of military history, and the role of society in warfare. THIS VARIANT OF HI302 IS USED FOR SCHEDULING CADETS WHO HAVE HAD HI301.		No Course Offerings
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	A research essay and an analytical review essay; compensatory time provided for both essays.	
<b>Prerequisite(s):</b>	HI301	
<b>HI302D</b>	<b>HISTORY OF THE MILITARY ART</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2014-2	<b>Offerings:</b>

This two-term, upperclass core course traces the evolution of the art of war from the ancients through the Napoleonic era to the American civil war and the wars of the twentieth century. Emphasis is placed on the changing nature of warfare as nations adjust to social, political, economic and technological developments. Analysis focuses on causation, the interrelationship of events as warfare evolved over the ages, operational and logistical aspects of military history, and the role of society in warfare.

**Lessons:** 40 @ 55 min (0.000 Att/wk) **Labs:** 0 @ 0 min

**Special Requirements:** Course is used to cohort cadets with Defense Studies Major

<b>HI302H</b>	<b>HISTORY OF THE MILITARY ART</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2011-2	<b>Offerings:</b>
Tempory course for History Majors enrolled in HI302.		2019-2 2020-2 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

**Special Requirements:** HI301: Two Research papers, one of at least 300 words and on of 1500 words; HI302: A 1500-word research paper tied to a WWII colloquium; compensatory time provided.

**Prerequisite(s):** HI301  
-Or-  
HI301H  
-Or-  
HI301X

**Disqualifier(s):** HI302  
-Or-  
HI352

<b>HI302X</b>	<b>HISTORY OF THE MILITARY ART</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	1984-2	<b>Offerings:</b>
This two term, upperclass core course traces the evolution of the art of war from the hundred years war through the Napoleonic era to the American civil war and the wars of the twentieth century. Emphasis is placed on the changing nature of warfare as nations adjust to social, political, economic and technological developments. Analysis focuses on causation, the interrelationship of events as warfare evolved over the ages, operational and logistical aspects of military history, and the role of society in warfare.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

**Special Requirements:** None

<b>HI337</b>	<b>CHINA-C. KINGDOM TO COMM RULE</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2008-1	<b>Offerings:</b>
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This course traces the history of China from ancient times to the present. It briefly introduces the emergence of a distinct Chinese civilization, in thought, culture, and political structure. It then considers how China was transformed by the introduction of Buddhism and the experience of cosmopolitan empire under the Tang. Next it examines how China fared in the multi-state system that endured from 960 to the Mongol conquest, and then as the Late Imperial state under the Ming and 'foreign' Manchu rule. It considers the search for 'new China' in the Republican, Warlord, and Nationalist periods following the collapse of the Late Imperial state. It shows why Mao came to represent a new utopian vision and how that vision tragically failed. Finally, the course explores how the search for 'new China' and historical legitimacy continues today both on the mainland and in Taiwan.

**Lessons:** 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

**Special Requirements:** A 1500-word research paper.

<b>HI337</b>	<b>CHINA-C. KINGDOM TO COMM RULE</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2018-1	<b>Offerings:</b>
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This course traces the history of China from ancient times to the present. It briefly introduces the emergence of a distinct Chinese civilization, in thought, culture, and political structure. It then considers how China was transformed by the introduction of Buddhism and the experience of cosmopolitan empire under the Tang. Next it examines how China fared in the multi-state system that endured from 960 to the Mongol conquest, and then as the Late Imperial state under the Ming and 'foreign' Manchu rule. It considers the search for 'new China' in the Republican, Warlord, and Nationalist periods following the collapse of the Late Imperial state. It shows why Mao came to represent a new utopian vision and how that vision tragically failed. Finally, the course explores how the search for 'new China' and historical legitimacy continues today both on the mainland and in Taiwan.

**Lessons:** 40 @ 55 min (2.500 Att/wk)

**Labs:** 0 @ 0 min

**Special Requirements:**

A 1500-word research paper.

**Prerequisite(s):**

HI105 HI108A

-Or-

HI105 HI108E

-Or-

HI105 HI108L

-Or-

HI105 HI108M

-Or-

HI105 HI108R

-Or-

HI105 HI108U

-Or-

HI105 HI158A

-Or-

HI105 HI158E

-Or-

HI105 HI158L

-Or-

HI105 HI158M

-Or-

HI105 HI158R

-Or-

HI105 HI158U

-Or-

HI108A HI155

-Or-

HI108E HI155

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HI108L HI155

-Or-

HI108M HI155

-Or-

HI108R HI155

-Or-

HI108U HI155

-Or-

HI155 HI158A

-Or-

HI155 HI158E

-Or-

HI155 HI158L

-Or-

HI155 HI158M

-Or-

HI155 HI158R

-Or-

HI155 HI158U

**HI338**

**WARFARE IN AGE OF REVOLUTIONS**

**3.0 Credit Hours**  
**(BS=0.0,ET=0.0,MA=0.0)**

**Scope:**

2008-2

**Offerings:**

This course examines the theory and practice of warfare in Europe during the Age of Revolutions, roughly considered to be 1750 to 1814. Political revolutions such as the American and French Revolutions, along with other revolutions such as the Agricultural and the Industrial, and the intellectual ferment spawned by the Age of Enlightenment, all resulted in significant changes in the conduct of warfare. This course will examine those events, with particular focus on their relevance to the art of warfare. Themes include changes in military organization, doctrine, technology, and the accompanying social, political, and economic factors that influenced the armies of the day. The course will also cover the wars and campaigns that took place during this timeframe, including the American and French Revolutions and the wars of Napoleon.

**Lessons:** 40 @ 55 min (2.500 Att/wk)

**Labs:** 0 @ 0 min

**Special Requirements:** A 1500-word research paper.

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<b>HI339</b>	<b>THE MODERN MIDDLE EAST</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2009-1

**Offerings:**

This course enables cadets to explore the social, political, economic, and military interactions in the formation of the Modern Middle East. The first block examines the decline of the Gunpowder Empires and the subsequent penetration of European colonialism into the Islamic world (India, North Africa, Egypt, and the Levant), with emphasis on the factors that led to military decline of the Turkic world and the relative economic and military advantages of the European powers. During this block, students will discuss the Middle East's modernizing and reform efforts that European colonialism helped to catalyze, to include democratization, constitutions, capitalism, and industrialization. The second block covers the events that follow the World Wars and subsequent decolonization of the Middle East against the backdrop of the Cold War. Cadets will closely examine the Arab-Israeli conflict, the rise of Arab Nationalism and the tension between military revolutionary dictatorship and attempts at constitutional monarchy and republics. The final phase will begin with the Iranian revolution of 1979 and the Soviet invasion of Afghanistan. It will consider the rise of political Islam as a revolutionary ideology and the post-Cold War challenges leading to current wars and insurrections.

2019-2 2021-1

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** A 1500-word research paper.

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<b>HI340</b>	<b>COLONIAL AMERICA</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2008-2

**Offerings:**

This course examines the international, political, social, cultural, and economic origins and development of colonial North America prior to the War for Independence, with attention to French and Spanish as well as British colonies. It explores the development of American identities and the significance of colonization and intercultural encounters for all the peoples, Native and European, of North America.

2020-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** A 1500-word research paper.

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<b>HI341</b>	<b>THE AGE OF EXPLORATION</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2008-2

**Offerings:**

This course concentrates on the on the 'age of exploration' and its impact on the Early Modern World, 1453-1715. It provides students interested in the history of Early Modern Europe, the Atlantic world, the history of Africa and colonial Latin America a general understanding of the ideologies and institutions that enabled Europe to colonize parts of Africa and the Americas during this important period in world history. Specific topics include: medieval precedents of early modern imperialism; theories of monarchy and empire; ideologies of conquest and colonization; the continuity of Native cultures and beliefs; the relevance of race and slavery in understanding European influence in Africa and the Americas; and the creation of an Atlantic economy.

2020-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** A 1500-word research paper.

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<b>HI342</b>	<b>THE BRITISH ISLES SINCE 1688</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2009-2

**Offerings:**

This course examines the rise and fall of one of the greatest empires of modern history. How did a tiny, insular nation become the world's most formidable imperialistic power and then, in the afterglow of high Victorian achievement, evolve into a post-industrial welfare state? In answering this question students will have the opportunity to deal with the great military, social, economic, and political issues that shaped modern Europe. Key events and themes include the Glorious Revolution, the Seven Years' War, the loss of the American colonies, the impact of the French Revolution and Industrial Revolution, the rise of democracy, the triumph of socialism, the age of total war, and the transition to the Cold War.

2019-2 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** A 1500-word research paper.

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<b>HI343</b>	<b>MODERN GERMANY</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2008-2	<b>Offerings:</b>
This course is a survey of the German lands from the dawn of the modern era through contemporary times. The course will combine social, political, economic, and cultural history in examining crucial themes and developments related to the German-speaking regions. Cadets will consider German nation and state formation; social, demographic, and economic transformation; imperialism, war and ideological change; the transformation of male and female roles; and trends in high and popular culture. The course will include a significant segment on twentieth-century Germany and the role the German state played in determining the course of world history, whether as the Nazi state that unleashed the Holocaust or as the West German Cold War bulwark. German history has much to teach us, and has led to enormous debates about the nature of the modern era.		2020-2
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	A 1500-word research paper.	
<b>HI344</b>	<b>MODERN DIPLOMACY</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2009-2	<b>Offerings:</b>
The course focuses on the major diplomatic developments in Europe from 1814 through the end of the Cold War in 1991. It traces the emergence of the European state system after the Treaty of Westphalia and the impact of the revolution in France on European diplomatic relations. It examines the diplomatic system established at the Congress of Vienna through the crises and conflicts of the mid-19th century. The course also examines the various factors that led to the First World War, the developments of the interwar period, the origins and conduct of the Second World War, and the origins of the Cold War. The final lessons will explore Europe's role in the Cold War, the rise of international organizations, trans-national diplomacy, the end of the Cold War, and recent modifications to Europe's role in world affairs.		2019-2 2021-2
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	A 1500-word research paper.	
<b>HI345</b>	<b>MODERN AFRICA</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2008-1	<b>Offerings:</b>
This course takes a thematic approach to African history, describing the forces which led to the partitioning of the continent, the practices of European colonialism/imperialism, the emergence of independent African states, and political, economic, and social developments in contemporary Africa. The goal of the course is to focus on critical events, relationships, and themes on the continent that continue to effect current events.		2020-1
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	A 1500-word research paper.	
<b>HI346</b>	<b>MODERN SOUTH ASIA</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2008-2	<b>Offerings:</b>
This course enables cadets to explore the social, political, economic, religious, and cultural history of modern South Asia. The course will examine the foundation of Indian religious and cultural traditions, and the related social, political, and economic developments in early India. It then examines the late Mughal Empire, the domination of India by the British, the struggles for independence, and the partition of South Asia into India, Pakistan, and Bangladesh in the contemporary era.		2020-2
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	A 1500-word research paper.	
<b>HI347</b>	<b>ASIAN WARFARE AND POLITICS</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2009-1	<b>Offerings:</b>
This course explores the interaction between warfare and political systems in East Asia. It begins with the transition from military monarchy to bureaucratic empire in the Warring States Period. It then maps the rise of nomadic confederations in the Inner Asian steppe and their strategic interaction with the Han state. It traces how the collapse of the Han state led to military turmoil in East Asia, the rise of hybrid states, a new cosmopolitan empire, and then a multi-state system. It considers how in Japan, the importation of the bureaucratic state led first to centralization and then to the rise of the samurai and a feudal structure. Next, the course examines the development of a new form of nomadic confederation under the Mongols, and how Mongol warfare led to a more centralized state in China, and turmoil and a federalist system in Japan. In the modern period, the course considers how the challenge of Western military force led to political		2019-1 2021-1

turmoil and the rise of the Communists in China, but in Japan led to the building of the Imperial Army, noted for its competence and for its atrocities. The course concludes with reflection on how the experience of war in East Asia continues to affect the region's politics and political structures.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** A1500-word research paper.

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<b>HI348</b>	<b>MODERN LATIN AMERICA</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2009-1	<b>Offerings:</b>
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This course surveys the cultural, economic, political, and social evolution of Latin America from the era of independence to the present. The course begins with a brief examination of Pre-Colombian and colonial events and structures. Students will study the economic development of modern Latin America and its influence on social, political, and military change. Case studies of national histories, such as Mexico, Cuba, Brazil, Argentina, and other countries help to illuminate the broad themes that underlie modern Latin American history. The course will examine Latin American relations with the United States and other nations of the world.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** A 1500-word research paper.

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<b>HI349</b>	<b>THE MIDDLE EAST TO 1798</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2008-1	<b>Offerings:</b>
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This course enables cadets to explore the social, political, economic, and military interactions in the development of the Islamic world before European colonization. The first block examines the growth of the Islamic world from the advent of Muhammad and through the early phases of military conquest, with emphasis on the why Islam was appealing in its formative era, how the religion was structured, and what factors allowed for its political, economic and military success. The second block covers the subsequent evolution of the Caliphal empires, emphasizing the changing nature of political authority and legitimacy, the evolution of political institutions, and the challenges to Caliphal hegemony. The third block will examine the arrival of the Steppe peoples into the Middle East (Mamluks, Seljuk Turks, Mongols), and how new political, social and military structures were introduced, eventually shaping the development of the late Turkic Gunpowder Empires: the Ottomans of Europe and the Near East, the Safavids of Iran and Central Asia, and the Mughals of India. Cadets will assess what created the military strength of these empires and what led to their decline.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** A 1500-word research paper.

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<b>HI351</b>	<b>ADV HISTORY OF MILITARY ART</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	1985-1	<b>Offerings:</b>
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HI351-352 parallels HI301-302. However, in addition to accelerated study of HI301-302 material, the cadet will study selected periods in greater depth and breadth. This course offers the cadet a more profound understanding of men and women as warriors and of the evolution of the art of war than would otherwise be available.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** One 500-word critical analysis and one 1500-word research paper; compensatory time provided.

**Disqualifier(s):** HI301

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<b>HI352</b>	<b>ADV HISTORY OF MILITARY ART</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	1985-2	<b>Offerings:</b>
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HI351-352 parallels HI301-302. However, in addition to accelerated study of HI301-302 material, the cadet will study selected periods in greater depth and breadth. This course offers the cadet a more profound understanding of men and women as warriors and of the evolution of the art of war than would otherwise be available.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** One 500-word critical analysis and one 1500-word research paper; compensatory time provided.

<b>Prerequisite(s):</b>	HI351 -Or- HI301 -Or- HI301H
<b>Disqualifier(s):</b>	HI302

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<b>HI355</b>	<b>WARFARE-AGE OF INDUSTRIALIZTN</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2009-2	<b>Offerings:</b>
This course examines the history of warfare around the globe from the Congress of Vienna through World War I and its aftermath. It combines the study of military campaigns with the political, economic, social, and cultural factors shaping military developments. It explores the impact of changing technology on the conduct of war, the development of nationalism, wars between nation-states, and wars for national freedom. This course contains several themes particularly useful to any modern soldier. Among them are the nature and intensity of national wars and the effect of changing technology on society and the conduct of war.		2019-2 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	A 1500-word research paper.	

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<b>HI356</b>	<b>WAR AT SEA AND IN THE AIR</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2009-2	<b>Offerings:</b>
This course examines war at sea from the early days of galley warfare through the ages of sail, steam power, all-steel navies, nuclear power and missiles. War in the air is examined from the early days of balloons and lighter-than-air ships through missile age. Course themes include the evolution of military organizations, technology, strategy, leadership and the accompanying social, political, and economic factors that influenced the navies and air forces of the day. The course will also cover selected wars and campaigns in which naval and air power played an important role.		2019-2 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	A 1500-word research paper.	

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<b>HI357</b>	<b>WARFARE SINCE 1945</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2008-1	<b>Offerings:</b>
The nature of warfare has changed dramatically since 1945. During the Cold War, American policies of containment and collective security collided with attempts at communist expansion. The threat of nuclear war led to an era of limited war, including revolutionary war, wars of national liberation, and civil wars. Cadets will examine the strategic conditions and political considerations influencing the use of force in all types of warfare. They will gain an appreciation for the experiences of soldiers and leaders in combat while analyzing military strategy and exploring the connection between war and society.		2019-1 2020-1 2021-1
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	A 1500-word research paper.	

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<b>HI358</b>	<b>STRATEGY, POLICY &amp; GENERALSHIP</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2008-1	<b>Offerings:</b>
This course examines how political and military leaders develop and execute policy and strategy. The course begins with an examination of the rise of military professionalism and the creation of military staffs in the nineteenth century. It explores how political and military leaders integrate not only military power, but also diplomatic, economic, technological, social, and political resources to achieve a nation's goals. In particular, the course examines the often contentious issues of civil-military relations, joint and coalition warfare, and organizational and doctrinal change. Cadets study the strategic challenges faced by senior civilians and military leaders, thus allowing them to analyze warfare within a broader political-military context.		2019-1 2020-1 2021-1
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	A 1500-word research paper.	

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<b>HI359</b>	<b>ERA OF THE SECOND WORLD WAR</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2008-1	<b>Offerings:</b>
<p>This course examines the Interwar Years, 1919-1939, and the Second World War from a global perspective while using a thematic approach to compare the different experiences of each of the major belligerents. Whether covering the Versailles Treaty, the rise of Adolf Hitler, the US Army during the Great Depression, home fronts, or the Holocaust, the cadets in the course will examine the social, political, cultural, and economic factors that contributed to how belligerents waged war, and, in turn, how war affected each of these factors across the globe. The course covers how and why the belligerents planned and executed particular strategies and operations in the European, Pacific, and China-Burma-India theaters to achieve their coalition and national goals. Finally, this course examines the interrelationship of sea, air, and land forces, and the complexities of providing logistical support to joint and combined operations on an unprecedented scale.</p>		
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	A 1500-word research paper.	
<b>HI361</b>	<b>MEDIEVAL EUROPE</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2009-2	<b>Offerings:</b>
<p>The millennium between the "fall" of the Roman Empire and the Voyages of Discovery--the Middle Ages--has often been characterized as brutish and inferior. Yet, this tough, fascinating society offered immeasurable potential for growth and adaptation. The personages and events of the European medieval world spawned many of the ideas and institutions of modernity. Topics for study will include the barbarian invasions, Byzantine Empire, Carolingian Europe, feudalism, medieval technology, Christian Church, medieval warfare, Crusades, rise of universities, crises of the 14th century, growth of monarchical power, and economic and social change.</p>		
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	A 1500-word research paper.	
<b>HI362</b>	<b>POLITICS/SOC-EARLY MOD EURO</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	1990-1	<b>Offerings:</b>
<p>After tracing the legacy of the middle ages, this course concentrates on the development of the modern nation state in Europe, 1453-1648. Specific topics include the renaissance, humanism, the reformation, the age of religious wars, and the contrast between the growth of absolutist and constitutional governments. The latter portion of the course concentrates on the political, social, economic, diplomatic, and military trends that shaped modern Europe.</p>		
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	None	
<b>HI364</b>	<b>MODERN WESTERN EUROPE</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2008-2	<b>Offerings:</b>
<p>This course is an introduction to European history from 1789 to the present. The course considers how and why Europe -- a small, relatively poor, and politically fragmented place -- became the engine of globalization and an important civilization in its own right. Our approach is broadly cultural, using politics, economics, society, religion, and other arenas to understand the events and people of Modern Western Europe. Chief topics: French Revolution, liberalism and the industrial revolution, socialism and the rise of labor, modern colonialism, world wars, communism and capitalism, decolonization, Cold War, and the European Union.</p>		
<b>Lessons:</b>	0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	A 1500-word research paper.	
<b>HI365</b>	<b>THE ANCIENT WORLD</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2009-2	<b>Offerings:</b>

This course examines the political development, cultural ideas, and fundamental institutions of the ancient societies that form the basis of Western civilization. The course will focus on civic values that established standards regarding the role of the individual within the community, and how concepts of virtue, duty, and service evolved over time in response to internal and external challenges. It explores in detail significant historical questions such as how Athenian democracy contributed to, and was dramatically affected by, the Peloponnesian Wars, and why the Romans' victory in the Punic Wars planted the seeds for the ultimate demise of the Republic and the transition to the Empire. HI365 also serves as an introduction to historical methods of analyzing primary sources. Cadets will read extensively from histories written by ancient Greek and Roman authors and form their own interpretations of the events the writers cover, their historical methods, and their reliability.

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** A 1500-word research paper.

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<b>HI367</b>	<b>IMPERIAL AND SOVIET RUSSIA</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2009-1

**Offerings:**

2019-1 2021-1

This course examines the political, social, and cultural history of Russia as it emerged from the Mongol era up to the present day. It explores the development of the Tsarist political and social systems, the emergence of literary, artistic, and revolutionary movements, and the development of Russia's position in European politics from the time of Peter I through WWI. It also covers the rise of the Soviet Union, the leadership's attempts to implement communist ideology and responses to that attempt, Russia's relationship with various national and ethnic groups, and the emergence of the Soviet Union as a superpower. The course concludes with the collapse of the Soviet Union and the emergence of new states in the 1990s.

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** A 1500-word research paper.

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<b>HI368</b>	<b>MOD CENTRAL &amp; E. EUR,1896-1989</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2008-1

**Offerings:**

2020-1

Between 1896 and 1989, Central and Eastern Europe experienced two world wars, at least three major revolutions, and radical industrial and environmental dislocations. The region witnessed everything from the birth of its modern culture to the creation of new post-World War I nation-states, to the Holocaust, to massive forced population shifts, to the creation of the communist Eastern Bloc, to the popular overthrow of Communism in 1989. Radical regimes on the right and left brought incredible change, quashed hopes, and produced both progress and suffering of unprecedented proportion. This course will examine life in late-19th and 20th century Habsburg Europe and its successor states of Poland, Hungary, Czechoslovakia, and Yugoslavia. It will do so comparatively, highlighting themes of nation-creation, everyday life, social transition, war, revolution, and ethnic cleansing.

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** A 1500-word research paper.

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<b>HI369</b>	<b>AMERICAN FRONTIERS</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2007-2

**Offerings:**

2019-2 2021-2

HI 369 enables cadets to explore the social, political, economic, and military interactions between many diverse cultures in North America during the period of European and U.S. expansion since 1500. The course does this by examining the history of Native America and the "American" West, which included much of colonial British North America, and much of the American South through the 1830s, along with Spanish, French, and other European frontiers in North America. The course integrates Native American, Latino, and economic history in the study of migration, cultural contact, and "international" relations on the frontiers of North America. The course also explores change and diversity in cultural perspectives by examining myths of the West from a range of ethnic and other viewpoints. The course is an elective in the American History stem of the history program, but can be taken for credit in the International stem as well.

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** None

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<b>HI370</b>	<b>ANCIENT &amp; MEDIEVAL WARFARE</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 1999-1

**Offerings:**

This course focuses on warfare from the dawn of recorded history through the fourteenth century. Thus, it will provide cadets with opportunities to study the campaigns of Alexander, the military methods of the Romans, the military aspects of feudalism, the Scottish war of independence, and other topics which are not covered in the core military courses. Although the course includes in-depth analyses of certain battles and campaigns, it places more emphasis on "war and society" issues such as the relationship between military participation and social standing in human societies, the connections between armies and governments, and the impact of economic, technological and social change on military structures. Also, HI370 will shift some emphasis away from the operational level of war to the analysis of the strategic and tactical levels of war, and away from use of secondary sources to use of primary materials.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** Two critical analyses of at least 750 words each; compensatory time provided.

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<b>HI372</b>	<b>US FGN RELATIONS SINCE 1898</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2008-1

**Offerings:**

This course examines American foreign relations from the nation's entry into the world arena as a major power in 1898 through both World Wars, and the Cold War, to its station in today's multipolar world. It is a study of the forces, events, personalities, and principles that have shaped America's role in the world and provided the framework for the development of current foreign policy.

2019-1 2020-1 2021-1

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** A 1500-word research paper; compensatory time provided.

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<b>HI374</b>	<b>HISTORY OF AFRICA</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2001-1

**Offerings:**

This course begins with a survey of pre-colonial Africa, including the evolution of early human cultures, the rise and fall of African civilization and states, the spread of Islam, and the contact between Africans and Europeans. It will then focus on the region south of the Sahara, describing the forces which led to the partitioning of the continent, the practices of European colonialism/imperialism, the emergence of independent African states, and political, economic, and social developments in contemporary Africa.

No Course Offerings

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** A 1500-word research paper.

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<b>HI375</b>	<b>HISTORY OF CHINA</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 1975-1

**Offerings:**

This course begins with the emergence of distinct Chinese civilization and the rich legacies of early and dynastic China. It will then trace the history of the imperial period from the creation of the state, through the rise of different dynasties, barbarian invasion, and Mongol occupation, until the height of imperial power under the rule of the foreign Manchus. It will move to consider why China had such difficulty with its Western contacts in the 19th century and why China has experienced such turmoil in the 20th century. The course concludes by examining Mao's rise to power and the tragic events that followed. The emergence of Taiwan as a separate regional power is also discussed.

No Course Offerings

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** A 1500-word research paper.

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<b>HI376</b>	<b>EARLY MODERN WARFARE</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2009-2

**Offerings:**

This course examines the history of warfare in Europe from the Renaissance through the campaigns of Frederick the Great. It combines the study of military campaigns with that of the political, economic, social, and cultural factors shaping military developments. It explores the so-called "Military Revolution" of the sixteenth and seventeenth centuries with particular emphasis on the relationships between military developments and state building, the rise of absolutism in France and the Wars of Louis XIV, and the rise of Prussia and the Wars of Frederick the Great. Study of the so-called "age of limited war" sets the stage for future study of the American Revolution and the Wars of the French Revolutions and Napoleon. This course contains several themes particularly useful to the modern soldier. Among them are the nature, intensity, and complexity of wars of religion.

2019-2 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** A 1500-word research paper.

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<b>HI379</b>	<b>HISTORY OF LATIN AMERICA</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 1978-1

**Offerings:**

This course surveys the political, economic, and social evolution of Latin America by tracing its history from Pre-Colombian times through the 20th century. Beginning with an exploration of the three races that blend to create a unique Latin American culture, the course surveys the wide scope of Latin American history that has created Latin America, as we know it today. Specific attention is paid to the period of Spanish and Portuguese conquest and colonization, Latin America's fight for independence, and the subsequent struggle to build sovereign, modernized nations in the 19th century. This course ends by looking at the social revolutions and guerrilla insurgencies of the 20th century, and Latin America's attempt to overcome its historical problems of political instability, economic underdevelopment, and social stratification.

No Course Offerings

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** A 1500-word research paper.

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<b>HI381</b>	<b>HISTORY OF IRREGULAR WARFARE</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2011-1

**Offerings:**

The course examines unconventional warfare from a historical perspective, particularly conflicts involving opponents with a significant disparity in their conventional military capabilities. Through several case studies, the course explores why belligerents succeed or fail in unconventional warfare and how ideology, technology, and social, political, and economic factors help determine the outcome of wars between regular and irregular forces. Covering a broad period of history, selected case studies include wars of conquest or colonization, revolutionary wars, and peacekeeping or constabulary operations.

2019-1 2020-1 2021-1

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** A research paper of at least 1500 words; compensatory time provided.

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<b>HI383</b>	<b>MIDDLE EASTERN WARFARE</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2005-2

**Offerings:**

This course focuses on warfare in the Middle East from the time of the Crusades through the 20th Century with emphasis on several key variables affecting war: religion, culture, social expectations of conflict, and the unique environment of the Eastern Mediterranean and Middle Eastern regions. A survey of clashing military traditions of the region is followed by an examination of the decline of the Ottoman Empire and the impact of two World Wars on the nations of the Middle East and their military institutions. In the Cold War era, the Arab-Israeli Wars and the Palestinian-Israeli conflict are examined, as are other regional conflicts including the Iran-Iraq War, Operation Desert Shield/Desert Storm, and Operation Enduring Freedom.

No Course Offerings

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** A research paper of at least 1500 words; compensatory time provided.

**Prerequisite(s):**  
 HI108  
 -Or-  
 HI104  
 -Or-  
 HI158  
 -Or-  
 HI154

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<b>HI385</b>	<b>WAR &amp; ITS THEORISTS</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 1978-1

**Offerings:**

Along with great commanders in history, there have been men who theorized about the nature and conduct of war, the relationship between politics and strategy, and the impact of warfare upon society. The course examines the contributions of selected theorists (Clausewitz, Sun Tzu, Jomini, Mahan, Fuller, Liddell Hart, Brodie, etc.). The student reads the theorists' major writings, analyzes their principal ideas, and studies their influence on military affairs. This will help the student reach his or her own conclusions about fundamental questions concerning the conduct and fundamental nature of war, such as the relative strength of offense vs. defense, or of material vs. morale factors.

2019-2 2020-2 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** Two 800-1000-word papers; compensatory time provided.

**Corequisite(s):** HI301  
-Or-  
HI351

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<b>HI390</b>	<b>EARLY NATIONAL AMERICA</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2001-2	<b>Offerings:</b>
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Although the Constitution outlined the form of federal government in the United States, it left unanswered many questions concerning how that government should function. This course examines how, between 1790 and 1848, evolving political thought, economic development, changing social conditions, and sectionalism influenced successive generations' debates about the role of government in American life.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** A 2500-word research paper; compensatory time provided.

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<b>HI391</b>	<b>WORLD RELIGIONS</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2008-1	<b>Offerings:</b>
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This course analyses the emergence, development and present cultural expression of the major religions of the world, emphasizing their 19th and 20th century experience. It also examines the development of religion in the ancient world and in pre-literate and non-technical societies. Cadets study the world's religions as molded by and as molders of the social, political and economic forces unique to particular cultures. Special attention is paid to the role of each religion in the formulation and adaptation of public and foreign policy.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** A 1500-word research paper.

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<b>HI394</b>	<b>REVOLUTIONARY AMERICA</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	1990-2	<b>Offerings:</b>
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This course examines the social, political, and economic origins and consequences of the American Revolution through the adoption of the Constitution. It explores the development of an American identity and the meaning of the Revolution for all Americans, to include women, African Americans, and the poor.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** A 1500-word research paper or historiographic essay; compensatory time provided.

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<b>HI395</b>	<b>HIST OF CIVIL WAR AMERICA</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	1999-2	<b>Offerings:</b>
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This course focuses on the causes and consequences of the American Civil War. Cadets will analyze the road to war, the war itself, and Reconstruction to place the entire period in its broader historical context. The course covers the ante-bellum South and North, focusing on the peculiar effect of slavery on society. Cadets will examine the home fronts to see the populace's reaction to war as both the Union and the Confederacy engage in conflict. In approaching Reconstruction, students will focus on the political, economic, and racial policies that were implemented to rebuild the nation.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** A 1500-word research paper; compensatory time provided.

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<b>HI396</b>	<b>MAKING OF MODERN AMERICA</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	1990-1	<b>Offerings:</b>
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Between 1877 and 1945 the United States fought three major wars, experienced dramatic economic growth, suffered the Great Depression, underwent significant social change, and emerged as the premier world power. This course analyzes these and related issues, emphasizing how and why the United States developed during the last quarter of the 19th century and the first half of the 20th century, and stressing the promises and problems that accompanied the making of modern America.

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** A 1500-word research paper or critical analysis of a monograph; compensatory time provided.

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<b>HI397</b>	<b>COLD WAR AMERICA</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	1993-1	<b>Offerings:</b>
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This course examines the history of the United States from the end of World War II through the Reagan presidency. It assesses the political, social, and economic institutions of America in the dynamic context of relations with the Soviet Union. While the course deals primarily with domestic America, cadets will gain an appreciation for the close relationship between events at home and abroad.

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** A 1500-word research paper; compensatory time provided.

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<b>HI398</b>	<b>SOCIETY &amp; CULTURE IN AMER HIST</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	1983-1	<b>Offerings:</b>
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HI398 examines the evolution of American society from the perspective of the family and evaluates the influence of group identification--class, race, gender, and ethnicity. Other topics include consumerism, sports, religion, and wars as factors that modify and enrich the social and cultural spectrum.

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** A 1500-word research paper or analytical historiographical essay; compensatory time provided.

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<b>HI399</b>	<b>HISTORY STAFF RIDE</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2015-7	<b>Offerings:</b>
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History Staff Ride analyzes various campaigns and battles focusing on enhancing cadet understanding of the relationship between the strategic, operational and tactical levels of war and gaining a heightened appreciation for the importance of leadership on the battlefield. Cadets begin with classroom preparation and intense study prior to the staff ride, and through travel, experience the battlefields first-hand. They gain a historical understanding of the campaigns, and by walking the terrain, develop the ability to analyze complex battlefield problems and conditions. The ability to plan, prepare and execute a staff ride, with a focus on cadet led presentations and discussions, will also be evaluated. In addition, cadets participate in a number of cultural activities during travel.

**Lessons:** 0 @ 0 min (0.000 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** None

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<b>HI399A</b>	<b>HISTORY STAFF RIDE</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2016-7	<b>Offerings:</b>
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History Staff Ride analyzes various campaigns and battles focusing on enhancing cadet understanding of the relationship between the strategic, operational and tactical levels of war and gaining a heightened appreciation for the importance of leadership on the battlefield. Cadets begin with classroom preparation and intense study prior to the staff ride, and through travel, experience the battlefields first-hand. They gain a historical understanding of the campaigns, and by walking the terrain, develop the ability to analyze complex battlefield problems and conditions. The ability to plan, prepare and execute a staff ride, with a focus on cadet led presentations and discussions, will also be evaluated. In addition, cadets participate in a number of cultural activities during travel.

**Lessons:** 0 @ 0 min (0.000 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** HI399

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<b>HI460</b>	<b>SENIOR FACULTY COURSE</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2013-1	<b>Offerings:</b>
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This course is taught by a senior member in the Department of History in a field of that historian's expertise. The course offers students the opportunity to study under the guidance of a historian in topics not normally offered by the Department of History. This course will include an exploration of the way in which history has been written; including examining the changing interpretations, traditions, methods, and frameworks of historians.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** A 1500-word research paper.

<b>HI460A</b>	<b>SENIOR FACULTY COURSE</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2011-1	<b>Offerings:</b>
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This course is taught by a senior member in the Department of History in a field of that historian's expertise. The course offers students the opportunity to study under the guidance of a historian in topics not normally offered by the Department of History.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** A 1500-word research paper.

**Prerequisite(s):** HI460

<b>HI461</b>	<b>TOPICS IN GENDER HISTORY</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2013-1	<b>Offerings:</b>
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This course examines the development of gender relations, concepts, and roles in historical perspective. Topics may include gender in the military and warfare, the European experience, the American experience, or international comparisons of gender. This course will include an exploration of the way in which history has been written; including examining the changing interpretations, traditions, methods, and frameworks of historians.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** A 1500-word research paper.

<b>HI462</b>	<b>THE HISTORY OF INNOVATION</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2013-1	<b>Offerings:</b>
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Innovations in technology, science, thought and ideology have radically changed the course of history across the world. This course examines why these innovations occur and then how they are practically applied in a military, social, political, economic, and cultural context. This course will include an exploration of the way in which history has been written; including examining the changing interpretations, traditions, methods, and frameworks of historians.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** A 1500-word research paper.

**Corequisite(s):** IT305  
-Or-  
IT355

<b>HI463</b>	<b>RACE, ETHNICITY, NATION</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2013-2	<b>Offerings:</b>
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We use the words ethnicity, race, and nation constantly, but what do these terms really mean? Why are people willing to kill or persecute each other in the name of these ideas? The course will allow cadets to investigate the development of the concepts of ethnicity, race, and nation. They will examine modern conditions such as the Enlightenment, science, the growth of the state, Social Darwinism, and imperialism, and study why these conditions gave rise to diverse but overlapping methods of creating boundaries and defining difference. Although the main focus of the course will be on Europe, the application of these ideas in a variety of global settings - on other continents - will be considered throughout the course. This course will include an exploration of the way in which history has been written; including examining the changing interpretations, traditions, methods, and frameworks of historians.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** A 1500-word research paper.

<b>HI464</b>	<b>VISITING PROFESSOR ELECTIVE</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2017-1	<b>Offerings:</b>
This course is taught by the visiting Ewing Chair in Military History on a topic of that historian's expertise. The course offers students the opportunity to study under the guidance of a distinguished historian in topics not normally offered by the Department of History. The course may be taught by a distinguished visiting professor on the occasion that the Ewing Chair is unable to do so.		2019-2 2020-1 2021-1
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>HI498</b>	<b>COLLOQUIUM IN HISTORY</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	1979-1	<b>Offerings:</b>
The colloquium employs seminar discussions of important books and scholarly articles to enhance understanding of major historical issues. Subcourses are designed to provide in-depth study of various topics in American, European, military, and international and strategic history. Cadets select a subcourse topic as the basis for their reading program after consultation with their faculty advisor or departmental counselor. Subcourse topics may vary each year in accordance with student interest and faculty expertise. The colloquium satisfies the 400-level course requirement for the history fields of study. Cadets who major in history should complete a colloquium that will support their subsequent enrollment in HI499, Senior Thesis in History.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	An historiographical essay of 1500 words; compensatory time provided.	
<b>HI498A</b>	<b>COLLOQUIUM IN HISTORY</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2002-1	<b>Offerings:</b>
Colloquium in history		No Course Offerings
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	HI498	
<b>HI499</b>	<b>SENIOR THESIS</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	1984-1	<b>Offerings:</b>
The course provides cadets selecting the major in history with an opportunity to enhance their skills in historical research and analysis. For this reason the course serves as excellent preparation for graduate study in history and related disciplines. Based upon their background and research interests cadets are organized into small thesis-writing seminars. Under the supervision of a seminar advisor, each cadet defines a topic, develops a research plan, accomplishes research, and drafts a thesis. The seminar meets occasionally to discuss issues in historiography and methodology, review progress in research, and critique draft papers. At the end of the semester cadets present their findings and defend their theses before a committee of faculty and fellow students.		2019-2 2020-2 2021-2
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	A research paper of 3500 words; compensatory time provided. Presentation and defense of thesis before a committee of faculty.	
<b>Prerequisite(s):</b>	HI498	
<b>XH405</b>	<b>THE HOLOCAUST AND ITS LEGACY</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2014-2	<b>Offerings:</b>



This is a multi-disciplinary course administered through the Center for Holocaust and Genocide Studies. The Holocaust and its aftermath make enormous demands on us not just emotionally, but intellectually, requiring that we consider it from historical, military, psychological, philosophical, political, scientific, representational and legal perspectives. HX405 is a multi-disciplinary response to these challenges. The course will explore the causes, course, and consequences of the Holocaust, examining the processes that led to the Nazi genocide against the Jews, with a particular focus on the role of the military. It will examine the Holocaust from a variety of perspectives (perpetrators, victims, bystanders, resisters and rescuers), and consider the moral and ethical choices made by members of each group. The course will require an in-depth understanding of German and European history, and it will impart an appreciation for the cultures and mentalities of the interwar and wartime era. The course will utilize primary sources, films, documentaries, testimonies, and propaganda. It will conclude with consideration of the political and legal responses to the Holocaust in the later 1940s, and the later incorporation of the Holocaust into the global public consciousness.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** A research paper of 1500 words. Compensatory time provided.

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<b>XH415</b>	<b>GENOCIDE AND ETHNIC CLEANSING</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2014-1 **Offerings:**

This is a multi-disciplinary course administered through the Center for Holocaust and Genocide Studies. It is a multi-disciplinary attempt to understand the dynamics which produce mass atrocity. Cadets will learn of the causes, course, and consequences of selected genocides, examining the processes that led to genocide, with a particular focus on the roles played by militaries. The course opens with the intellectual theories about the phenomena of ethnic cleansing and genocide. It will then move to the analysis of how ethnic cleansing and genocide are tied to conflict and militaries. Drawing from a variety of scholarly disciplines and methodologies, cadets will investigate the moral, legal, historical, and diplomatic problems these terms pose. For the remainder of the course, cadets will examine more directly the case studies of specific incidences of ethnic cleansing and genocide. These case studies will vary year-to-year, but they will include at least two examples of ethnic cleansing or genocide on the American frontier, in German Southwest Africa, the Ottoman Empire, the Soviet Union, Rwanda, Cambodia, Yugoslavia, China and in Europe. Cadets will study primary sources, films, documentaries, testimonies, and propaganda. All iterations of the course will consider the development of Western mass politics and the emergence of racial nationalism and new imperialism in late 19th century Europe.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** A research paper of 1500 words. Compensatory time provided.

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<b>ZH315</b>	<b>MODERN REGIONAL HISTORY</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2010-1 **Offerings:**

For Cadets attending foreign military academies or other academic institutions. Cadets will attend classroom instruction and produce a historical research paper to be presented upon return to USMA. Instruction may be in English or foreign language. This class serves as the equivalent to a foreign course covering modern historical developments of the area/region where the cadet is studying. This course covers broad historical processes and developments of the region over a long period of time. The course effectively encompasses a recognized historical era, for example "Modern", "Early Modern", or "Ancient".

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

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<b>ZH325</b>	<b>TOPICS IN REGIONAL HISTORY</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2010-1 **Offerings:**

For Cadets attending foreign military academies or other academic institutions. Cadets will attend classroom instruction and produce written historical submissions to be presented upon return to USMA. Instruction may be in English or foreign language. This class serves as the equivalent to a foreign course covering special topics in the area/region where the cadet is studying. Topics include (but are not limited to) specific eras of history; cultural & ethnic aspects of history; art & literary history; and other scientific & technical history topics.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

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<b>ZH335</b>	<b>MILITARY HISTORY</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2010-1 **Offerings:**

For Cadets attending foreign military academies or other academic institutions. Cadets will attend classroom instruction and produce a historical research paper to be presented upon return to USMA. Instruction may be in English or foreign language. This class serves as the equivalent to a foreign course covering modern military history developments of the area/region where the cadet is studying.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:**                      None

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### ZH345                      TOPICS IN MILITARY HISTORY

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**3.0 Credit Hours**  
**(BS=0.0,ET=0.0,MA=0.0)**

**Scope:**                      2010-1

**Offerings:**

For Cadets attending foreign military academies or other academic institutions. Cadets will attend classroom instruction and produce a historical research paper to be presented upon return to USMA. Instruction may be in English or foreign language. This class serves as the equivalent to a foreign course covering special military history topics in the area/region where the cadet is studying. Topics include (but are not limited to) specific wars & campaigns; types of war (insurgency, air, naval, ect.); as well as other courses that incorporate military history with aspects of social science or military science.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:**                      None

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### ZH355                      FOREIGN PERSPECTIVES

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**3.0 Credit Hours**  
**(BS=0.0,ET=0.0,MA=0.0)**

**Scope:**                      2010-1

**Offerings:**

For Cadets attending foreign military academies or other academic institutions. Cadets will attend classroom instruction and produce a historical research paper to be presented upon return to USMA. Instruction may be in English or foreign language. This class serves as the equivalent to a foreign course covering any aspect of United States History or Western Civilization from the perspective of the nation/region where the cadet is studying.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:**                      None

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### ZH365                      POLITICS AND DIPLOMACY

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**3.0 Credit Hours**  
**(BS=0.0,ET=0.0,MA=0.0)**

**Scope:**                      2010-1

**Offerings:**

For Cadets attending foreign military academies or other academic institutions. Cadets will attend classroom instruction and produce a historical research paper to be presented upon return to USMA. Instruction may be in English or foreign language. This class serves as the equivalent to a foreign course covering special political and diplomatic history topics in the area/region where the cadet is studying. Topics include internal political development and/or international relations and diplomatic history.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:**                      None

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## Department of Law

### 19 Courses

<b>LW199</b>	<b>CIVIL RIGHTS STAFF RIDE</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2015-7	<b>Offerings:</b>
Diversity is of critical importance to our nation and our Army. This course uses the law and history in an interdisciplinary study of the Civil Rights Movement in the United States to gain appreciation for and understanding of diversity. The course includes a week in the classroom and a two-week staff ride (which will count as an AIAD).		2018-7
<b>Lessons:</b> 40 @ 55 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	One written partial review, four researched written/oral presentations during the staff ride and a final thought paper. Permission of instructor required for enrollment.	
<b>LW310</b>	<b>INTRO TO LEGAL METHOD</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2012-1	<b>Offerings:</b>
This course provides an introduction to the study of jurisprudence and, thereby, an intellectual foundation for legal studies. Jurisprudence explores the theory and philosophy of law, its relations to morality, and its limits. The intent of the course is to provide cadets a platform on which to examine the nature of law, legal reasoning, and legal institutions. Topics covered include positivism and natural law theory, theories of criminal justice, concepts of liberty, responsibility, and human rights. Cadets also will learn the fundamentals of legal research and writing.		2019-1 2020-1 2021-1
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>LW399</b>	<b>INDIV ADV DEVELOPMENT IN LAW</b>	<b>1.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	1990-4	<b>Offerings:</b>
The Academic Individual Advanced Development (AIAD) program is designed to introduce cadets to the practice of law in the military. The course consists of a three-week internship in one of a variety of legal offices. Possible internships include clerkships with the Army Court of Criminal Appeals, the U.S. Court of Military Appeals, the U.S. Supreme Court, the Department of Defense, and the Department of the Army agencies. Cadets may also intern in Staff Judge Advocate or Trial Defense Offices at military installations worldwide.		2019-7 2020-7 2021-7
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	Grades are determined based on a journal of daily activities, the quality of the work actually performed during the internship, and a briefing which is presented to the department faculty upon the cadet's return.	
<b>LW403</b>	<b>CONSTITUTIONAL/MILITARY LAW</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2017-1	<b>Offerings:</b>
This course studies the United States Constitution and Military Law. Cadets will acquire information and skills in order to recognize and resolve constitutional and legal problems. The course provides analytical models for dealing with problems regarding societal and military order. Finally, the course seeks to enable the cadet to make an intelligent commitment to the values and preferences embodied in the Constitution and our system of military and civilian law. Examples from military law are used to model fundamental principles examined in the course. Significant court decisions are explored to support the course goals. Specific substantive areas include: separation of powers, judicial review, war powers, the law of armed conflict, equal protection, privacy, individual rights, searches and inspections, military justice processes, and military criminal law.		2018-4 2019-1 2019-2 2019-4 2020-1 2020-2 2020-4 2021-1 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	SS202 -Or- SS252	

LW410	COMPARATIVE LEGAL SYSTEMS	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2005-1	<b>Offerings:</b>
<p>This course uses a comparative approach to study the three major legal systems of the world: the English common law system, the civil law system (and its branches) of continental Europe, and the Islamic legal system. These three systems are the foundation for the laws and legal systems of most of the world today, including Latin America, Africa, the Middle East and east Asia. Similarities and differences between these systems and the American legal system are explored. Social, political, and economic factors which distinguish these systems and more recently have begun to integrate them are covered. Emphasis is placed on the sources of law, the procedures for resolving legal disputes, and basic principles of civil and criminal justice.</p>		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	None	
LW461	CIVIL RIGHTS AND THE LAW	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2018-1	<b>Offerings:</b>
<p>Equal protection is an important aspect of the rule of law, and underlies the American approach to justice. This course uses case law to explore the struggle for civil rights in the United States by those discriminated against based on race, religion, national origin, gender, and sexual orientation. The course will focus on legal decisions that empowered change and the movement toward equality, as well as an understanding of the importance of diversity.</p>		2019-1 2020-1 2021-2
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	None	
LW462	CYBER LAW	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2018-1	<b>Offerings:</b>
<p>Cyberspace has become an emerging area for legal regulation and military operations. This domain poses challenges and legal issues that impact criminal law, constitutional law, and international law. This course approaches cyber law from multiple perspectives including both international and domestic regulations. Specifically, the course will focus on international and customary law aspects of cyber operations along with U.S. law pertaining to cyberspace.</p>		2019-2 2020-2 2021-2
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	None	
LW472	CRIMINAL LAW	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2006-1	<b>Offerings:</b>
<p>This course will examine the legal, social, religious, cultural, and political motivations that justice systems use to characterize certain actions as "criminal." The course will revolve around the traditional reasons for criminal law, namely blameworthiness and punishment, and also examine how institutions use criminal law to serve their narrow interests. This course will introduce theories surrounding criminal law and illustrate how cadets may apply law immediately in their roles as officers. The course will examine federal and state criminal codes and also the Uniform Code of Military Justice. From a legal perspective based on the U.S. Constitution and other criminal codes, some of the topics covered include the death penalty, insanity, corporate crime, conspiracy, murder, necessity, and self-defense.</p>		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	None	
LW473	ENVIRONMENTAL LAW	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2013-2	<b>Offerings:</b>
<p>Environmental law has become an integral part of the legal system in the United States today. This course provides an introduction to environmental issues and the framework of the major federal environmental statutes (the National Environmental Policy Act, Clean Water Act, Clean Air Act, Endangered Species Act, etc.), and how the law works in practice. The course also covers environmental issues in the military and the growing subject of International Environmental Law. This course provides a solid understanding of the legislative, administrative and judicial system of environmental law today.</p>		2019-2 2020-2 2021-1

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** Four written partial reviews and a TEE. Two homework assignments.

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<b>LW474</b>	<b>LAW OF ARMED CONFLICT</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2011-1

**Offerings:**

This course is designed to develop in each student an understanding of basic law of armed conflict (LOAC), with an emphasis on issues that might arise on the battlefield at a tactical level. The ethical and historical background of LOAC will be examined, including Geneva Conventions and protocols, and how LOAC is enforced on international and national levels, to include prosecution under the Uniform Code of Military Justice. Illustrative examples will include the Nuremberg Tribunal, My Lai, and the Gulf War. The emphasis is on the LOAC responsibilities of the junior officer.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** Two research papers of moderate length (approximately five pages each) may be required. Topics will be determined in consultation with the instructor.

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<b>LW475</b>	<b>ADV CONSTITUTIONAL LAW SEM</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 1980-1

**Offerings:**

This seminar course covers a broad range of traditional and contemporary constitutional law topics. In addition to studying U.S. Supreme Court cases in particular areas of constitutional law, cadets are given an opportunity to study the historical foundations of the U.S. Constitution and underlying theories and principles of constitutionalism. The seminar format demands active participation in classroom debate, role playing, and critical thinking about complex issues of law and policy. As part of the seminar curriculum, each cadet will assume the role of a Supreme Court Justice. In this role, the cadet will study a real case pending before the Supreme Court and will write an abbreviated opinion reflecting the cadet's decision based on principled reasoning. The seminar typically travels to the Supreme Court to hear argument in the studied case as part of the opinion writing exercise.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** Preparation of a Supreme Court "opinion" (10, double spaced, typewritten pages).

**Prerequisite(s):** LW403

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<b>LW476</b>	<b>ADVANCED LAW OF ARMED CONFLICT</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2018-2

**Offerings:**

The modern battlefield has had a significant impact on the Law of Armed Conflict in a variety of ways. This course builds on the lessons from LW474 and explores complex issues in modern conflict like Human Rights, Drone Warfare, Civilians on the Battlefield, and War Crimes. The lessons in this course will challenge the cadets to think critically and creatively about the application of the law on the modern battlefield.

2019-2 2020-2 2021-2

**Lessons:** 0 @ 0 min (0.000 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** LW474

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<b>LW481</b>	<b>INTERNATIONAL LAW</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2012-1

**Offerings:**

The field of international law is one of the most dynamic areas of the law, and its principles are often applied in addressing the complex security problems facing our nation. This course will familiarize cadets with the body of rules and expectations which govern the rights and obligations of states and international organizations, during both times of peace and conflict. In particular, this course will emphasize the aspects of international law that are relevant to the operational and tactical problems that officers will confront as they deploy overseas. This course will integrate some themes from other courses in the Department of Law and reinforce some fundamental principles officers will confront as they seek to understand the relationship between law, diplomacy, and military operations.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Lessons:** 40 @ 55 min (0.000 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** None

<b>LW482</b>	<b>NATIONAL SECURITY LAW</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	1980-2	<b>Offerings:</b>
This seminar examines the legal framework for national security decisions. Cadets will analyze the delicate balance of liberty and security that must exist to preserve a democratic society. Particular areas include: constitutional separation of powers and shared responsibility for national security; the legality and scope of war and other uses of armed force short of war; access to and protection of sensitive information; intelligence collection and clandestine activities; the role of the media, responses to terrorism and international organized crime; and the formulation of national security policy and law.		2019-1 2020-1 2021-1
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>LW488</b>	<b>BUSINESS LAW</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	1978-1	<b>Offerings:</b>
This course introduces cadets to the basics of business and commercial law. Contractual principles under the common law and Uniform Commercial Code are emphasized. Current legal issues in the following areas are explored: consumer protection; real, personal, and intellectual property law; antitrust law; and employment discrimination. Included is a survey of the basic principles of government contracting law. Additionally, cadets engage in business negotiations exercises. This course employs both case study and problem-solving methods of instruction.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>LW490</b>	<b>SPECIAL TOPICS IN THE LAW</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	1999-2	<b>Offerings:</b>
An in-depth seminar course concentrating on a single area of the law. The course is conducted by the Department's Visiting Professor or a Law faculty member when the visiting professor is unavailable.		2019-2 2020-2 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	One or more essays, as determined by the course instructor.	
<b>LW495</b>	<b>JURISPRUDENCE AND LEGAL THEORY</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2012-1	<b>Offerings:</b>
This is the capstone course for both the American Legal Studies and International and Comparative Legal Studies Majors. The course is an advanced seminar in legal philosophy as applied to contemporary domestic and international legal issues. It analyzes these issues using the perspectives of jurisprudence (the ideas and reasoning of jurists) and legal theory (using insight from disciplines such as science, economics, and political theory to address legal problems). It explores theoretical and practical approaches to identifying, developing, and preserving the rule of law. The course integrates legal coursework throughout the Academy curriculum and the Cadet's respective legal studies major.		2019-2 2020-2 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	Three written partial reviews and a final paper which analyzes a contemporary legal problem using the analytical tools of jurisprudence and legal theory.	
<b>Prerequisite(s):</b>	LW310 LW403	
<b>LW498</b>	<b>THESIS I: PROPOSAL &amp; RESEARCH</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2005-1	<b>Offerings:</b>

The purpose of the Senior Thesis is to provide cadets with the opportunity to create a project that is academically, professionally, and personally meaningful to them and that reflects their thinking and abilities as developed at West Point and in the Department of Law. Through the scholarly project that results from this course, cadets will be expected to show how they and their work have progressed and that their work is of professional quality. Cadets will choose a faculty advisor with whom they will work over two semesters. In collaboration with the faculty advisor, cadets will explore their chosen areas of law with a goal of producing a project, usually a thirty page paper that is of professional quality. This paper will be completed during LW499. Cadets will meet individually with their advisors on a regular basis to discuss the law, progress on the thesis, and developmental issues.

2019-1 2020-1 2021-1

**Lessons:** @ min (0.000 Att/wk)**Labs:** 0 @ 0 min**Special Requirements:**

Cadets will not be required to attend classes, but may be required to individually attend a small number of conferences with their advisors and will be expected to submit written progress reports to the advisors.

**Prerequisite(s):**

LW310 LW403

**LW499****THESIS II: PAPER & DEFENSE**
**3.0 Credit Hours**  
**(BS=0.0,ET=0.0,MA=0.0)**
**Scope:**

2005-2

**Offerings:**

This course continues the work on the thesis commenced in LW498. At the end of the course, cadets will submit their theses to the Department of Law and orally defend their theses before a faculty committee.

2019-2 2020-2 2021-2

**Lessons:** @ min (0.000 Att/wk)**Labs:** 0 @ 0 min**Special Requirements:**

Cadets will not be required to attend classes, but may be required to individually attend a small number of conferences with their advisors and will be expected to submit written progress reports to the advisors.

**Prerequisite(s):**

LW498

## Department of Mathematical Sciences

### 53 Courses

<b>EXCEL2</b>	<b>EXCEL2</b>	<b>0.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2017-2	<b>Offerings:</b>
a no credit course in support of the excel scholars program		No Course Offerings
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>MA100</b>	<b>PRECALCULUS MATHEMATICS</b>	<b>3.5 Credit Hours (BS=0.0,ET=0.0,MA=3.5)</b>
<b>Scope:</b>	2016-1	<b>Offerings:</b>
This course prepares cadets with background deficiencies in algebra and trigonometry for the core mathematics program. The course develops fundamental skills in algebra, trigonometry, and functions, through an introduction to mathematical modeling and problem solving. Since this course does not count toward graduation requirements; cadets enrolled in MA100 will forfeit an elective opportunity.		2019-1 2020-1 2021-1
<b>Lessons:</b> 41 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 17 @ 55 min	
<b>Special Requirements:</b>	None	
<b>MA103</b>	<b>MATH MODELING/INTRO CALCULUS</b>	<b>4.5 Credit Hours (BS=0.0,ET=0.0,MA=4.5)</b>
<b>Scope:</b>	2016-1	<b>Offerings:</b>
MA103 is the first course of the mathematics core curriculum. It emphasizes applied mathematics through modeling. Students develop effective strategies to solve complex and often ill-defined problems. The course exercises a wide array of mathematical concepts while nurturing creativity, critical thinking, and learning through activities performed in disciplinary and interdisciplinary settings. The course introduces calculus using continuous and discrete mathematics while analyzing dynamic change in applied problems. Students employ a variety of technological tools to enhance the ability to visualize concepts, to explore ideas through experimentation and iteration, to complete complex and time-consuming computations, and to develop numerical, graphical, and analytical solutions that enhance understanding.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 56 @ 55 min (4.000 Att/wk)	<b>Labs:</b> 8 @ 55 min	
<b>Special Requirements:</b>	None	
<b>Disqualifier(s):</b>	-Or- MA153	
<b>MA103X</b>	<b>MATH MODELING/INTRO CALCULUS</b>	<b>4.5 Credit Hours (BS=0.0,ET=0.0,MA=4.5)</b>
<b>Scope:</b>	2019-1	<b>Offerings:</b>
MA103 is the first course of the mathematics core curriculum. It emphasizes applied mathematics through modeling. Students develop effective strategies to solve complex and often ill-defined problems. The course exercises a wide array of mathematical concepts while nurturing creativity, critical thinking, and learning through activities performed in disciplinary and interdisciplinary settings. The course introduces calculus using continuous and discrete mathematics while analyzing dynamic change in applied problems. Students employ a variety of technological tools to enhance the ability to visualize concepts, to explore ideas through experimentation and iteration, to complete complex and time-consuming computations, and to develop numerical, graphical, and analytical solutions that enhance understanding. THIS IS A PILOT COURSE TO SUPPORT EXPERIMENTATION. IT HAS THE SAME COURSE OUTCOMES AS THE BASE COURSE (MA103). PILOT COURSES ARE AUTHORIZED FOR TWO TERMS BEFORE THEY MUST SEEK FORMAL APPROVAL THROUGH OUR CURRICULUM APPROVAL PROCESS.		2019-1
<b>Lessons:</b> 56 @ 55 min (4.000 Att/wk)	<b>Labs:</b> 8 @ 55 min	
<b>Special Requirements:</b>	None	



<b>Disqualifier(s):</b>	MA103 -Or- MA153	
<b>MA104</b>	<b>CALCULUS I</b>	<b>4.5 Credit Hours (BS=0.0,ET=0.0,MA=4.5)</b>
<b>Scope:</b>	2016-1	<b>Offerings:</b>
This is the second semester of the mathematics core curriculum. It provides a foundation for the continued study of mathematics and for the subsequent study of the physical sciences, the social sciences, and engineering. MA104 covers topics in single variable differential and integral calculus, parametric equations, 3-dimensional geometry, and vectors. Throughout the course, mathematical models motivate the study of topics such as optimization, accumulation, change in one variable, motion in space, and other topics from the natural, social, and decision sciences. An understanding of course material is enhanced through the use of computer algebra systems.		2019-1 2019-2 2019-3 2020-1 2020-2 2020-3 2021-1 2021-2 2021-3
<b>Lessons:</b> 56 @ 55 min (4.000 Att/wk)	<b>Labs:</b> 8 @ 55 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	MA103 -Or- MA101	
<b>MA153</b>	<b>MATH MODELING/INTRO DIF EQ</b>	<b>4.5 Credit Hours (BS=0.0,ET=0.0,MA=4.5)</b>
<b>Scope:</b>	2016-1	<b>Offerings:</b>
This is the first course of a two-semester advanced mathematics sequence for selected cadets who have validated single variable calculus and demonstrated strength in the mathematical sciences. It is designed to provide a foundation for the continued study of mathematics, sciences, and engineering. This course emphasizes the interaction between mathematics and the physical sciences through modeling with differential equations. Topics may include a study of first order differential equations, first order difference equations, second order linear equations, systems of first order linear and non-linear equations, numerical methods, and non-linear equations and stability. An understanding of course material is enhanced through the use of a computer algebra system.		2019-1 2020-1 2021-1
<b>Lessons:</b> 56 @ 55 min (4.000 Att/wk)	<b>Labs:</b> 8 @ 55 min	
<b>Special Requirements:</b>	None	
<b>Disqualifier(s):</b>	MA103 -Or- MA101	
<b>MA205</b>	<b>CALCULUS II</b>	<b>4.0 Credit Hours (BS=0.0,ET=0.0,MA=4.0)</b>
<b>Scope:</b>	2017-1	<b>Offerings:</b>
This course provides a foundation for the continued study of mathematics and for the subsequent study of the physical sciences, social sciences, and engineering. MA205 covers topics in multivariable differential and integral calculus, differential equations, and infinite series representations of functions. Throughout the course mathematical models motivate the study of topics such as optimization, accumulation, change in several variables, differential equations, and other topics from the natural, social, and decision sciences. An understanding of course material is enhanced through the use of computer algebra systems.		2019-1 2019-2 2019-3 2020-1 2020-2 2020-3 2021-1 2021-2 2021-3
<b>Lessons:</b> 52 @ 55 min (4.000 Att/wk)	<b>Labs:</b> 4 @ 55 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	MA104	
<b>Disqualifier(s):</b>	MA255	
<b>MA206</b>	<b>PROBABILITY &amp; STATISTICS</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.5,MA=2.5)</b>
<b>Scope:</b>	2017-1	<b>Offerings:</b>
This is the final course in the mathematics core curriculum. The course develops cadet ability to structure their reasoning under conditions of uncertainty and presents fundamental probability and statistical concepts that support the USMA core curriculum. Coverage includes data analysis, probabilistic models, independence, simulation, random variables and their distributions, hypothesis testing, confidence intervals, and linear regression. The course also introduces engineering applications of probability and statistics techniques. Applied problems motivate concepts, and technology enhances understanding, problem solving, and communication.		2019-1 2019-2 2019-3 2020-1 2020-2 2020-3 2021-1 2021-2 2021-3

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):**  
-Or-  
MA255  
-Or-  
MA104

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<b>MA206X</b>	<b>ADV PROBABILITY &amp; STATISTICS</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=3.0)</b>
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**Scope:** 2017-2

**Offerings:**

This is a temporary pilot course that fulfills the final course requirements in the mathematics core curriculum. The course develops cadet ability to structure their reasoning under conditions of uncertainty and presents fundamental probability and statistical concepts that support the USMA core curriculum. Coverage includes data analysis, probabilistic models, independence, simulation, random variables (including jointly distributed random variables) and their distributions, hypothesis testing, confidence intervals, linear regression and analysis of categorical data. Emphasis will be on model based approaches and significant time will be spent on selecting an appropriate model and assessing its validity. Applied problems motivate concepts, and technology enhances understanding, problem solving, and communication.

No Course Offerings

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** MA205  
-Or-  
MA255

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<b>MA255</b>	<b>ADV MULTIVARIABLE CALCULUS</b>	<b>4.5 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=4.5)</b>
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**Scope:** 2016-2

**Offerings:**

This is the second course of a two-semester advanced mathematics sequence for selected cadets who have validated single variable calculus and demonstrated strength in the mathematical sciences. It is designed to provide a foundation for the continued study of mathematics, sciences, and engineering. This course consists of an advanced coverage of topics in multivariable calculus. Topics may include a study of infinite sequences and series, vectors and the geometry of space, vector functions, partial derivatives, multiple integrals, and vector calculus. An understanding of course material is enhanced through the use of a computer algebra system.

2019-2 2020-2 2021-2

**Lessons:** 56 @ 55 min (4.000 Att/wk)    **Labs:** 8 @ 55 min

**Special Requirements:** None

**Prerequisite(s):** MA153

**Disqualifier(s):** MA205

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<b>MA256</b>	<b>ADV PROBABILITY AND STATISTICS</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.5,MA=2.5)</b>
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**Scope:** 2018-2

**Offerings:**

This is the advanced version of the final course in the mathematics core curriculum. The course develops cadet ability to structure their reasoning under conditions of uncertainty and presents fundamental probability and statistical concepts that support the USMA core curriculum. Coverage includes data analysis, probabilistic models, independence, simulation, random variables (including jointly distributed random variables) and their distributions, hypothesis testing, confidence intervals, linear regression and analysis of categorical data. Emphasis will be on model based approaches and significant time will be spent on selecting an appropriate model and assessing its validity. Applied problems illustrate concepts, and technology enhances understanding, problem solving, and communication.

2019-1

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** MA205  
-Or-  
MA255

**Disqualifier(s):** MA206

MA363	VECTOR CALCULUS AND ODE	3.0 Credit Hours (BS=0.0,ET=0.0,MA=3.0)
<b>Scope:</b>	2013-2	<b>Offerings:</b>
<p>This course continues the study of vector calculus from MA205 through the remainder of the vector differential operations, line and surface integrals, and the vector integral theorems of Green, Gauss, and Stokes. The focus then turns to series solutions of ordinary differential equations and solving systems of ordinary differential equations. Emphasis is placed upon analyzing a variety of practical applications that give rise to ordinary differential equations. Numerical methods of solution are also studied.</p>		2019-2 2020-2 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	Several special problems.	
<b>Prerequisite(s):</b>	MA205 -Or- MA255	
<b>Disqualifier(s):</b>	MA366 -Or- MA364 -Or- MA365	
MA364	ENGINEERING MATHEMATICS	3.0 Credit Hours (BS=0.0,ET=0.0,MA=3.0)
<b>Scope:</b>	2018-1	<b>Offerings:</b>
<p>This course provides additional mathematical techniques and deepens the understanding of concepts in mathematics to support continued study in science and engineering. Emphasis is placed upon using mathematics to gain insight into natural and man-made phenomena that give rise to problems in differential equations and vector calculus. Calculus topics focus on three-dimensional space curves, vector fields and operations, divergence and curl, and line and surface integrals. Analytic and numerical solutions to differential equations and systems of differential equations are found using a variety of techniques. Linear algebra topics include solutions to homogeneous and non-homogeneous systems of equations. An introduction to classical partial differential equations is also included.</p>		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	Several special problems.	
<b>Prerequisite(s):</b>	MA205	
<b>Disqualifier(s):</b>	MA363 -Or- MA366 -Or- MA365 -Or- MA255	
MA364X	ADV MATH FOR ENGRS/SCIENTISTS	3.0 Credit Hours (BS=0.0,ET=0.0,MA=3.0)
<b>Scope:</b>	2017-1	<b>Offerings:</b>
<p>This is a temporary pilot course designed for the advanced mathematics student that has completed courses in differential equations and vector calculus (those that have completed MA153 and MA255) and will study ME, EE, NE, Physics or Interdisciplinary Science. MA364X was created due to the approximately 75% overlap in the MA364 and MA153/MA255 curriculums (topics in differential equations and vector calculus); MA364X begins where the advanced mathematics program ends. The advanced engineering course offering includes topics in linear algebra, complex variables, Fourier series, partial differential equations, and computational mathematics. (Note that there is a 25% overlap in the MA364 and MA364X curriculums. The topics in both courses include complex variables, Fourier series, and partial differential equations.)</p>		No Course Offerings
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	Several special problems.	
<b>Prerequisite(s):</b>	MA255	
<b>Disqualifier(s):</b>	-Or- MA366	

MA365 ADV MATH FOR ENGRS/SCIENTISTS		3.0 Credit Hours (BS=0.0,ET=0.0,MA=3.0)
<b>Scope:</b>	2018-1	<b>Offerings:</b>
This is a course designed for the advanced mathematics student that has completed courses in differential equations and vector calculus (those that have completed MA153 and MA255) and will study ME, EE, NE, Physics or Space Science. MA365 begins where the advanced mathematics program ends. The advanced engineering course offering includes topics in linear algebra, complex variables, Fourier series, partial differential equations, and computational mathematics.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 40 @ 55 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	MA255	
<b>Disqualifier(s):</b>	MA364 -Or- MA366	
MA366 APPLIED ENGINEERING MATH		3.0 Credit Hours (BS=0.0,ET=1.0,MA=2.0)
<b>Scope:</b>	2013-2	<b>Offerings:</b>
This course provides additional mathematical techniques and deepens the understanding of concepts in mathematics beyond the core math program to support continued study in environmental and chemical engineering. Emphasis is placed upon using mathematics that supports fundamental engineering principles to gain insight into natural and man-made phenomena that give rise to problems in differential equations and vector calculus. Calculus study focuses on vector fields, differential operators, and the vector integral theorems. Solutions via Fourier series, separation of variables, and numerical methods to differential equations that appear in environmental and chemical engineering are then studied.		No Course Offerings
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	Several special problems.	
<b>Prerequisite(s):</b>	MA255 -Or- MA205	
<b>Disqualifier(s):</b>	MA363 -Or- MA364	
MA366 APPLIED ENGINEERING MATH		4.5 Credit Hours (BS=0.0,ET=0.0,MA=4.5)
<b>Scope:</b>	2018-2	<b>Offerings:</b>
This course provides additional mathematical techniques and deepens the understanding of concepts in mathematics beyond the core math program to support continued study in engineering. Emphasis is placed upon using mathematics that supports fundamental engineering principles to gain insight into natural and man-made phenomena that give rise to problems in differential equations and vector calculus. Upon establishing a foundation in multivariable differentiation and integration, this calculus study focuses on vector fields, differential operators, and the vector integral theorems. Solutions via Fourier series, separation of variables, and analytical methods to modeling and solving differential equations that appear in engineering are then studied.		2019-2 2020-2 2021-2
<b>Lessons:</b> 56 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 8 @ 55 min	
<b>Special Requirements:</b>	None.	
<b>Prerequisite(s):</b>	MA104	
<b>Disqualifier(s):</b>	MA363 -Or- MA364 -Or- MA365 -Or- MA205 -Or- MA255	
MA366X APPLIED ENGINEERING MATH		3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)

<b>Scope:</b>	2017-2	<b>Offerings:</b>
This course provides additional mathematical techniques and deepens the understanding of concepts in mathematics beyond the core math program to support continued study in environmental and chemical engineering. Emphasis is placed upon using mathematics that supports fundamental engineering principles to gain insight into natural and man-made phenomena that give rise to problems in differential equations and vector calculus. Calculus study focuses on vector fields, differential operators, and the vector integral theorems. Solutions via Fourier series, separation of variables, and numerical methods to differential equations that appear in environmental and chemical engineering are then studied.		No Course Offerings
<b>Lessons:</b> 40 @ 55 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>MA367</b>	<b>MATH FOR THE SOCIAL SCIENCES</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=3.0)</b>
<b>Scope:</b>	2017-1	<b>Offerings:</b>
MA367 is a required course for those majoring in economics and is available to any who would like to develop their understanding of the mathematical tools applied to common methods of inquiry in several of the social sciences including, but not limited to, psychology and political science. The course develops student ability to use and develop mathematical models to quantify the relationship between variables, actors, and outcomes. The course helps formalize and quantify the properties of these relationships. The course continues to develop math skills introduced in the core math program, and it introduces more advanced math topics that serve as fundamental skills required for modeling in upper level microeconomics, macroeconomics, and econometrics courses. Specific topics include multivariable optimization, including linear and nonlinear programming, differential equations, stochastic modeling, and an introduction to dynamic programming. This course is designed to demonstrate the relevance of mathematics to the modern practice of analysis in the social sciences and to help prepare future Army leaders to use sound logic and relevant evidence to make convincing arguments.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Corequisite(s):</b>	MA205 -Or- MA255	
<b>Disqualifier(s):</b>	MA371 MA381 -Or- MA371 MA481 -Or- MA381 MA481	
<b>MA371</b>	<b>LINEAR ALGEBRA</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=3.0)</b>
<b>Scope:</b>	2013-1	<b>Offerings:</b>
This course emphasizes both the computational and theoretical aspects of linear algebra one encounters in many subjects ranging from economics to engineering. The course covers solutions of linear systems of equations and the algebra of matrices. The foundational aspects of vector spaces and linear transformations to include linear dependence and independence, subspaces, bases and dimension, inner products, and orthonormalization are developed. This is rounded out with a detailed investigation of eigenvalues and eigenvectors as they relate to diagonalization, quadratic equations, and systems of differential equations. The Invertible Matrix Theorem is explored as the conceptual/theoretical thread of the course. A computer algebra system is used to explore concepts and compute solutions to problems. Applications of the course material are included in the form of special problems to illustrate its wide scope.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	Several special problems.	
<b>Prerequisite(s):</b>	MA205 -Or- MA255	
<b>MA372</b>	<b>INTRODUCTION TO DISCRETE MATH</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=3.0)</b>
<b>Scope:</b>	2013-1	<b>Offerings:</b>

The purpose of this course is to introduce topics in Discrete Mathematics, providing a foundation for further study and application. The topics covered are useful to both the applied mathematician and the computer scientist. They include propositional logic, elements of set theory, combinatorics, relations, functions, partitions, methods of proof, induction and recursion, digraphs, trees, finite state machines, and algebraic systems. Specific applications to computer science are presented.

2019-2 2020-2 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** MA206  
-Or-  
MA206X  
-Or-  
MA256

**MA376****APPLIED STATISTICS**

**3.0 Credit Hours**  
(BS=0.0,ET=0.0,MA=3.0)

**Scope:** 2013-1

**Offerings:**

This course builds on the foundations presented in the core probability and statistics course to provide a broad introduction to some of the most common models and techniques in applied statistics. The mathematical basis for each of the models and techniques is presented with particular emphasis on the development of the required test statistics and their distributions. Topics covered include hypothesis testing, analysis of variance, categorical data analysis, regression analysis, and nonparametric methods.

2019-1 2020-1 2021-1

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** One (or more) special problem(s).

**Prerequisite(s):** MA206  
-Or-  
MA206X  
-Or-  
MA256

**Disqualifier(s):** SE375

**MA381****NONLINEAR OPTIMIZATION**

**3.0 Credit Hours**  
(BS=0.0,ET=0.0,MA=3.0)

**Scope:** 2013-1

**Offerings:**

This course provides an undergraduate presentation of nonlinear topics in mathematical programming that builds on multivariable Calculus II. The emphasis of this course is on developing a conceptual understanding of the fundamental topics introduced. These topics include general convexity, convex functions, derivative-based multivariable search techniques, minima and maxima of convex functions, gradients, hessian matrices, Lagrange Multipliers, Fritz-John and Kuhn-Tucker optimality conditions, and constrained and unconstrained optimization. Computer software is used to explore and expose various key ideas throughout the course.

2019-1 2020-1 2021-1

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** One (or more) special problem(s).

**Prerequisite(s):** MA205  
-Or-  
MA255

**MA383****FOUNDATIONS OF MATH**

**3.0 Credit Hours**  
(BS=0.0,ET=0.0,MA=3.0)

**Scope:** 2013-1

**Offerings:**

This course introduces the student to the methods and language of upper division mathematics. It presents formal set theory, and introduces the student to the methods of formulating and writing mathematical proofs. Finally, it provides the student a rigorous introduction to the theory of relations, functions, and infinite sets.

2019-1 2020-1 2021-1

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** MA205  
-Or-  
MA205X  
-Or-  
MA255

MA385	CHAOS AND FRACTALS	3.0 Credit Hours (BS=0.0,ET=0.0,MA=3.0)
<b>Scope:</b>	2013-2	<b>Offerings:</b>
<p>This course introduces topics in fractal geometry and chaotic dynamical systems, providing a foundation for applications and further study. The topics from fractal geometry include the military applications of image analysis and data storage. The chaotic dynamical systems studied in the course are one-, two-, and three-dimensional, nonlinear, discrete and continuous dynamical systems. Topics include the logistics equation, the Henon attractor, the Lorenz equations, bifurcation theory, Julia sets, and the Mandelbrot set. These topics have applications in many fields of science, and examples from biology, meteorology, engineering, and the social sciences are studied. The course integrates concepts introduced in the core mathematics courses.</p>		2019-2 2020-2 2021-2
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	One (or more) special problem(s).	
<b>Prerequisite(s):</b>	MA205 -Or- MA255	
MA386	INTRO TO NUMERICAL ANALYSIS	3.0 Credit Hours (BS=0.0,ET=0.0,MA=3.0)
<b>Scope:</b>	2013-1	<b>Offerings:</b>
<p>This course develops an understanding of the methods for solving mathematical problems using a digital computer. Algorithms leading to solution of mathematical problems will be examined for consistency, stability, and convergence. After a brief review of calculus theory, a study of error analysis and computer arithmetic will provide the framework for the study of the following topics: solutions of equations of one variable, solutions of linear and nonlinear systems of equations, the use of polynomials to approximate discrete data, curve fitting, numerical integration and differentiation, and the approximation of continuous functions. Special problems will incorporate computer graphics and the use of mathematical software libraries to produce numerical solutions of applied problems.</p>		2019-1 2020-1 2021-1
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	Several special problems.	
<b>Prerequisite(s):</b>	CS105 MA205 -Or- CS105 MA255 -Or- CS155 MA205 -Or- CS155 MA255 -Or- IT105 MA205 -Or- IT105 MA255 -Or- IT155 MA205 -Or- IT155 MA255	
MA387	MATHEMATICAL ANALYSIS I	3.0 Credit Hours (BS=0.0,ET=0.0,MA=3.0)
<b>Scope:</b>	2013-2	<b>Offerings:</b>
<p>A one semester course providing a rigorous introduction to the calculus of a single variable. The course is designed to introduce the student to the foundations of the calculus necessary for advanced undergraduate and graduate studies in applied mathematics and engineering. Course coverage includes a treatment of the structure of the real number system, sequences, continuous functions, and differentiation.</p>		2019-2 2020-2 2021-2
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	MA383	
MA388	SABERMETRICS	3.0 Credit Hours (BS=0.0,ET=0.0,MA=3.0)
<b>Scope:</b>	2013-2	<b>Offerings:</b>

<p>This course builds on the statistical foundation of the core mathematics sequence by exploring the application of statistical concepts to sports analytics. Students develop skills and apply statistical techniques appropriate for baseball and other sports including: regression, forecasting, and stochastic processes. Guest lectures and a course trip section to discuss Sabermetrics at the baseball Hall of Fame in Cooperstown, NY are part of this course (when available). Software packages (Mathematica, Excel) are used as decision support tools to investigate application problems and augment understanding of course material.</p> <p><b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)      <b>Labs:</b> 0 @ 0 min</p> <p><b>Special Requirements:</b> None</p>		2019-2 2020-2 2021-2
<b>MA389</b>	<b>INDIV STUDY IN MATHEMATICS</b>	<b>2.0 Credit Hours</b> (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2017-1	<b>Offerings:</b>
<p>This course is intended for individually supervised research and study, in order to familiarize cadets with techniques used in advanced scientific study. The primary purpose is to prepare students for independent research in mathematics with the essential skills required. With the approval of the Head of the Department, the cadet chooses a research project of interest and is supervised by a faculty member conducting the research.</p> <p><b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)      <b>Labs:</b> 0 @ 0 min</p> <p><b>Special Requirements:</b> Cadets must complete either an individual written research report or present an oral report to members of the department faculty at the end of the semester.</p>		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>MA391</b>	<b>MATHEMATICAL MODELING</b>	<b>3.0 Credit Hours</b> (BS=0.0,ET=3.0,MA=0.0)
<b>Scope:</b>	2003-1	<b>Offerings:</b>
<p>This course is designed to give cadets the opportunity to develop skills in model construction and model analysis while addressing interesting scenarios with practical applications from a wide variety of fields. This course serves as the entry point for both the Mathematical Sciences major and the Operations Research major. The course addresses the complex process of translating real-world events into mathematical language, solving the resulting mathematical model (iterating as necessary), and interpreting the results in terms of real world issues. Topics include model development from data, regression, general curve fitting strategies, and deterministic and stochastic model development. Interdisciplinary projects based on actual modeling scenarios are used to integrate the various topics into a coherent theme.</p> <p><b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)      <b>Labs:</b> 0 @ 0 min</p> <p><b>Special Requirements:</b> Several special projects.</p> <p><b>Prerequisite(s):</b> MA205 -Or- MA255</p> <p><b>Corequisite(s):</b> MA206 -Or- MA206X -Or- MA256</p>		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>MA394</b>	<b>FUNDAMENTALS/NETWORK SCIENCE</b>	<b>3.0 Credit Hours</b> (BS=0.0,ET=0.0,MA=3.0)
<b>Scope:</b>	2015-1	<b>Offerings:</b>
<p>MA394 exposes cadets to the basic concepts of networks and gives them an opportunity to apply techniques learned in the course to real-world problems. Students will develop skills and problem-solving strategies for modeling complex networks associated with physical, informational, and social phenomena. Software packages are used as decision support tools to investigate application problems and augment understanding of the course material.</p> <p><b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)      <b>Labs:</b> 0 @ 0 min</p> <p><b>Special Requirements:</b> None</p>		2019-1 2020-1 2021-1
<b>MA396</b>	<b>NUM METH SOLUTIONS DIFF EQNS</b>	<b>3.0 Credit Hours</b> (BS=0.0,ET=0.0,MA=3.0)
<b>Scope:</b>	2013-2	<b>Offerings:</b>



The focus of this course is to find numerical solutions of differential equations that result when modeling physical phenomena. The numerical solution of both initial value problems and boundary-value problems that arise with ordinary differential equations are covered. Techniques for solving partial differential equations are introduced. Software packages (Mathematica, Maple, Matlab, etc.) have proved to be very useful tools for many numerical techniques and are used to augment an understanding of course material.

2019-2 2020-2 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** One (or more) special problem(s).

**Prerequisite(s):** CS105 MA205  
 -Or-  
 CS105 MA255  
 -Or-  
 CS155 MA255  
 -Or-  
 CS155 MA205  
 -Or-  
 IT105 MA205  
 -Or-  
 IT105 MA255  
 -Or-  
 IT155 MA205  
 -Or-  
 IT155 MA255

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<b>MA461</b>	<b>GRAPH THEORY AND NETWORKS</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=3.0)</b>
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**Scope:** 2013-1

**Offerings:**

This course introduces the student to the techniques, algorithms, and structures used in graph theory and network flows in order to solve real world discrete optimization problems. Basic definitions relating to graphs and digraphs, together with a large number of examples and applications are provided. Cadets learn to implement new graph theory techniques in their area of study. Emphasis is on modeling, algorithms, and optimization.

2019-1 2020-1 2021-1

**Lessons:** 40 @ 55 min (0.000 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** Two special problems.

**Prerequisite(s):** MA206  
 -Or-  
 MA206X  
 -Or-  
 MA256

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<b>MA462</b>	<b>COMBINATORICS</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=3.0)</b>
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**Scope:** 2013-2

**Offerings:**

This course introduces the basic techniques and modes of combinatorial problem-solving important to the field of computer science and mathematical sciences such as operations research. Applications of combinatorics are also related to fields such as genetics, organic chemistry, electrical engineering and political science. Combinatorial enumeration and logical structure are stressed. Applications and examples provide the structure of progression through topics which include counting methods, generating functions, recurrence relations, and enumeration techniques.

2019-2 2020-2 2021-2

**Lessons:** 40 @ 55 min (0.000 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** Completion of the mathematics core curriculum required for enrollment.

**Prerequisite(s):** MA206  
 -Or-  
 MA256  
 -Or-  
 MA206X

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<b>MA464</b>	<b>APPLIED ALGEBRA W/ CRYPTOLOGY</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=3.0)</b>
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**Scope:** 2013-2

**Offerings:**

We study the underlying algebra of computer science structures as well as sets, set functions, Boolean algebra, finite state machines, groups, and modular arithmetic. We introduce and study mathematical aspects of cryptology with an emphasis on cryptanalysis of encryption ciphers. We study early paper-and-pencil systems through current computer algorithms for encryption. We employ algebraic principles in both design and analysis of encryption systems, be it matrix, linear feedback shift register sequence, or linear congruential random number generator sequence efforts. Further, we investigate the mathematics of breaking machine ciphers and of designing modern public-key crypto systems.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** MA206  
-Or-  
MA256  
-Or-  
MA206X

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<b>MA466</b>	<b>ABSTRACT ALGEBRA</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=3.0)</b>
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**Scope:** 2013-2 **Offerings:**

This is an introductory course in modern algebra for cadets who plan to do graduate work in mathematics or theoretical work in the physical sciences or engineering. The emphasis of the course is on group theory, considering such topics as cyclic and abelian groups, normal sub-groups and factor groups, series of groups, and solvable groups. Selected applications are interspersed with the material on group theory. The course concludes with an introduction to rings and fields. One special problem is provided to allow the student to do independent research in an area of the student's interest.

**Lessons:** 40 @ 55 min (0.000 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** One special problem.

**Prerequisite(s):** MA206  
-Or-  
MA206X  
-Or-  
MA256

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<b>MA476</b>	<b>MATHEMATICAL STATISTICS</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=3.0)</b>
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**Scope:** 2013-2 **Offerings:**

This course builds on the foundation presented in the core probability and statistics course to provide a mathematical presentation of the important topics in mathematical statistics. The course begins with a review of probability concepts from the core course, adding additional topics such as transformations of random variables and moment generating functions. To provide the mathematical basis for much of statistical practice, certain limit theorems and sampling distributions are proven. The central focus of the course is distribution theory, to include the theory of estimation and the theory of hypothesis testing.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** One (or more) special problem(s).

**Prerequisite(s):** MA205 MA206  
-Or-  
MA206 MA255  
-Or-  
MA205 MA256  
-Or-  
MA255 MA256  
-Or-  
MA205 MA206X  
-Or-  
MA206X MA255

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<b>MA481</b>	<b>LINEAR OPTIMIZATION</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=1.0,MA=2.0)</b>
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**Scope:** 2014-2 **Offerings:**

This course emphasizes the applications of optimal solutions to linear algebraic systems using the simplex method of linear programming. This includes an in-depth development of the simplex method, the theory of duality, an analysis of the dual problem, convex hull concepts, integer programming, sensitivity analysis and the revised simplex procedure. Additional computational techniques that are applicable to specific mathematical models such as the transportation problem, assignment problem and network problems are also studied. Problems illustrating applications are emphasized throughout the course. Use of existing computer software to solve problems is also emphasized.

2019-2 2020-2 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** Several special problems.

**Prerequisite(s):** MA371

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**MA484 PARTIAL DIFF EQUATIONS**


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**3.0 Credit Hours**  
**(BS=0.0,ET=0.0,MA=3.0)**

**Scope:** 2013-1

**Offerings:**

The course is devoted to the solution of the classical partial differential equations of mathematical physics and most engineering fields. For example, these equations describe such diverse phenomena as the flow of heat in a metal plate, the gravitational field of the solar system, the vibration of a structural beam, and the energy levels of the hydrogen atom. The subject matter has application in many fields and should be of interest to mathematics, science, and engineering concentrators. Specific topics covered are the heat, wave, and potential equations, Fourier series, series solutions to ordinary differential equations, special functions, and boundary value problems.

2019-1 2020-1 2021-1

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** One special problem.

**Prerequisite(s):** MA205  
-Or-  
MA205X  
-Or-  
MA255

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**MA485 APPLIED COMPLEX VARIABLES**


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**3.0 Credit Hours**  
**(BS=0.0,ET=0.0,MA=3.0)**

**Scope:** 2013-2

**Offerings:**

This course presents a logical development of complex variable theory sufficient for the development and solution of a number of interesting and practical problems. Residue theory is developed and applied to problems in integration and in the solution of partial differential equations via transform techniques. Conformal mapping theory is used to solve partial differential equations for which the solution is a harmonic function satisfying prescribed boundary conditions. These classical Dirichlet-Neumann problems model phenomena arising in the study of electrostatic potential, equilibrium thermodynamics, incompressible fluids, elasticity, and other areas of continuum mechanics.

2019-2 2020-2 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** One special problem.

**Prerequisite(s):** MA205  
-Or-  
MA255

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**MA487 MATHEMATICAL ANALYSIS II**


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**3.0 Credit Hours**  
**(BS=0.0,ET=0.0,MA=3.0)**

**Scope:** 2013-1

**Offerings:**

Continuation of MA387. Course coverage includes Riemann and Stieltjes integration, infinite series, sequences and series of functions, uniform convergence, and power series.

2019-1 2020-1 2021-1

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** MA387

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**MA488 SPECIAL TOPICS IN MATHEMATICS**


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**3.0 Credit Hours**  
**(BS=0.0,ET=0.0,MA=3.0)**

**Scope:** 2013-2

**Offerings:**

This course provides an in-depth study of a special topic in mathematics not offered elsewhere in the USMA curriculum. Course content will be based on the special expertise of the visiting professor or a senior mathematical science faculty member.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Lessons:** 40 @ 55 min (0.000 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** To be determined by the program director.

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<b>MA488A</b>	<b>SPECIAL TOPICS IN MATHEMATICS</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=3.0)</b>
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**Scope:** 2015-1 **Offerings:**

This course provides an in-depth study of a special topic in mathematics not offered elsewhere in the USMA curriculum. Course content will be based on the special expertise of the visiting professor or a senior mathematical science faculty member.

2019-1

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** To be determined by the program director.

**Prerequisite(s):** MA488

**Corequisite(s):** MA205  
-Or-  
MA255

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<b>MA489</b>	<b>ADV INDIV STUDY IN MATH</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=3.0)</b>
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**Scope:** 2013-1 **Offerings:**

This is essentially a tutorial course or an individual project, offered only to a limited number of highly qualified cadets who have completed available mathematics elective courses and have expressed a wish to pursue advanced study in a field of mathematics. The course work will be tailored to suit the individual needs.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Lessons:** 0 @ 0 min (0.000 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

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<b>MA490</b>	<b>APP PROB FROM MATH, SCI &amp; ENGR</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=1.0,MA=2.0)</b>
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**Scope:** 2014-2 **Offerings:**

This course is intended to serve as an integrative experience for cadets of all majors and FOSs. Cadets having completed the core math program will be given the opportunity to develop skills in model construction and analysis while addressing problems and scenarios with practical applications from science, social sciences, engineering, computer science and/or mathematics. Interdisciplinary projects based on actual modeling scenarios are used to integrate the various topics into a coherent theme

2019-2 2020-2 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** Several special projects.

**Prerequisite(s):** MA206  
-Or-  
MA256  
-Or-  
MA206X

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<b>MA491</b>	<b>RESEARCH SEMNR-APPLD MATH</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=3.0)</b>
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**Scope:** 2013-1 **Offerings:**

The student integrates the mathematical concepts and techniques learned in previous courses with the principles developed throughout the whole USMA Curriculum to solve a current problem of interest to the individual, to the Academy, or to agencies in the Department of the Army. Cadets may select problems from a list of suitable projects provided by the Department of Mathematical Sciences. Cadets choose a faculty advisor who has an interest and background in the problem. Cadets may work individually or in small teams, depending on the nature of the research. Regular workshop sessions will be held. Cadets will be given an opportunity to present their research at the Service Academies Student Mathematics Conference and/or other undergraduate conferences. Research reports will be reviewed, edited, and compiled into the USMA Transactions on Cadet Mathematical Research.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Lessons:** 17 @ 55 min (1.000 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** Weekly meetings @ 55 min; one research paper (80 hours).

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<b>MA493A</b>	<b>OPNL CALC AND TRANSFORMS</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=3.0)</b>
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**Scope:** 2013-1

**Offerings:**

This course is the logical extension and synthesis of MA484 and MA485. It employs the integral calculus of complex functions and the theory of residues to investigate solutions to a number of partial differential equations arising from electrostatics, thermostatics, elasticity, gravitation, and other fields of continuum mechanics. The Poisson-Integral Formula is applied to the solution of boundary-value problems. Fourier and Laplace transforms are studied in detail and are used to develop general techniques for the solution of many ordinary, partial, and integral equations which result from the above applications.

No Course Offerings

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** Several special projects.

**Prerequisite(s):** MA484 MA485

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<b>MA493B</b>	<b>REAL VARIABLE THEORY</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=3.0)</b>
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**Scope:** 2013-1

**Offerings:**

Continuation of MA487. Topics include sequences and series of functions, equicontinuity power series, Fourier series, the exponential and logarithmic function, and the Gamma function. The last portion of the course will be devoted to individual research projects.

No Course Offerings

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** One special project.

**Prerequisite(s):** MA487

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<b>MA493C</b>	<b>TOPICS IN NUMERICAL ANALYSIS</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=3.0)</b>
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**Scope:** 2013-1

**Offerings:**

A continuation of MA396. Topics include boundary-value problems for ordinary and/or partial differential equations.

2019-1

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** One term-end research project.

**Prerequisite(s):** MA386 MA396

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<b>MA493D</b>	<b>INTRODUCTION TO TOPOLOGY</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=3.0)</b>
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**Scope:** 2013-1

**Offerings:**

The course begins with cardinality and the modern definition of a function. Then the basic properties of topological spaces--compactness, connectedness, and continuity--will be emphasized. Special attention will be given to metric topologies on Euclidean spaces. Complete metric spaces and function spaces will be introduced.

No Course Offerings

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** MA387

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<b>MA493E</b>	<b>TOPICS IN ANALYSIS</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=3.0)</b>
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**Scope:** 2013-1

**Offerings:**

This course provides cadets the opportunity to pursue in detail subjects of special interest.

2019-2 2020-2 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	MA487	
<b>MA498</b>	<b>SR THESIS I: RSCRCH &amp; PROPOSAL</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=3.0)</b>
<b>Scope:</b>	2013-1	<b>Offerings:</b>
<p>The purpose of the Senior Thesis is to provide cadets with an unique opportunity to create a scholarly product that is academically, professionally, and personally meaningful to them and that reflects their thinking and abilities as developed at West Point and in the Department of Mathematical Sciences. Cadets will choose a faculty advisor with whom they will collaborate over two semesters. Cadets will meet on a regular basis with their advisor to discuss mathematics, progress on their research and thesis, and developmental issues. The objectives of the research are: (1) to synthesize and cohere the cadet's studies; (2) to apply methodological skills of research design, conceptual reasoning, analysis, and research gained to a selected area of substantive interest; (3) to extend the cadet's in-depth study of the selected area of interest beyond the level obtained in the Mathematical Sciences Major; (4) to design and conduct focused research beyond the constrained opportunities in elective courses; and (5) to develop cadet skills in conceptual reasoning, critical analysis, and effective writing.</p>		2019-1 2020-1 2021-1
<b>Lessons:</b> 17 @ 55 min (1.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	Weekly meeting @ 55 min; one research proposal and presentation.	
<b>MA499</b>	<b>SR THESIS II: PAPER &amp; DEFENSE</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=3.0)</b>
<b>Scope:</b>	2013-2	<b>Offerings:</b>
<p>This course continues the work on the thesis commenced in MA 498. At the end of the course, cadets will submit a written thesis to the Department of Mathematical Sciences. In addition, cadets will defend that thesis before a faculty committee. Cadets will be given an opportunity to present their research at the Service Academies Student Mathematics Conference and/or other undergraduate conferences. Theses will be reviewed, edited, and compiled into the USMA Transactions on Cadet Mathematical Research.</p>		2019-2 2020-2 2021-2
<b>Lessons:</b> 17 @ 55 min (1.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	Weekly meetings @ 55 min; one research paper and defense.	

## Department of Military Instruction

### 25 Courses

DS320	LANDPOWER	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2015-2	<b>Offerings:</b>
<p>This course is a study in Landpower through the levels of war, culminating in an examination of contemporary Landpower issues facing the United States. It is an introductory course in Defense &amp; Strategic Studies and covers foundational topics in the field, such as strategic theory, tactics, operational art and contemporary Landpower challenges. The course methodology introduces students to theory, principles and doctrinal concepts with which students will analyze historical cases and improve their intuition through Clausewitzian Critical Analysis. The course will also introduce a model for strategic problem solving, providing the students an ability to analyze and propose solutions to contemporary Landpower challenges that affect warfighting down to the tactical level. Students will apply course concepts through traditional coursework, such as papers and presentations, but also in combat simulations that develop a practical appreciation for the inherent difficulty in translating theory into practice. Finally, the course aims to develop research, writing and critical thinking skills within the field.</p>		
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	2019-1 2020-1 2021-1
<b>Special Requirements:</b>	None	
DS345	MILITARY INNOVATION	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2014-1	<b>Offerings:</b>
<p>This interdisciplinary course examines the subject of military innovation from a theoretical, strategic, historical, and policy oriented perspective. DS 345 addresses several key questions: Why do militaries innovate? How does this process of innovation occur? Why do attempts at military innovation succeed or fail? To answer these questions, this course introduces the innovation concept and ties innovation to the levels of war. It provides the historical narrative to military innovation, while emphasizing the contemporary operating environment by exploring the possibility of a recent Revolution in Military Affairs through emerging technologies and the international security environment.</p>		
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Special Requirements:</b>	An analytical paper and class presentation on a cadet-selected recent or future operational concept.	
<b>Disqualifier(s):</b>	MS345	
DS350	PERSUASIVE COMMUNICATIONS	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2017-1	<b>Offerings:</b>
<p>DS350 is a communication course grounded in application of sound communication techniques relevant to the tactical and strategic levels of war as well as communication techniques applicable for the proper delivery and reception of messages in a professional organization.</p>		
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Special Requirements:</b>	Four graded presentations (2 X Informative, 1 X Persuasive, 1 X research paper presentation.) One trip section to NYC to Fox News/CNN.	
<b>Disqualifier(s):</b>	MS350	
DS360	SP OPNS/LOW-INTENSITY CONFLICT	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2012-1	<b>Offerings:</b>
<p>This course is divided into two sub-courses. The first sub-course examines the class of military operations commonly referred to as low intensity conflict (LIC). It explores the nature and dynamics of LIC with particular attention to the differences between LIC and conventional, mid to high intensity conflict. Specifically, cadets will examine insurgency and counterinsurgency, international terrorism, and peace operations and strategy and tactics appropriate for each. The second sub-course examines Special Operations Forces (SOF). This sub-course explores the unique methods of special operators and the close relationship between SOF and LIC. Cadets will examine how U.S. SOF are organized; how special operations in general succeed; and why SOF are particularly well suited to LIC. Several subject matter expert guest speakers are integrated into the instruction throughout the course.</p>		
		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** Research paper and oral presentations.

**Disqualifier(s):** MS360

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<b>DS370</b>	<b>STRATEGY AND POLICY</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2017-2	<b>Offerings:</b>
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This course introduces cadets to foundational concepts within national policy, strategic theory and military strategy. Cadets analyze case studies and apply major theoretical concepts in strategy and policy through individual critical thinking, group collaboration and oral and written communication. Graduates will be able to understand, analyze and effectively communicate the relation of tactical action to national policy.

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** None

**Disqualifier(s):** DS470

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<b>DS385</b>	<b>SUSTAINING THE FORCE</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2012-1	<b>Offerings:</b>
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This course introduces cadets to the principles of logistics and the critical factors that affect sustaining military operations. The first block focuses on the principles of logistics and characteristics of logistical support, identifying the fundamentals of logistical planning of both tactical missions and expeditionary operations. The second block focuses on sustaining combat operations at the tactical level of war, applying the principles of logistics to military operations from the perspective of both mounted and dismounted junior leaders. The third block of instruction focuses on case studies, examining operations in which logistics led to success or failure on the battlefield. Cadets will leave the class with an understanding of the fundamentals of logistical planning, and an understanding of the challenges of sustaining units in combat. Students will be equipped to conduct doctrinal analysis of the logistical planning and execution of past military operations, and identify the aspects of sustainment that contributed to victory or defeat.

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** None

**Disqualifier(s):** MS385

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<b>DS399</b>	<b>STRATEGIC STUDIES INTERNSHIP</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2015-0	<b>Offerings:</b>
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The Academic Individual Advanced Development (AIAD) program is designed to give cadets practical experience in their field of study and to reflect on their experiences by completing specified requirements. Current AIADs that cadets may potentially execute for credit include the WWI Staff Ride, Joint Staff (J-5), US Army South (G-2) and the Combined Joint Task Force, Horn of Africa, though AIAD availability will vary by year. Instructors, students and host agencies will develop a specific academic plan, which will require curricular review, prior to executing the AIAD. Students will normally complete specially assigned readings, a daily reflective journal based on their practical experiences, and write a term paper that benefits the host organization or expands on the trip's purpose. The assigned instructor will provide weekly feedback on student submissions.

**Lessons:** 0 @ 0 min (0.000 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** Program Director approval

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<b>DS455</b>	<b>COMPARATIVE DEFENSE POLICY</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2017-1	<b>Offerings:</b>
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This course's objective is to analyze the defense policies of various countries and the outcomes of those defense policies, to include national security objectives, national military objectives, military doctrine, force structure, and military capabilities. Countries studied will include actual and potential coalition partners and potential adversaries. Cadets will examine the political, economic, and social influences on each military establishment. Cultural influences on the development and implementation of the defense policies for countries studied will be examined, including the effects each country's culture has on the missions, structure, roles, and capabilities of the military. Cadets will develop their own framework of analysis to critically analyze the defense policies and cultures of other countries, and will be able to clearly articulate that analysis through written and oral means. Guest speakers include liaison officers and Foreign Area



Officers to provide insight into the specific military establishments of those countries studied.

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** A comparative study with a 2500-word paper and a class presentation; compensatory time provided.

**Prerequisite(s):** SS307  
-Or-  
SS357

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<b>DS460</b>	<b>INSURGENCY &amp; COUNTERINSURGENCY</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2017-1

**Offerings:**

Why do men rebel and how do states react? DS460 examines the nexus between social movements, revolutions and insurgencies and introduces cadets to how this is applicable to national security and policy. Cadets will apply theoretical frameworks to analyze insurgencies from the individual, community and state level and understand applicable counterinsurgent strategies. Cadets do this through historic case study analysis, group collaborative projects, and both oral and written communication. Graduates will be able to analyze internal conflict and understand how this applies to national security policy.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** None

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<b>DS475</b>	<b>STRATEGIC DECISION MAKING</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2018-2

**Offerings:**

This course introduces Cadets to the interdisciplinary nature of strategic decision making. The course seeks to answer the question of how strategic leaders make decisions in situations of incomplete, conflicting, and incorrect information. Strategic studies is leveraged to explore Clausewitz's conception of military genius, the role of military deception, and the value of adopting a red team approach. Psychology is incorporated to explore the role of cognitive biases in addressing situations of incomplete, conflicting, and incorrect information, specifically from an intelligence analysis perspective. Political science is utilized to explore the utility of game theory to model basic strategic interactions and decisions in incomplete information games. Decision science is incorporated to explore how decision science informs military decision making processes. Philosophy is integrated to explore the importance of ethical considerations in strategic decision making. History is leveraged to explore case studies of past strategic decisions. Cadets will leave the class with a basic understanding of the complexities involved in strategic decision making, as well as methods to frame, understand, and address that complexity. Students will be equipped to recognize the strategic context of decisions, identify the effect of biases, select how to model strategic interactions, recognize the science behind military decision making processes, evaluate decisions for their moral quality, and compare and contrast contemporary decisions with the historical record.

2019-2 2020-2 2021-2

**Lessons:** 30 @ 75 min (2.000 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** None

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<b>DS485</b>	<b>SEA AND AIR POWER</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2017-1

**Offerings:**

This course provides both a historical and theoretical foundation for understanding Sea and Air Power and its role in national security, national defense, and military strategy. The historical and theoretical foundations provide the lexicon and general understanding of Sea and Air Power theory. With this understanding, cadets can apply the theory to understand its role in policy and strategy; whereby cadets can assess current policies and strategies and make assessments regarding Air and Sea Power in crisis, conflict and other political and military situations.

2019-1 2020-1 2021-1

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** DS385

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<b>DS489</b>	<b>ADV IND STUD-DEF/STRAT STUDIES</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2013-1

**Offerings:**

The course provides an environment that is conducive to independent effort in a subject area of special interest to the cadet. Original research or specialized study can be accomplished in any of the many fields within Defense and Strategic Studies. The course is conducted in three phases. First, the cadet and the individual advisor from the Defense and Strategic Studies faculty will reach agreement on a subject area for research. Research methods will be studied under the direction of the faculty member. Research may involve field trips and personal interviews with experts in the area of study. In the second phase, the cadet will engage in independent research and prepare a draft analytical paper or report detailing the findings. During this period, frequent consultation with the faculty advisor occurs regarding the progress in the project. In the third phase, the cadet will present and define the findings before a faculty committee.

**Lessons:** 0 @ 0 min (0.000 Att/wk)

**Labs:** 0 @ 0 min

**Special Requirements:** One paper or report of variable length; oral defense.

**Disqualifier(s):** MS489

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<b>DS490</b>	<b>SPECIAL TOPICS: STRAT STUDIES</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2015-1

**Offerings:**

The Special Topics Course provides cadets an opportunity for reading and analysis in depth within a topic area of special interest and timely relevance to Defense and Strategic Studies. The course director will determine the approach dependant on the topic and enrollment. Courses will normally develop the cadet's understanding of the topic through study of theory, history, doctrine, and historical and contemporary case studies. A generous portion of the course will normally address modern complex problems related to the topic area and assignments will emphasize analytical writing. Topics will vary by semester. A past Special Topics Course was "Sea and Air Power."

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)

**Labs:** 0 @ 0 min

**Special Requirements:** None

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<b>DS495</b>	<b>RESEARCH METHODS STRAT STUDIES</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2015-1

**Offerings:**

This is a research methods course designed to support the interdisciplinary nature of the research-based courses in the Defense & Strategic Studies Program, DS496 Strategic Studies Thesis and DS498 Strategic Studies Capstone. In this course, students will learn different research methodologies for the strategic studies field and develop effective writing skills in a seminar format. Partway through the semester students will choose an interdisciplinary research topic related to the Defense & Strategic Studies field. The topic, approved by the Course Director, will either be as part of a student-selected thesis for DS496 or an assigned client-based project for DS497. Thesis students must also select faculty members from across the institution to serve as their thesis advisors as part of DS495. Student assignments include practical exercises, a research proposal, a literature review and a draft research methodology.

2019-1 2020-1 2021-1

**Lessons:** 40 @ 55 min (2.500 Att/wk)

**Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** DS320

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<b>DS496</b>	<b>STRATEGIC STUDIES THESIS</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2015-2

**Offerings:**

Strategic Studies Thesis is an integrative course in strategy designed to provide Defense & Strategic Studies majors with practical experience in addressing real, complex and ambiguous strategic issues. Students will write and defend an interdisciplinary thesis that in some way relates to the military instrument of power. Thesis cadets will continue the work they began with their faculty advisors in DS495 Research Methods in Strategic Studies by revising their literature review and research methodology, then complete data collection, data analysis, thesis writing and ultimately conduct an oral defense of their thesis before an interdisciplinary faculty board. Finally, students will prepare for and participate in the Gettysburg Staff Ride, which is a culminating intellectual experience that ties together the broad array of interdisciplinary subjects within the program and promotes life-long learning about the profession at arms.

2019-2 2020-2 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)

**Labs:** 0 @ 0 min

**Special Requirements:** Program Director approval

**Prerequisite(s):** DS495

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<b>DS497</b>	<b>STRATEGIC STUDIES CAPSTONE</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2015-2	<b>Offerings:</b>
This is an experiential learning course in military strategy designed to provide Defense & Strategic Studies majors with practical experience in solving real, complex and ambiguous strategic problems. Students will work in small groups to solve such a problem for an external client organization focusing on the use of the military instrument of power. Student groups will determine stakeholder needs, define the client's problem and conduct appropriate research to develop a viable solution or set of recommendations. Groups will meet regularly with their client, complete a final written report and provide a formal presentation with an oral defense to the faculty. Alternatively, select students may work with an interdisciplinary team from another academic department's capstone course to contribute analysis from the strategic studies perspective to the group's project. Finally, students will prepare for and participate in the Gettysburg Staff Ride, which is a culminating intellectual experience that ties together the broad array of interdisciplinary subjects within the program and promotes life-long learning about the profession at arms.		No Course Offerings
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	DS470 -Or- SS457	
<b>DS497</b>	<b>STRATEGIC STUDIES CAPSTONE</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2018-2	<b>Offerings:</b>
This is an experiential learning course in military strategy designed to provide Defense & Strategic Studies majors with practical experience in solving real, complex and ambiguous strategic problems. Students will work in small groups to solve such a problem for an external client organization focusing on the use of the military instrument of power. Student groups will determine stakeholder needs, define the client's problem and conduct appropriate research to develop a viable solution or set of recommendations. Groups will meet regularly with their client, complete a final written report and provide a formal presentation with an oral defense to the faculty. Alternatively, select students may work with an interdisciplinary team from another academic department's capstone course to contribute analysis from the strategic studies perspective to the group's project. Finally, students will prepare for and participate in the Gettysburg Staff Ride, which is a culminating intellectual experience that ties together the broad array of interdisciplinary subjects within the program and promotes life-long learning about the profession at arms.		2019-2 2020-2 2021-2
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	DS495	
<b>ML100</b>	<b>INTRO TO WARFIGHTING LAB</b>	<b>0.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2016-0	<b>Offerings:</b>
ML100 Introduction to Warfighting Laboratory is a three to four week program of instruction for Third Class cadets at the United States Military Academy. ML100 is offered during the summer term as part of Cadet Field Training (CFT I and CFT II). ML100 expands on the knowledge gained in the classroom by providing hands on application of concepts and lessons from MS100 in a tactical field environment. Cadets perform select BOLC-A tasks in order to further develop the military and tactical knowledge necessary for future field training and lays the foundation for subsequent Military Science courses. The purpose of ML100 is to develop, train, test, and validate specific BOLC-A tasks; ICW CFT it prepares Third Class cadets to assume duties as NCOs in the Corps of Cadets; instill the warrior ethos in each cadet; and inspire each cadet to professional excellence through physically- and mentally-demanding training.		No Course Offerings
<b>Lessons:</b>	0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	None	
<b>ML100</b>	<b>INTRO TO WARFIGHTING LAB</b>	<b>0.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2018-2	<b>Offerings:</b>
ML100 Introduction to Warfighting Laboratory is a three to four week program of instruction for Third Class cadets at the United States Military Academy. ML100 is offered during the summer term as part of Cadet Field Training (CFT I and CFT II). ML100 expands on the knowledge gained in the classroom by providing hands on application of concepts and lessons from MS100 in a tactical field environment. Cadets perform select BOLC-A tasks in order to further develop the military and tactical knowledge necessary for future field training and lays the foundation for subsequent Military Science courses. The purpose of ML100 is to develop, train, test, and validate specific BOLC-A tasks; ICW CFT it prepares Third Class cadets to assume duties as NCOs in the Corps of Cadets; instill the warrior ethos in each cadet; and inspire each cadet to professional excellence through physically- and mentally-demanding training.		2019-0 2020-0 2021-0

<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	MS100	
<b>ML300</b>	<b>CLDT LAB</b>	<b>0.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2016-0	<b>Offerings:</b>
Cadets are enrolled in ML300 during their second or first class summer. This course trains, mentors, and assesses basic leadership skills focusing on Troop Leading Procedures (TLPs), effective communication, and tactical decision making in order to develop competent and confident small unit leaders capable of operating in an uncertain and rapidly changing environment. In a series of tactical scenarios that reflect the Decisive Action Training Environment, cadets experience a minimum of two assessed leadership positions which provides the cadet with a common experience to further enhance his/her leadership ability to solve difficult tactical problems.		No Course Offerings
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>ML300</b>	<b>CLDT LAB</b>	<b>0.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2018-2	<b>Offerings:</b>
Cadets are enrolled in ML300 during their second or first class summer. This course trains, mentors, and assesses basic leadership skills focusing on Troop Leading Procedures (TLPs), effective communication, and tactical decision making in order to develop competent and confident small unit leaders capable of operating in an uncertain and rapidly changing environment. In a series of tactical scenarios that reflect the Decisive Action Training Environment, cadets experience a minimum of two assessed leadership positions which provides the cadet with a common experience to further enhance his/her leadership ability to solve difficult tactical problems.		2019-0 2020-0 2021-0
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	ML100 MS100 MS200 MS300	
<b>MS100</b>	<b>INTRODUCTION TO WARFIGHTING</b>	<b>1.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2014-1	<b>Offerings:</b>
This course provides cadets with the foundation of military and tactical knowledge necessary for future field training and development in subsequent military science courses. Cadets will gain a solid foundation built on basic Army concepts such as Shoot, Move, and Communicate. Cadets will also learn fundamental Army unit organizations, capabilities and missions, and develop an understanding of the roles of NCOs and Officers. Cadets who have successfully completed MS100, will understand their role as Soldiers and will be well prepared as they transition from follower to leader during the next chapter of their military education, Cadet Field Training.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>MS200</b>	<b>FUNDAMENTALS OF SMALL UNIT OPS</b>	<b>1.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2018-2	<b>Offerings:</b>
This course introduces cadets to the small unit leader's role in the Army by developing the foundational tactical knowledge, critical thinking and problem-solving skills necessary for adaptive leaders in current and future operational environments. Fundamentals of Army Operations builds upon the knowledge, competencies and experience cadets gain in MS100 and summer training. It explores Army leadership, troop leading procedures, and small-unit operations in order to develop and hone decision-making skills. Throughout the course, cadets demonstrate their knowledge through a series of tactical decision exercises, and oral and written assessments. Cadets who successfully complete MS200 possess fundamental tactical planning and decision-making skills that prepare them for more challenging training in the field and in future military science courses.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	

**Prerequisite(s):** ML100 MS100

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<b>MS300</b>	<b>PLATOON OPERATIONS</b>	<b>1.5 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2018-2

**Offerings:**

This course builds upon foundational tactical planning and decision-making skills taught during MS200. MS300 further develops the cadet's knowledge of doctrinal tactical principles and general professional knowledge, using Troop Leading Procedures (TLPs) as a framework for planning and preparation. Cadets are challenged to apply tactical knowledge, competencies, and decision-making to solve complex situations that require critical thinking and creative problem-solving skills. Instruction in the fundamentals of small unit operations emphasizes both offensive and defensive tactics. Additionally, cadets are expected to demonstrate an increased understanding of the TLPs and mental agility through nearly daily execution of tactical decision-making exercises. In addition to tactics, cadets continue their general instruction in the various Army systems, procedures and functions that are important aspects of officership. Finally, cadets examine the small unit leader's role in ensuring that the moral and ethical decision making process is integrated into all operations.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** ML100 MS100 MS200

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<b>MX400</b>	<b>OFFICERSHIP</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2014-1

**Offerings:**

MX 400 is a capstone course that challenges cadets to reflect upon, integrate, and synthesize their experiences in the six Cadet Leader Development System domains as they commence the transformation to commissioned officership. Cadets will achieve a thorough intellectual understanding of the four clusters of expert knowledge of the military professional--military-technical, moral-ethical, political-cultural, and human development. Successful completion of this course will enable each cadet to achieve competence and confidence in a new self-identity in the four facets of the role of a commissioned officer--a Soldier, a leader of character, a servant of the Nation, and a member of the profession of arms. Each graduate will be capable of executing the fundamental practices of the military professional--the repetitive exercise of discretionary judgment in decision making and taking actions that fulfill the moral and legal responsibilities of commissioned officers. Upon graduation, each new 2LT will be fully prepared for the immediate challenges of junior officership and capable of a lifetime of professional growth as an officer in the United States Army.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

## Department of Physical Education

### 59 Courses

<b>KN355</b>	<b>FUNCTIONAL ANATOMY</b>	<b>3.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2013-1	<b>Offerings:</b>
<p>A knowledge of basic and applied anatomy is essential to the study of human beings engaged in motor performance. An individual who understands the anatomical bases that underlie human movement and who can systematically analyze movement and determine interventions is more likely to improve technique and reduce the risk of injury. Therefore, this course is designed to introduce the structures of human anatomy and explain how these structures are involved in human movement. In support of class room instruction cadets will be introduced to basic laboratory techniques and collection, analysis and interpretation of data demonstrating anatomical and mechanical function of muscles, joints, and limbs. On successful completion of the course, cadets should be able to identify and understand the anatomical structures essential for human movement and apply their anatomical knowledge to human movement problems in athletic, educational, clinical, and/or work settings.</p>		2019-1 2020-1 2021-1
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 7 @ 110 min	
<b>Special Requirements:</b>	None	
<b>KN360</b>	<b>BIOMECHANICS OF HUMAN MOVEMENT</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2011-2	<b>Offerings:</b>
<p>A knowledge of basic and applied biomechanics is essential to the study of human beings engaged in motor performance. An individual who understands the mechanical bases that underlie human movement and who can systematically analyze movement and determine interventions is more likely to improve technique and reduce the risk of injury. Specifically, this course will provide cadets with: 1) a basic knowledge of the biomechanical foundations of human movement; 2) the knowledge and skills necessary to complete a systematic analysis and evaluation of human motor performance; and, 3) the ability to determine and provide interventions that are likely to improve movement.</p>		2019-2 2020-2 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	PH202 -Or- PH252 -Or- PH205 -Or- PH255	
<b>KN365</b>	<b>NUTRITION FOR PERFORMANCE</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2011-2	<b>Offerings:</b>
<p>Performance Nutrition is designed to teach the basic concepts and functions of nutrition as well as their application to human performance. This includes emphasis in food chemistry, digestion, absorption, and utilization of nutrients, nutrient timing, and nutritive supplementation.</p>		2019-2 2020-2 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	PL100 -Or- PL150	
<b>KN455</b>	<b>PSYCHOLOGY OF EXERCISE</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2011-1	<b>Offerings:</b>

This course comprehensively examines theory and research related to exercise psychology, and introduces sport psychology as an associated discipline. The course is designed to provide a broad overview of exercise psychology and increase understanding of how psychological factors influence adherence and performance in exercise and sport. Additionally, the course addresses associated topics including addictive and unhealthy behaviors, burnout and overtraining, aggression in sport, and character development through sport.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

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<b>KN460</b>	<b>EXERCISE PHYSIOLOGY</b>	<b>3.5 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2011-1	<b>Offerings:</b>
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This course is designed to apply the principles of chemistry, physics, anatomy, and physiology towards an understanding of the impact of work on the human body. Study will include both mechanical and physiological response to acute bouts of work and functional adaptation to repeated bouts of work. In support of class room instruction students will be introduced to basic laboratory techniques and collection, analysis and interpretation of physiological data. In addition, material will be presented that will emphasize the influence of age, disease-states, or the environment on the physiological response as a clue to physiological mechanisms and significance.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 8 @ 110 min

**Special Requirements:** None

**Prerequisite(s):** CH387 KN355

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<b>KN465</b>	<b>MOTOR CONTROL AND LEARNING</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2013-2	<b>Offerings:</b>
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This course will present the principles underlying the control and learning of motor skills. Central, neural, and sensory mechanisms that facilitate or inhibit the production, control, acquisition, retention, and transfer of motor skills will be discussed. Emphasis is given to a sound theoretical base from which to design and implement optimal learning and performance conditions. Motor control variables such as motor programs, brain systems, the spinal cord, musculoskeletal factors, and visual systems are explored. Motor learning/performance variables such as transfer, modeling, feedback, practice schedule, mental practice, memory, and attention will be discussed. The course employs lecture, a literature review on a topic of interest in the field, and research methods to understand motor behavior principles.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** KN355 KN360

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<b>KN470</b>	<b>FITNESS ASSESSMENT AND RX</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2013-1	<b>Offerings:</b>
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This course is designed to increase theoretical and practical knowledge and understanding of the administrative, medical, and biological aspects of developing physical competency through physical activity and exercise. Students will apply the scientific theories behind exercise assessment and prescription towards developing functional independence across the spectrum of activities for daily living, recreation, sports performance, and prevention and rehabilitation of disease covering various populations across the life span.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

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<b>KN480</b>	<b>T/P OF ADVANCED PERFORMANCE</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2010-2	<b>Offerings:</b>
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This integrative experience course was designed to provide cadets with advanced content knowledge in human adaptation to exercise and to serve as the USMA Integrative Experience. KN480 will address the overarching academic program goal: "to anticipate and respond effectively to the uncertainties of a changing technological, social, political, and economic world."

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	KN455 KN460	
<b>KN485</b>	<b>TOPICS: EXERCISE/SPORT SCIENCE</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2008-2	<b>Offerings:</b>
This course provides in-depth study of a special topic in exercise and sport sciences not offered elsewhere in the USMA curriculum. Course content will be based on the special expertise of the Visiting Professor, Rotating PhD, or a senior DPE faculty member.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>		
<b>KN491</b>	<b>INDIV RESEARCH IN KINESIOLOGY</b>	<b>1.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2017-1	<b>Offerings:</b>
This elective course provides an opportunity for a cadet to conduct an in-depth research project, study program, or special project in exercise and sport science. The cadet will formalize a proposal, develop a viable research plan, and conduct the project under the guidance and supervision of a faculty advisor. The Director - Human Performance Laboratory will approve all individual research projects. The course will require a commitment of approximately 40 hours.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>KN492</b>	<b>INDIV RESEARCH IN KINESIOLOGY</b>	<b>2.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2017-1	<b>Offerings:</b>
This elective course provides an opportunity for a cadet to conduct an in-depth research project, study program, or special project in exercise and sport science. The cadet will formalize a proposal, develop a viable research plan, and conduct the project under the guidance and supervision of a faculty advisor. The Director - Human Performance Laboratory will approve all individual research projects. The course will require a commitment of approximately 80 hours.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>KN493</b>	<b>INDIV RESEARCH IN KINESIOLOGY</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2017-1	<b>Offerings:</b>
This elective course provides an opportunity for a cadet to conduct an in-depth research project, study program, or special project in exercise and sport science. The cadet will formalize a proposal, develop a viable research plan, and conduct the project under the guidance and supervision of a faculty advisor. The Director - Human Performance Laboratory will approve all individual research projects. The course will require a commitment of approximately 120 hours.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>KN494</b>	<b>RESEARCH METHODS/DATA ANALYSIS</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2010-1	<b>Offerings:</b>
This course is designed to survey the basic types of analytical, descriptive, and experimental research methods often found in exercise science research to help cadets understand the systematic nature of problem solving. Cadets will also learn to analyze, interpret, and apply exercise science data. Cadets will survey a variety of statistical procedures: descriptive, inferential, and correlational. Emphasis will be given to analyzing and interpreting data from a research perspective.		No Course Offerings
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	



<b>Special Requirements:</b>	None	
<b>KN495</b>	<b>HONORS THESIS</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2010-2	<b>Offerings:</b>
This course provides Kinesiology majors with an opportunity to enhance their skills in clinical research and analysis. Under the supervision of a thesis advisor, cadets will implement the research proposal developed in KN493. Cadets will meet regularly as a group with their seminar advisors to discuss issues in design, methodology, and data analysis. At the end of the semester cadets will present their findings and defend their theses before a committee of faculty and fellow students.		2019-2 2020-2 2021-2
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	KN491 PL361 -Or- KN492 PL361 -Or- KN493 PL361	
<b>PE100</b>	<b>PHYS ED FOUNDATIONS-MEN</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	1998-2	<b>Offerings:</b>
		No Course Offerings
<b>Lessons:</b> 68 @ 45 min (0.000 Att/wk)	<b>Labs:</b> 9 @ 45 min	
<b>Special Requirements:</b>	None	
<b>PE105</b>	<b>FUNDAMENTAL COMBATIVE SKILLS</b>	<b>0.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2013-0	<b>Offerings:</b>
In this 3.5 hour time block Cadets are taught rudimentary grappling techniques. In this block of instruction the New Cadets are introduced to the following positions: Guard, Top Mount, and Side Control. The New Cadets learn how to hold and escape from these positions and also learn submission holds to apply to their partner when they are in the dominant position.		2019-0 2020-0 2021-0
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>PE107</b>	<b>FOUNDATIONS OF MOVEMENT</b>	<b>0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2008-1	<b>Offerings:</b>
This introductory movement and fitness course is designed to improve a cadet's upper body strength, hip flexor strength, and core body stabilization and to prepare him or her for success in PE 117 (Military Movement). The class focuses on developing the specific strength and skills needed to pass PE 117 (Military Movement) and the Indoor Obstacle Course Test.		2019-1 2020-1 2021-1
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 20 @ 55 min	
<b>Special Requirements:</b>	None	
<b>PE108</b>	<b>FOUNDATIONS OF FITNESS</b>	<b>0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2007-3	<b>Offerings:</b>
The purpose of this course is to physically develop cadets utilizing progressive and sequential resistance exercises and cardiorespiratory conditioning exercises that will enable them to pass the Army Physical Fitness Test and Indoor Obstacle Course Test. This course will provide cadets, who have a deficient Physical Performance Score Cumulative, an opportunity to supplement/raise their PPSC. Cadets will develop a sense of self-responsibility for their personal fitness and a lifetime commitment to maintain their physical fitness. This course will only be offered during Summer Term Academic Program.		No Course Offerings

**Lessons:** 0 @ 0 min (0.000 Att/wk)      **Labs:** 20 @ 90 min

**Special Requirements:** None

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<b>PE109</b>	<b>FUNDAMENTALS OF AQUATICS</b>	<b>0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2008-1

**Offerings:**

This course has two phases: phase one is a remedial swimming exploration curriculum designed to prepare cadets classified as non-swimmers for the survival swimming curriculum. The remedial phase is designed to help cadets acquire in-water experiences, and gradually refine the basic motor skills needed to be comfortable, safe, and effective in and around the aquatic environment. Phase two emphasizes the military applications of swimming and survival skills to include the elements of breath control, buoyancy positions, stroke assessment, and swimming endurance. Successful completion fulfills the survival swimming graduation requirement for selected cadets.

2019-1 2019-2 2019-3  
2020-1 2020-2 2020-3  
2021-1 2021-2 2021-3

**Lessons:** 40 @ 50 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

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<b>PE115</b>	<b>FUNDAMENTALS OF COMBATIVES</b>	<b>0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2013-1

**Offerings:**

This course exposes Cadets to variety of basic standing and ground skills. Cadets learn how to engage in the free movement range, clinch range, and grappling range. In the free movement range Cadets learn how to strike with their hands and defend themselves. In the Clinch range cadets learn how to close with their opponent, achieve the Clinch, then control their opponent using knees and movement. In the Grappling range Cadets learn how to move into and out of positions and apply submissions and chokes. Body mechanics, aggressiveness, and affective reactions are stressed.

No Course Offerings

**Lessons:** 0 @ 0 min (0.000 Att/wk)      **Labs:** 19 @ 50 min

**Special Requirements:** None

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<b>PE116</b>	<b>BOXING</b>	<b>0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2006-1

**Offerings:**

A course in which the offensive and defensive skills of amateur boxing are taught. Course content includes stances, movement, basic punches (i.e. jab, cross, hook, and upper cut), defenses, strategies, and tactics. Instruction on refereeing, judging, and serving as a corner second are presented. Boxers are evaluated, assessed and provided feedback on their ability to box. The course exposes participants to the coping strategies necessary to deal with a physical threat.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Lessons:** 0 @ 0 min (0.000 Att/wk)      **Labs:** 19 @ 50 min

**Special Requirements:** None

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<b>PE116W</b>	<b>BOXING</b>	<b>0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2017-2

**Offerings:**

This is a course used to schedule female cadets in an appropriate manner A course in which the offensive and defensive skills of amateur boxing are taught. Course content includes stances, movement, basic punches (i.e. jab, cross, hook, and upper cut), defenses, strategies, and tactics. Instruction on refereeing, judging, and serving as a corner second are presented. Boxers are evaluated, assessed and provided feedback on their ability to box. The course exposes participants to the coping strategies necessary to deal with a physical threat.

2019-1

**Lessons:** 0 @ 0 min (0.000 Att/wk)      **Labs:** 19 @ 50 min

**Special Requirements:** None

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<b>PE117</b>	<b>MILITARY MOVEMENT</b>	<b>0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2011-1

**Offerings:**

This is a 19-lesson course designed to expose cadets to a variety of basic movement skills. The course serves as a basis for many other athletic and military activities that cadets will encounter during their time at USMA as well as in their Army career. Focus is placed on applied movement tasks for all cadets. This course takes a basic Movement Theme approach, meaning cadets are required to learn a variety of relevant skills from within the general themes of rolling, hanging, climbing, crawling, jumping, vaulting, landing, mounting, supporting and swinging. In addition, the environment (or apparatus) where a skill is performed is changed or modified to challenge the cadet and broaden the movement experience. Movement environments are designed around specific events such as tumbling, vaulting, vertical ropes, horizontal ropes, the indoor obstacle course (IOCT), horizontal bars, elephant vault, ankles to the bar (ATB), pull-ups, rock climbing, and trampoline.

**Lessons:** 0 @ 0 min (0.000 Att/wk)

**Labs:** 19 @ 50 min

**Special Requirements:**

None

2019-1 2019-2 2019-3  
2020-1 2020-2 2020-3  
2021-1 2021-2 2021-3

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## PE205 ADVANCED COMBATIVE SKILLS

**0.0 Credit Hours**  
(BS=0.0,ET=0.0,MA=0.0)

**Scope:**

2013-0

**Offerings:**

This four hour time block is designed to enhance Cadets' grappling ability. Cadets review fundamental grappling skills from the previous summer and are taught new grappling skills in positioning and submissions to further develop their ability to perform well in future Combatives classes.

2019-0

**Lessons:** 0 @ 0 min (0.000 Att/wk)

**Labs:** 0 @ 0 min

**Special Requirements:**

None

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## PE215 FUNDAMENTALS/PERSONAL FITNESS

**1.5 Credit Hours**  
(BS=0.0,ET=0.0,MA=0.0)

**Scope:**

2013-1

**Offerings:**

This course provides cadets with the knowledge and experience to develop a personal fitness plan that links to the Army doctrinal approach to physical readiness. Cadets will participate in a variety of active learning experiences designed to develop, monitor, maintain, and assess physical fitness for their future Army careers and lifetime of physical activity.

2018-4 2019-1 2019-2  
2020-1 2020-2 2021-1  
2021-2

**Lessons:** 20 @ 55 min (0.000 Att/wk)

**Labs:** 0 @ 0 min

**Special Requirements:**

None

**Disqualifier(s):**

PE150

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## PE220 AEROBIC FITNESS

**0.5 Credit Hours**  
(BS=0.0,ET=0.0,MA=0.0)

**Scope:**

2013-1

**Offerings:**

The course provides cadets with information and experiences to create an aerobic optimal performance plan. Cadets are exposed to numerous aerobic fitness activities and participate in events focused on military applications. The principles of exercise physiology serve as the foundation for the course as students design and participate in various aerobic conditioning assessment activities.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Lessons:** 0 @ 0 min (0.000 Att/wk)

**Labs:** 18 @ 50 min

**Special Requirements:**

None

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## PE222 BADMINTON/PICKLEBALL

**0.5 Credit Hours**  
(BS=0.0,ET=0.0,MA=0.0)

**Scope:**

2011-2

**Offerings:**

This is a 19 lesson course featuring nine lessons of Pickleball and ten lessons of Badminton. Pickleball is a sport played by two, three, or four people. Pickleball uses a wooden paddle and whiffleball and is very similar to tennis. The course focus is on the rules of play and basic skill development of service and service return, forehand and backhand drives, volley and half-volley, drop shot, lob, and overhead smash. Additional instruction in basic offensive/defensive strategy and tactics is provided. Badminton is a sport played by two, three, or four people on the same size court as pickleball. Badminton uses a lightweight strung racquet and shuttlecock (birdie). The course focus is also on the rules of play and basic skill development of service and service return, forehand, backhand, drop shot, lob, and overhead smash. Offensive/defensive strategy and tactics are discussed. Grading is determined by a final exam in each.

No Course Offerings

**Lessons:** 0 @ 0 min (0.000 Att/wk)

**Labs:** 18 @ 50 min

**Special Requirements:**

None

PE223	BASKETBALL	0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2010-1	<b>Offerings:</b>
<p>This course is designed to provide cadets with the skills and knowledge necessary for playing, coaching, and officiating basketball. It is intended to assist students in developing fundamental skills for playing as well as nurturing an appreciation for basketball as a lifetime sport. A variety of offensive and defensive team strategies are taught. In addition, the leadership skills of coaching and officiating basketball will be learned. Grading for the course is based upon an officiating practical exercise, demonstrated individual skills, performance on the James Naismith Basketball Obstacle Course, instructor's assessment of each cadet's game performance and a written term end exam.</p>		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 18 @ 50 min	
<b>Special Requirements:</b>	None	
PE224	ADVANCED CLOSE QUARTERS COMBAT	0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2011-1	<b>Offerings:</b>
<p>This course is designed to educate and expose Cadets in the realm of edge weapons and impact weapons. Cadets learn realistic offensive tactics, defensive tactics, weapon movement patterns, and footwork in order to engage an enemy who has an edge weapon or impact weapon or to use an edge weapon or impact weapon on the enemy in a hostile situation. The cadets are evaluated on their functional ability to perform the skill learned in the course and also on their ability to show tactful aggression and fear management.</p>		No Course Offerings
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 18 @ 50 min	
<b>Special Requirements:</b>	None	
PE226	COMBAT GRAPPLING	0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2013-1	<b>Offerings:</b>
<p>This course is designed to provide the cadets with realistic grappling applications and ground fighting skills to enhance their knowledge and warrior ethos to prepare them as future soldiers for unarmed combat and CQC situations. This course focuses on five different grappling positions: Mount, Guard, Side Control, Rear Mount, and scarf hold. Cadets learn how to maintain the positions, escape from the positions, submit from the positions, and strike from the positions. Cadets are evaluated in their function ability to perform skill-sets learned in class, and are also evaluated in their ability to manage their fear, keep their composure, and dominate their opponent.</p>		2019-2 2020-2 2021-2
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 19 @ 50 min	
<b>Special Requirements:</b>	None	
PE228	MODERN ARMY COMBATIVES L1 CERT	0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2010-1	<b>Offerings:</b>
<p>PE 228 is designed to certify cadets to teach U.S. Army Level I Combative Skills. Cadets develop a foundation of basic combative grappling skills and an aggressive mind set needed to engage and defeat an enemy in Close Quarters Combat (CQC). The course focuses on 15 basic grappling skills. Cadets are evaluated on their demonstration and knowledge of the required skills. Successful completion of the course qualifies the individual to conduct Skill Level I Combatives training for soldiers.</p>		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 18 @ 50 min	
<b>Special Requirements:</b>	None	
PE230	CYCLING	0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2013-1	<b>Offerings:</b>
<p>Cycling as a lifetime sport, is designed to take the beginner through a progressive program of bicycle training and instruction to include: proper mounting, balance, turning, ascending, and descending individually and in a group. The course labs are hands-on and focused on learning through practical application and drills on the bike. All riders are also introduced to basic bike maintenance and required to demonstrate baseline skills in preventive maintenance checks and services (PMCS). Classroom instruction is focused on the introduction of cycling principles and as a feedback forum for the riding labs.</p>		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2

**Lessons:** 0 @ 0 min (0.000 Att/wk)      **Labs:** 18 @ 50 min

**Special Requirements:** None

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<b>PE232</b>	<b>EMERGENCY WATER SAFETY</b>	<b>0.5 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2010-1

**Offerings:**

The purpose of this course is to introduce cadets who are already proficient swimmers, to first responder training in methodologies generic to Water Rescue, CPR, and Emergency First Aid. Cadets are exposed to a variety of distress and drowning scenarios, and will be able to demonstrate strategies and site specific response techniques essential to safely performing a water related assist and/or rescue. Course focus is on military application in both still water and theatre specific environments, with a special emphasis on emergency management protocol. Written evaluation, five skill-specific performance components, and successful completion of two comprehensive exit scenarios are required for successful course completion.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Lessons:** 0 @ 0 min (0.000 Att/wk)      **Labs:** 18 @ 50 min

**Special Requirements:** None

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<b>PE234</b>	<b>LIFEGUARDING</b>	<b>0.5 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2010-1

**Offerings:**

This course focuses on a holistic approach to the duties and responsibilities of a trained professional lifeguard and exposes cadets to key elements and strategies related to accident prevention, surveillance methodology, and performance. Additional content and activities focus on emergency response, search and rescue, and duty specific incident/accident management. Cadets who successfully complete certification requirements may obtain professional accreditation/licensure in Lifeguarding, CPR/PR, Oxygen Administration, and Automated External Defibrillation (AED). Additional accreditation/licensure may also be available in both Open Water and Water park Lifeguarding. Written evaluation, four skill-specific performance evaluations, and successful completion of three comprehensive exit scenarios are required for successful course completion.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Lessons:** 18 @ 50 min (0.000 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

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<b>PE236</b>	<b>GROUP EXERCISE LEADERSHIP</b>	<b>0.5 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2013-1

**Offerings:**

Using music as the controlling factor, this course is designed to give participants an opportunity to experience different modalities of exercise such as high/low impact, step, kickboxing, circuit training, spinning, yoga/pilates and water exercise in an Exercise to Music group fitness setting. Participants will be assessed on knowledge of applicable fitness principles, exercise safety, lesson construction and a team-teaching experience of one's choice.

No Course Offerings

**Lessons:** 0 @ 0 min (0.000 Att/wk)      **Labs:** 18 @ 50 min

**Special Requirements:** None

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<b>PE238</b>	<b>GOLF</b>	<b>0.5 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2010-1

**Offerings:**

This course is designed to provide the beginner and novice golfer with the skills, knowledge, and techniques needed to play golf. The basic techniques taught are the full swing, pitching, chipping, and putting. Course grading is based upon a series of skill tests, a written examination, and a golf swing analysis.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Lessons:** 0 @ 0 min (0.000 Att/wk)      **Labs:** 18 @ 50 min

**Special Requirements:** None

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<b>PE242</b>	<b>ICE SKATING</b>	<b>0.5 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2013-1

**Offerings:**

<p>This course is designed to provide cadets who have little or no previous skating experience with the basic skills necessary to safely participate as a recreational skater. The forward and backward stroke, snow plow, "T" stop, and hockey stop, as well as forward and backward crossovers are presented. Additional skills taught are turns, spins and jumps. Grading is based upon the cadet's ability to demonstrate the skills taught during the course. A compulsory skating routine is also used for evaluating student proficiency. Additionally, a short creative routine of optional figures chosen by the cadet is evaluated.</p> <p><b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)      <b>Labs:</b> 18 @ 50 min</p> <p><b>Special Requirements:</b> None</p>		No Course Offerings
<b>PE244</b>	<b>JUDO</b>	<b>0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2010-1	<b>Offerings:</b>
<p>The purpose of this course is to introduce judo as a competitive sport and the application of judo skills for self defense and combatives training. The course content will include falling skills and basic throwing, pinning, and submission skills. Judo customs, courtesies, terminology, and competitive rules will be introduced. Students will gain an entry level knowledge and understanding of the basic skills, safety concerns, and rules needed to participate in competitive Judo. Students will be graded on a demonstration of basic skills and knowledge of competitive rules and terminology.</p> <p><b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)      <b>Labs:</b> 18 @ 50 min</p> <p><b>Special Requirements:</b> None</p>		No Course Offerings
<b>PE245</b>	<b>OLYMPIC WEIGHTLIFTING</b>	<b>0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2018-1	<b>Offerings:</b>
<p>This introductory course provides cadets with the knowledge and hands-on experience for conducting Olympic Weightlifting. Cadets develop the critical skills needed for coaching and demonstrating safe and proper Olympic Weightlifting technique that will benefit both them and their soldiers. This course is designed to instill a lifetime desire for continued participation in training and competing in Olympic Weightlifting.</p> <p><b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)      <b>Labs:</b> 19 @ 50 min</p> <p><b>Special Requirements:</b> None</p>		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>PE246</b>	<b>RACQUETBALL</b>	<b>0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2011-1	<b>Offerings:</b>
<p>This course introduces the basic skill and strategy fundamentals of racquetball. Cadets learn to identify and demonstrate the basic fundamentals of: personal playing safety; rules of play; forehand and backhand stroke techniques; kill, passing, and defensive shots; serve, serve return techniques and strategies. Singles play, doubles and "cut throat" are examined. Grading is determined by performance on two skills tests (rally &amp; ceiling shot), and a written final exam.</p> <p><b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)      <b>Labs:</b> 18 @ 50 min</p> <p><b>Special Requirements:</b> None</p>		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>PE248</b>	<b>INDOOR ROCK CLIMBING</b>	<b>0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2010-1	<b>Offerings:</b>
<p>This course develops fundamental rock climbing skills, techniques and safety awareness. This course introduces basic rock climbing systems, rappelling, belaying, knots, top roping, and assorted climbing skills. Course grading is based on climbing skills, rappelling skills, knowledge of basic rock climbing systems, and the application of judgment and safety practices in various situations.</p> <p><b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)      <b>Labs:</b> 18 @ 50 min</p> <p><b>Special Requirements:</b> None</p>		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>PE250</b>	<b>SCUBA</b>	<b>0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2011-1	<b>Offerings:</b>

<p>This course is designed to provide cadets with the basic skills and knowledge needed to safely participate in SCUBA diving and pursue certification as a National Association of Underwater Instructors (NAUI) Basic SCUBA Diver. Successful completion of this course leads to Confined Water Certification and the ability to enroll in Open Water training. The requirements of this course include the successful demonstration of skin and SCUBA diving skills, the ability to practice and adhere to safe diving activities, and the completion of a comprehensive, written final examination. Cadets who possess Scuba certification or are members of the Cadet Sky Diving Club are ineligible for this course.</p> <p><b>Lessons:</b> 6 @ 50 min (0.000 Att/wk)      <b>Labs:</b> 12 @ 50 min</p> <p><b>Special Requirements:</b> None</p>		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>PE252</b>	<b>SKIING-ALPINE</b>	<b>0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2013-2	<b>Offerings:</b>
<p>This course is designed to teach beginning skiers to ski in balance and control in all terrain and snow conditions. Knowledge of skiing equipment, proper body position, stopping, gliding, edging, sliding, turning, and carving is taught. The course grade is based upon skiing performance assessments administered on the slope.</p> <p><b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)      <b>Labs:</b> 18 @ 50 min</p> <p><b>Special Requirements:</b> None</p>		2019-2 2020-2 2021-2
<b>PE254</b>	<b>SKIING-CROSS COUNTRY</b>	<b>0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2010-1	<b>Offerings:</b>
<p>This course introduces cadets to the basic skills and techniques of cross-country skiing. It emphasizes skill development and the benefits of skiing as a lifetime fitness activity. Cadets are required to successfully demonstrate the diagonal stride, skating, turning, uphill techniques, and downhill techniques. Course grading is determined by instructor, peer and self-assessment of skiing ability and a written examination.</p> <p><b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)      <b>Labs:</b> 18 @ 50 min</p> <p><b>Special Requirements:</b> None</p>		No Course Offerings
<b>PE256</b>	<b>SNOWBOARDING</b>	<b>0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2010-1	<b>Offerings:</b>
<p>This course is designed to provide cadets with the basic skills and knowledge needed to safely participate in snowboarding. The course focuses on teaching beginning snowboarders to ride in balance and control in various terrain and snow conditions. Knowledge of boarding equipment, as well as skills in proper stance and balance, stopping, gliding, edging, turning, carving and basic freestyle maneuvers will be covered.</p> <p><b>Lessons:</b> 18 @ 50 min (0.000 Att/wk)      <b>Labs:</b> 0 @ 0 min</p> <p><b>Special Requirements:</b> None</p>		2019-2 2020-2 2021-2
<b>PE258</b>	<b>SOCCER</b>	<b>0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2011-1	<b>Offerings:</b>
<p>This course is designed to provide cadets with the skills and knowledge necessary for playing soccer. A variety of individual skills and techniques are taught, as well as individual/team offensive and defensive strategies. The value of small sided games are used as building blocks that lead to full 11 aside matches. Grading for the course is based upon a written examination, and tournament play.</p> <p><b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)      <b>Labs:</b> 18 @ 50 min</p> <p><b>Special Requirements:</b> None</p>		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>PE260</b>	<b>SPORTS PHYSIOLOGY</b>	<b>0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2010-1	<b>Offerings:</b>

The objectives of this course are to introduce cadets to applied concepts of Sports Physiology, conduct personal fitness assessments in DPE's Center for Physical Development Excellence facility, and perhaps complete an independent study examining a sports physiology issue. The cadet becomes familiar with the varied aspects of Sports Physiology and is able to demonstrate baseline and advanced knowledge of 'core principles.' Critical thinking and analysis is used in all endeavors. The personal assessments conducted in the lab and the independent study approach provides cadets with insightful physiological information that can enhance their personal fitness performance.

**Lessons:** 18 @ 50 min (0.000 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

No Course Offerings

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<b>PE262</b>	<b>STRENGTH DEVELOPMENT</b>	<b>0.5 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2010-1

**Offerings:**

This course provides cadets with the knowledge and hands-on experience for conducting a variety of resistance training exercises. Cadets develop the critical skills needed for teaching safe and proper resistance training techniques that will benefit both them and their soldiers. Cadets are assessed in the following areas: demonstrated proficiency performing multi-joint strength exercises; Olympic exercises and plyometrics. This course is designed to instill a lifetime desire for continued participation in a resistance-type training programs.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Lessons:** 6 @ 50 min (0.000 Att/wk)      **Labs:** 12 @ 50 min

**Special Requirements:** None

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<b>PE264</b>	<b>TENNIS</b>	<b>0.5 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2013-1

**Offerings:**

This course is designed to develop basic tennis skills including the forehand and backhand groundstrokes, serve, and volley. Students also learn the basic rules and etiquette of tennis as well as simple singles and doubles strategies. Grading is based on skills tests, an in-class tournament, instructor stroke evaluations, and a written final examination.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Lessons:** 0 @ 0 min (0.000 Att/wk)      **Labs:** 18 @ 50 min

**Special Requirements:** None

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<b>PE266</b>	<b>VOLLEYBALL</b>	<b>0.5 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2010-1

**Offerings:**

This course is designed to teach cadets the fundamentals of volleyball. The individual skills taught are the underhand pass, set, serve, block, and spike. Additionally, the course covers defensive and offensive formations, the transition game, officiating techniques and United States Volleyball Association (USVA) rules. Grading is based upon skill testing on the underhand pass, set and serve, a written test, and a round robin tournament.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Lessons:** 0 @ 0 min (0.000 Att/wk)      **Labs:** 18 @ 50 min

**Special Requirements:** None

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<b>PE268</b>	<b>CURRENT LIFETIME ACTIVITY</b>	<b>0.5 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2010-1

**Offerings:**

The lifetime sports skills series are credit courses intended to provide cadets an opportunity to learn additional sports skills which can be incorporated into lifetime fitness goals and activities. They will further the development of neuromuscular and kinesthetic abilities through the acquisition of and participation in sport skills and can be part of the cadet personal fitness programs. Specific lifetime sport activities are selected on the basis of current trends, resources, instructor expertise, and cadet needs.

No Course Offerings

**Lessons:** 0 @ 0 min (0.000 Att/wk)      **Labs:** 18 @ 50 min

**Special Requirements:** None

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<b>PE320</b>	<b>SURVIVAL SWIMMING - ELEMENTARY</b>	<b>0.5 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2010-1

**Offerings:**



The Survival Swimming-Elementary course is designed to develop aquatic proficiency for cadets who swam 150 yards in 4 minutes or more on their initial entry swim classification test. The Program of Instruction (POI) is divided into two areas: basic swimming and combat/survival swimming. Emphasis in all levels is on the military applications of swimming and survival skills to include the elements of breath control, buoyancy positions, stroke assessment, and swimming endurance. Grading is primarily based on criterion-referenced scales in basic and survival swimming skills.

**Lessons:** 0 @ 0 min (0.000 Att/wk)      **Labs:** 19 @ 50 min

**Special Requirements:** None

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<b>PE321</b>	<b>SURVIVAL SWIMMING - LOW</b>	<b>0.5 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2010-1

**Offerings:**

The Survival Swimming-Low Intermediate course is designed to develop aquatic proficiency for cadets who swam 150 yards between 3 minutes 16 seconds and 3 minutes 59 seconds on their initial entry swim classification test. The Program of Instruction (POI) is divided into two areas: basic swimming and combat/survival swimming. Emphasis in all levels is on the military applications of swimming and survival skills to include the elements of breath control, buoyancy positions, stroke assessment, and swimming endurance. Grading is primarily based on criterion-referenced scales in basic and survival swimming skills.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Lessons:** 0 @ 0 min (0.000 Att/wk)      **Labs:** 19 @ 50 min

**Special Requirements:** None

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<b>PE322</b>	<b>SURVIVAL SWIMMING - HIGH</b>	<b>0.5 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2010-1

**Offerings:**

The Survival Swimming-High Intermediate course is designed to develop aquatic proficiency for cadets who swam 150 yards between 2 minutes 30 seconds and 3 minute 15 seconds on their initial entry swim classification test. The Program of Instruction (POI) is divided into two areas: basic swimming and combat/survival swimming. Emphasis in all levels is on the military applications of swimming and survival skills to include the elements of breath control, buoyancy positions, stroke assessment, and swimming endurance. Grading is primarily based on criterion-referenced scales in basic and survival swimming skills.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Lessons:** 0 @ 0 min (0.000 Att/wk)      **Labs:** 19 @ 50 min

**Special Requirements:** None

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<b>PE323</b>	<b>SURVIVAL SWIMMING - ADVANCED</b>	<b>0.5 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2010-1

**Offerings:**

The Survival Swimming-Advanced course is designed to develop aquatic proficiency for cadets who swam 150 yards in less than 2 minutes 30 seconds on their initial entry swim test. The Program of Instruction (POI) is divided into two areas: basic swimming and combat/survival swimming. Emphasis in all levels is on the military applications of swimming and survival skills to include the elements of breath control, buoyancy positions, stroke assessment, and swimming endurance. Grading is primarily based on criterion-referenced scales in basic and survival swimming skills.

2019-2 2020-2 2021-2

**Lessons:** 0 @ 0 min (0.000 Att/wk)      **Labs:** 19 @ 50 min

**Special Requirements:** None

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<b>PE360</b>	<b>COMBAT APPLICATIONS</b>	<b>0.5 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2013-1

**Offerings:**

This course provides cadets with a comprehensive set of basic combatives skills suited for a combat scenario. Cadets will learn to respond appropriately to aggression by utilizing proper body mechanics, skills, aggressiveness, and fear management. Two combat ranges of hand-to-hand fighting are taught: 1) Grappling range - cadets learn to fight and win on the ground and, 2) Clinch range - cadets learn to close the distance and control the fight between themselves and an attacker. Cadets will be evaluated on their ability to perform selected combative skills and their capacity to exhibit the warrior ethos and fear management.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Lessons:** 0 @ 0 min (0.000 Att/wk)      **Labs:** 20 @ 55 min

**Special Requirements:** None

**Disqualifier(s):** PE460

PE450	ARMY FITNESS DEVELOPMENT	1.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2013-1	<b>Offerings:</b>
This course prepares future company grade officers for their roles as fitness leaders by equipping them with the knowledge to plan, implement, and assess unit physical training in a variety of conditions and by giving them opportunities to apply this knowledge.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2 2022-1 2022-2
<b>Lessons:</b> 20 @ 55 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	PE150 -Or- PE215	
<b>Disqualifier(s):</b>	PE350	
PE471	ADV SP DEV/PHY IND ADV DEV	2.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2010-7	<b>Offerings:</b>
Advanced Sport Development is an intense physical program designed for cadets with an interest in total fitness and a comprehensive scuba experience. This program consists of four subcourses: Aerobic Fitness (mountain biking, hiking, kayaking, etc.), Sports Physiology, Muscular Fitness, and SCUBA.		2018-7 2019-7 2020-7 2021-7
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
PE472	OUTER LIMITS - MOUNTAIN LEADER	2.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2005-4	<b>Offerings:</b>
The Outer Limits – Mountain Leader course is designed to provide cadets with the basic skills and knowledge needed to safely participate in basic to advanced rock climbing. Successful completion of this course allows cadets to participate in many levels of basic to advanced levels of lead rock climbing and prepare them for future experiences in a variety of climbing adventures to include ice climbing and mountaineering co-related adventures.		2018-7 2019-7 2020-7 2021-7
<b>Lessons:</b> 15 @ 300 min (5.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	

## Department of Physics and Nuclear Engineering

### 49 Courses

NE300	FUNDAMENTALS OF NUCLEAR ENGR	3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)
<b>Scope:</b>	2014-1	<b>Offerings:</b>
This course provides the student with an understanding of the fundamental physical principles involved in radioactive decay, radiation interaction with matter, nuclear fission and the nuclear fuel cycle. The course covers neutron interactions with matter, fission, neutron diffusion, neutron moderation, and reactor criticality. This course is essential for the nuclear engineer and is an excellent choice for the applied scientist.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	One research paper is included.	
<b>Corequisite(s):</b>	PH202 -Or- PH252 -Or- PH205 -Or- PH255	
NE350	RADIOLOGICAL ENGR DESIGN	3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)
<b>Scope:</b>	2012-2	<b>Offerings:</b>
This course focuses on nuclear engineering systems including radiation protection, shielding, and the uses of radioactive sources in industrial processes. Specific topics emphasize the operation of radiation detectors, shielding principles, health effects of radiation, radiological dispersion devices, and nuclear incidents. A design project applies the concepts presented in this course to the solution of practical problems.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	One design project.	
<b>Prerequisite(s):</b>	NE300	
NE355	NUCLEAR REACTOR ENGINEERING	3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)
<b>Scope:</b>	2012-2	<b>Offerings:</b>
This course focuses on nuclear reactor systems, the release of nuclear energy in the reactor core, and its removal as heat for producing electric power. Specific topics emphasize reactor kinetics, heterogeneous reactors, control rods and shim, reactor poisons, heat transfer, and alternative energy systems. The fundamentals of transport theory and the solution to the transport equation using Monte Carlo N-Particle (MCNPX) transport code are introduced. The laboratory component includes a student-designed lab.		2019-2 2020-2 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 8 @ 120 min	
<b>Special Requirements:</b>	One paper and a student-designed lab project.	
<b>Prerequisite(s):</b>	NE300	
NE361	COMPUTATIONAL DESIGN IN NE	3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)
<b>Scope:</b>	2017-1	<b>Offerings:</b>
This is a required course for nuclear engineering and nuclear engineering science majors. This course consists of an introduction to radioactive decay, radiation interactions and transport, and detailed instruction in the use and application of advanced nuclear engineering computational tools culminating in the design of a nuclear engineering system. This course is designed to provide an introduction to the science and theory behind modeling nuclear phenomena along with practical exposure to industry- standard computational tools used to design reactors, radiation shields, detectors and other nuclear systems. Specific topics include: radiation interactions and the Boltzmann transport equation, theory of deterministic and Monte Carlo methods for radiation transport, radioactive decay, problem solving using deterministic and Monte Carlo computer simulations, design of nuclear engineering systems, and analysis and validation of computational results.		2019-2 2020-2 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

**Corequisite(s):** NE300 PH206  
-Or-  
NE300 PH256

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<b>NE389</b>	<b>INDIVIDUAL STUDY IN NE</b>	<b>1.5 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2013-1

**Offerings:**

This course is an individually supervised research and study program to familiarize cadets with advanced nuclear or radiological engineering procedures and techniques. The primary purpose is to acquaint students with the essential skills required for independent research in nuclear or radiological engineering. With the approval of the Head of the Department, the cadet chooses a research project of interest and is supervised by a faculty member conducting the research.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Lessons:** 0 @ 0 min (0.000 Att/wk)

**Labs:** 0 @ 0 min

**Special Requirements:** Cadets must complete either a written research report or present an oral report to members of the department faculty at the end of the semester.

**Prerequisite(s):** PH202  
-Or-  
PH252  
-Or-  
PH206  
-Or-  
PH256

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<b>NE389A</b>	<b>INDIVIDUAL STUDY IN NE</b>	<b>1.5 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2016-2

**Offerings:**

This course is an individually supervised research and study program to familiarize cadets with advanced nuclear or radiological engineering procedures and techniques. The primary purpose is to acquaint students with the essential skills required for independent research in nuclear or radiological engineering. With the approval of the Head of the Department, the cadet chooses a research project of interest and is supervised by a faculty member conducting the research.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Lessons:** 0 @ 0 min (0.000 Att/wk)

**Labs:** 0 @ 0 min

**Special Requirements:** Cadets must complete either a written report or present an oral report to members of the department at the end of the semester.

**Prerequisite(s):** NE389

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<b>NE400</b>	<b>NUCLEAR ENGINEERING SEMINAR</b>	<b>1.0 Credit Hours</b> <b>(BS=0.0,ET=1.0,MA=0.0)</b>
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**Scope:** 2008-2

**Offerings:**

This seminar will meet once each week and will include all first class cadets majoring in nuclear engineering. The seminar topics will address the concerns of professional nuclear engineers such as engineering ethics, economics, and licensing procedures. Guest lecturers will discuss topics of current interest in the field of nuclear engineering to include DoD initiatives in the FA52 (Nuclear Combating Weapons of Mass Destruction). Much of the seminar material will be presented by guest lecturers from the military, industrial, and academic communities.

2019-2 2020-2 2021-2

**Lessons:** 16 @ 55 min (1.000 Att/wk)

**Labs:** 0 @ 0 min

**Special Requirements:** None

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<b>NE450</b>	<b>NUCLEAR WEAPONS EFFECTS</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=3.0,MA=0.0)</b>
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**Scope:** 2012-2

**Offerings:**

This course focuses on the operation of nuclear and fusion weapons, and the effects of a nuclear weapon detonation. Specific topics emphasize blast effects, thermal radiation, initial radiation and fallout, electromagnetic pulse, biological effects of radiation, and the policy issues associated with weapons of mass destruction. Extension problems with design components apply the concepts presented in NE450 to the solution of practical problems.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)

**Labs:** 0 @ 0 min

**Special Requirements:** Extension problems with design components.

**Prerequisite(s):** NE300

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<b>NE452</b>	<b>INSTRUMENTATION AND SHIELDING</b>	<b>3.5 Credit Hours</b> <b>(BS=0.0,ET=3.5,MA=0.0)</b>
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**Scope:** 2008-1

**Offerings:**

2019-1 2020-1 2021-1

This course focuses on nuclear instrumentation and radiation detectors, and on biological and material radiation protection through shielding. Specific topics include a study of radiation, and radiation detection devices to include: ionization chambers, proportional counters, Geiger-Mueller counters, scintillation detectors, semiconductor diode detectors, germanium and sodium iodide gamma-ray detectors, and neutron detectors. Radiation shielding, as a force protection measure, includes the design, analysis, and confirmation of radiation shields using point kernel and removal diffusion methods. Emphasis is placed on practical application of the radiation detection instruments and the associated acquisition software.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 8 @ 120 min

**Special Requirements:** None

**Prerequisite(s):** NE350  
-Or-  
NE355  
-Or-  
NE300

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<b>NE474</b>	<b>RADIOLOGICAL SAFETY</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=3.0,MA=0.0)</b>
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**Scope:** 2012-2

**Offerings:**

2019-1 2020-1 2021-1

This course focuses on application of radiation interactions with matter, biological effects of ionizing radiation, and radiological dose assessment. Specific topics emphasize radiation transformations, kinetics and particle interactions, early and late biological effects of radiation, internal and external exposure and dose calculations, radiation safety regulations, and application of health physics principles to reduce hazards in nuclear engineering.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** NE300

**Disqualifier(s):** NE374

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<b>NE489</b>	<b>ADV IND STDY NUCLEAR ENGNRG</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2013-1

**Offerings:**

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

This course is an individually supervised research and study program to familiarize students with advanced nuclear or radiological engineering procedures and techniques. The primary purpose is to acquaint students with the essential features of independent research in nuclear or radiological engineering. With the approval of the Head of the Department, the cadet chooses a research project currently in progress in the Department and is supervised by a faculty member conducting the research.

**Lessons:** 0 @ 0 min (0.000 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** Cadets must complete a written research report and present an oral report to members of the department faculty at the end of the semester. Cadets enrolled in NE489 are expected to present their research at a national or regional undergraduate conference.

**Prerequisite(s):** NE355 PH365

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<b>NE489A</b>	<b>ADV IND STUDY NUCLEAR ENGNRG</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2013-2

**Offerings:**

Same as NE489.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Lessons:** 0 @ 0 min (0.000 Att/wk)      **Labs:** 0 @ 0 min

<b>Special Requirements:</b>	Same as NE489.	
<b>Prerequisite(s):</b>	NE489	
<b>NE495</b>	<b>ADV NUC SYSTEM DESIGN PROJ I</b>	<b>3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)</b>
<b>Scope:</b>	2010-1	<b>Offerings:</b>
<p>This is the first course in a two-semester capstone design experience. The course provides experience in the integration of math, science, and engineering principles into a comprehensive nuclear system design project. The design project emphasizes a multidisciplinary approach to total system design providing multiple paths to a number of feasible and acceptable solutions which meet the stated performance requirements. Design teams are required to develop product specifications, generate alternatives, make practical engineering approximations, and perform appropriate analysis to support the technical feasibility of the design, make decisions leading to an optimal system design, and brief their interim results during in-process reviews (IPRs). Topics such as engineering economics and the Code of Federal Regulations are introduced. Computational codes such as MCNP and other nuclear industry codes specific to the project will be introduced.</p>		2019-1 2020-1 2021-1
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	Comprehensive team design project; compensatory time provided. Permission of the Head of the Department of Physics and Nuclear Engineering required.	
<b>NE496</b>	<b>ADV NUC SYSTEM DESIGN PROJ II</b>	<b>3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)</b>
<b>Scope:</b>	2011-2	<b>Offerings:</b>
<p>This is the second course in a two-semester capstone design experience. The course provides experience in the integration of math, science, and engineering principles into a comprehensive nuclear system design project. The design project emphasizes a multidisciplinary approach to total system design providing multiple paths to a number of feasible and acceptable solutions which meet the stated performance requirements. Design teams are required to develop product specifications, generate alternatives, make practical engineering approximations, and perform appropriate analysis to support the technical feasibility of the design, make decisions leading to an optimal system design, and brief their interim results during in-process reviews (IPRs). During this course, the design project is completed and presented to the project sponsor.</p>		2019-2 2020-2 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	Comprehensive team design project; compensatory time provided.	
<b>Prerequisite(s):</b>	NE495	
<b>PH201</b>	<b>PHYSICS I</b>	<b>3.5 Credit Hours (BS=3.5,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2007-1	<b>Offerings:</b>
<p>This is the first course of a two-semester, calculus-based physics sequence. This course consists of an introduction to nuclear physics and a comprehensive study of classical mechanics, which is designed to promote scientific literacy and to develop the use of scientific modes of thought to solve complex problems. Topics include a survey of nuclear physics and a detailed study of the laws of motion, conservation of energy, and conservation of momentum. An integrated laboratory program illustrates basic scientific techniques and serves to stimulate intellectual curiosity. The core physics program is designed to demonstrate the relevance of physics to military technology and to help prepare future Army leaders to anticipate and adapt to technological change.</p>		No Course Offerings
<b>Lessons:</b> 40 @ 55 min (3.000 Att/wk)	<b>Labs:</b> 8 @ 120 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	MA104	
<b>Corequisite(s):</b>	MA205 -Or- MA255	
<b>PH202</b>	<b>PHYSICS II</b>	<b>3.5 Credit Hours (BS=3.5,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2007-2	<b>Offerings:</b>

This is the second course of a two-semester, calculus-based physics sequence. It consists of a comprehensive study of electromagnetism and optics designed to promote scientific literacy and to develop the use of scientific modes of thought to solve complex problems. Topics include a detailed study of electrostatics, magnetism, circuits, geometric optics, and wave optics. An integrated laboratory program illustrates basic scientific techniques and serves to stimulate intellectual curiosity. The core physics program is designed to demonstrate the relevance of physics to military technology and to help prepare future Army leaders to anticipate and adapt to technological change.

No Course Offerings

**Lessons:** 40 @ 55 min (3.000 Att/wk)      **Labs:** 8 @ 120 min

**Special Requirements:** None

**Prerequisite(s):** PH201  
-Or-  
PH251

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<b>PH205</b>	<b>PHYSICS I</b>	<b>4.0 Credit Hours</b> <b>(BS=4.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2016-1

**Offerings:**

This required, calculus-based core physics course consists of an introduction to nuclear physics, a detailed study of classical mechanics, and an introduction to electricity and magnetism. The course is designed to promote scientific literacy and to develop the use of the scientific method to solve problems. Specific topics include: mass-energy relationship, radioactive decay, radiation attenuation, an introduction to nuclear reactors, and an introduction to nuclear weapons; a detailed study of the laws of motion to include kinematics (translational and rotational), relativity, conservation of energy, conservation of momentum, and mechanical waves; and an introduction to electrostatics and magnetism. An integrated laboratory program illustrates basic scientific techniques and serves to stimulate intellectual curiosity through discovery laboratories. The core physics program is designed to demonstrate the relevance of physics to military technology and to help prepare future Army leaders to anticipate and adapt to technological change.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Lessons:** 40 @ 55 min (3.000 Att/wk)      **Labs:** 8 @ 120 min

**Special Requirements:** None

**Corequisite(s):** MA104

**Disqualifier(s):** PH255

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<b>PH206</b>	<b>PHYSICS II</b>	<b>4.0 Credit Hours</b> <b>(BS=4.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2016-1

**Offerings:**

This calculus-based, core physics course consists of a detailed study of rotating rigid bodies, fluid mechanics, electrostatics and magnetism, direct and alternating current circuits, electromagnetic waves, the wave and particle natures of light. The course is designed to promote scientific literacy and to develop the use of the scientific method to solve problems. An integrated laboratory program illustrates more advanced scientific techniques and serves to stimulate intellectual curiosity through discovery laboratories. This course features an introduction of new material and "depth" reinforcement of select PH205 concepts relevant to continued engineering education through a rigorous theoretical and mathematical curriculum.

2018-4 2019-1 2019-2  
2019-4 2020-1 2020-2  
2020-4 2021-1 2021-2  
2021-4

**Lessons:** 40 @ 55 min (3.000 Att/wk)      **Labs:** 8 @ 120 min

**Special Requirements:** None

**Prerequisite(s):** PH201  
-Or-  
PH205  
-Or-  
PH251  
-Or-  
PH255

**Disqualifier(s):** PH256

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<b>PH252</b>	<b>ADVANCED PHYSICS II</b>	<b>3.5 Credit Hours</b> <b>(BS=3.5,ET=0.0,MA=0.0)</b>
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**Scope:** 2007-2

**Offerings:**

This is the second course of a two-semester, calculus-based advanced physics sequence for selected cadets with demonstrated strengths in mathematics and science. It consists of a comprehensive study of electromagnetism and optics designed to promote scientific literacy and to develop the use of scientific modes of thought to solve complex problems. Topics include a detailed study of electrostatics, magnetism, circuits, geometric optics, and wave optics. An integrated laboratory program illustrates basic scientific techniques and serves to stimulate intellectual curiosity. The core physics program is designed to demonstrate the relevance of physics to military technology and to help prepare future Army leaders to anticipate and adapt to technological change.

No Course Offerings

**Lessons:** 40 @ 55 min (3.000 Att/wk)    **Labs:** 8 @ 120 min

**Special Requirements:** None

**Prerequisite(s):** PH251  
-Or-  
PH201

**Disqualifier(s):** PH202

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<b>PH255</b>	<b>ADVANCED PHYSICS I</b>	<b>4.0 Credit Hours</b> <b>(BS=4.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2016-1

**Offerings:**

Advanced Physics I offers an in-depth coverage of the concepts and principles covered in PH205 through a more rigorous theoretical and mathematical approach. The course features a robust laboratory program, including advanced laboratory techniques and comprehensive characterization and propagation of uncertainties.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Lessons:** 40 @ 55 min (3.000 Att/wk)    **Labs:** 8 @ 120 min

**Special Requirements:** Noone

**Corequisite(s):** MA104

**Disqualifier(s):** PH205

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<b>PH256</b>	<b>ADVANCED PHYSICS II</b>	<b>4.0 Credit Hours</b> <b>(BS=4.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2016-2

**Offerings:**

Advanced Physics II offers an in-depth coverage of the concepts and principles covered in PH206 through a more rigorous theoretical and mathematical approach. The course features a robust laboratory program, including advanced laboratory techniques and comprehensive characterization and propagation of uncertainties.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Lessons:** 40 @ 55 min (3.000 Att/wk)    **Labs:** 8 @ 120 min

**Special Requirements:** None

**Prerequisite(s):** PH205  
-Or-  
PH255  
-Or-  
PH201  
-Or-  
PH251

**Disqualifier(s):** PH206  
-Or-  
PH252

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<b>PH361</b>	<b>EXPERIMENTAL PHYSICS</b>	<b>3.5 Credit Hours</b> <b>(BS=3.5,ET=0.0,MA=0.0)</b>
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**Scope:** 2005-1

**Offerings:**

This course provides instruction and experimental experiences designed to exercise the student's knowledge of classical and modern physics and to extend his or her familiarity with equipment and techniques used in a physical science laboratory. Cadets, working in groups, execute and report on experimental projects. The program of instruction includes familiarization with electronics and instrumentation, data analysis, and laboratory procedures and practices. Knowledge and skills acquired in this course are essential for subsequent laboratory work in solid state physics, nuclear physics, and optics.

No Course Offerings

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 8 @ 120 min

**Special Requirements:** None



**Prerequisite(s):**

-Or-

-Or-

PH202

-Or-

PH252

-Or-

PH206

-Or-

PH256

**Corequisite(s):**

PH365

**PH365****MODERN PHYSICS****3.0 Credit Hours**  
**(BS=2.0,ET=1.0,MA=0.0)****Scope:**

2004-1

**Offerings:**

This course introduces special relativity and the fundamental concepts of quantum physics with application to atomic physics and nuclear physics in order to prepare cadets for advanced study of science and engineering, especially quantum mechanics, statistical physics, nuclear physics, solid state physics, laser physics, medical radiation physics, and nuclear engineering. This course will also be of interest to any cadet who wishes to gain a deeper appreciation of the natural world or of the technology of the 21st Century.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2**Lessons:** 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min**Special Requirements:**

None

**Prerequisite(s):**

-Or-

-Or-

PH204

-Or-

PH254

-Or-

PH202

-Or-

PH252

-Or-

PH206

-Or-

PH256

**PH366****APPLIED QUANTUM PHYSICS****3.5 Credit Hours**  
**(BS=3.5,ET=0.0,MA=0.0)****Scope:**

2013-2

**Offerings:**

This course uses the experimental and laboratory skills developed in PH361 to explore the applications of the 20th Century developments studied in PH365. The topics covered will vary but may include molecular structure, the properties of solids including metals and semiconductors, nuclear physics, and elementary particle physics.

No Course Offerings

**Lessons:** 40 @ 55 min (2.500 Att/wk) **Labs:** 8 @ 120 min**Special Requirements:**

None

**Prerequisite(s):**

PH361 PH484

**PH381****INTRMED CLASSICAL MECHANICS****3.0 Credit Hours**  
**(BS=3.0,ET=0.0,MA=0.0)****Scope:**

2006-2

**Offerings:**

This course continues the development of physical principles introduced in the core physics curriculum. Direct application of Newton's laws is used to analyze phenomena such as projectile motion with air resistance, charged particle motion, and motion in a central force field. Harmonic, driven, and damped oscillations are studied in depth, as are systems of coupled oscillators. The formalism of Lagrangian mechanics is studied in depth. The mathematical tools of classical mechanics are introduced, to include vector fields, line integrals, the calculus of variations, linear algebra, and eigenvalue equations. Cadets will be required to develop and demonstrate the ability to use a computer algebra system to solve advanced problems and plot the solutions.

2019-1 2020-1 2021-1

**Lessons:** 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	PH363 -Or- MA364 -Or- MA365	
<b>PH382</b>	<b>INTERMEDIATE ELECTRODYNAMICS</b>	<b>3.0 Credit Hours (BS=3.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2007-1	<b>Offerings:</b>
<p>This course continues the study of classical electrodynamics introduced in the introductory physics sequence by developing the differential forms of the Maxwell equations and applying them to boundary value problems in two and three dimensions. In addition, scalar and vector potentials are introduced, multipole field expansions are developed for complex sources, electromagnetic fields in dielectric and magnetic media are studied, the propagation of electromagnetic waves in conducting and nonconducting media is considered and electromagnetic radiation is introduced. The course concludes with the study of the connection between special relativity and electrodynamics. This course provides an essential foundation for courses in optics, lasers, quantum mechanics, statistical mechanics, and solid state physics.</p>		2019-1 2020-1 2021-1
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	PH363 -Or- MA364 -Or- MA365	
<b>PH384</b>	<b>APPLIED OPTICS</b>	<b>3.0 Credit Hours (BS=3.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2018-2	<b>Offerings:</b>
<p>This course provides intermediate development in the concepts of geometric, wave, and quantum optics. Primary coverage includes common optical devices, light transmission through optical media, diffraction, interference and polarization. Applied topics typically include: Fourier optics, holography, imaging, atmospheric effects, optical and infrared detectors, nonlinear optics, and tactical employment considerations.</p>		2019-2 2020-2 2021-2
<b>Lessons:</b> 28 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 6 @ 120 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	MA364 -Or- MA365	
<b>PH389</b>	<b>INDIVIDUAL STUDY IN PHYSICS</b>	<b>1.5 Credit Hours (BS=1.5,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2011-2	<b>Offerings:</b>
<p>This course is an individually supervised research and study program to familiarize cadets with advanced scientific procedures and techniques. The primary purpose is to acquaint students with the essential skills required for independent research in physics. With the approval of the Head of the Department, the cadet chooses a research project of interest and is supervised by a faculty member conducting the research.</p>		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	Cadets must complete either a written research report or present an oral report to members of the department faculty at the end of the semester.	
<b>Prerequisite(s):</b>	PH202 -Or- PH252 -Or- PH206 -Or- PH256	
<b>PH389A</b>	<b>INDIVIDUAL STUDY IN PHYSICS</b>	<b>1.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>

<b>Scope:</b>	2016-1	<b>Offerings:</b>
This course is an individually supervised research and study program to familiarize cadets with advanced scientific procedures and techniques. The primary purpose is to acquaint students with the essential skills required for independent research in physics. With the approval of the Head of the Department, the cadet chooses a research project of interest and is supervised by a faculty member conducting the research.		No Course Offerings
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	Cadets must complete either a written research report or present an oral report to members of the department faculty at the end of the semester	
<b>Prerequisite(s):</b>	PH389	
<b>PH456</b>	<b>SCIENCE AND POLICY</b>	<b>3.0 Credit Hours (BS=2.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2005-2	<b>Offerings:</b>
This course challenges cadets to draw upon their core academic experience to analyze complex policy issues. The relationship and interaction between social, political, economic, and technological dimensions of these issues are explored. Emphasis is given to gaining an understanding of both the power and limitations of science and scientific thinking when confronting problems in the policy arena.		2019-1 2020-1 2021-1
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	Enrollment in this course requires approval of the Head of the Department of Physics.	
<b>PH472</b>	<b>SPACE AND ASTROPHYSICS</b>	<b>3.0 Credit Hours (BS=3.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2012-2	<b>Offerings:</b>
This course is an introduction to two related-but not identical-disciplines of physics: space physics and astrophysics. Space physics is concerned with understanding the environment between the sun and the Earth's upper atmosphere. Coronal mass ejections, the solar wind, magnetospheric storms, and auroral precipitation are among the many phenomena studied in the context of space physics. Astrophysics is a study of stellar structure and evolution, galactic structure, and cosmology. Phenomena of interest include quasars, black holes, supernovas, and the cosmic microwave background radiation. The relative emphasis given to the two disciplines varies depending on the background of the instructor.		No Course Offerings
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Corequisite(s):</b>	PH202 -Or- PH252 -Or- PH206 -Or- PH256	
<b>PH481</b>	<b>STATISTICAL PHYSICS</b>	<b>3.0 Credit Hours (BS=3.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2013-2	<b>Offerings:</b>
This course applies basic concepts of probability and statistics to systems consisting of a large number of particles to determine measurable macroscopic quantities such as temperature, pressure, energy, and heat capacity. Emphasis is placed on the calculation of the canonical and grand canonical partition functions for various model physical systems. Particular attention is focused on three ideal gas systems: a gas consisting of massive Maxwell-Boltzmann particles, a gas consisting of massless bosons (i.e., photons), and a gas consisting of fermions.		2019-2 2020-2 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	MA206 PH484 -Or- MA206X PH484 -Or- MA256 PH484	
<b>PH482</b>	<b>ADVANCED CLASSICAL MECHAN</b>	<b>3.0 Credit Hours (BS=3.0,ET=0.0,MA=0.0)</b>

<b>Scope:</b>	2007-1	<b>Offerings:</b>
This course continues the development of concepts introduced in PH381. Hamiltonian mechanics is explored using the calculus of variations to provide a foundation for connecting classical mechanics, quantum mechanics, and statistical mechanics. The two-body central force problem, the mechanics of rotating systems, and scattering theory are studied in depth. The mathematical techniques associated with cylindrical, spherical, and curvilinear coordinates are introduced, as are the basic principles of nonlinear dynamics and chaos. Cadets will be required to develop and demonstrate the ability to use a computer algebra system to solve advanced problems and plot the solutions.		2019-2 2020-2 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	PH381	
<b>PH484</b>	<b>QUANTUM MECHANICS</b>	<b>3.0 Credit Hours</b> (BS=3.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2013-1	<b>Offerings:</b>
This course begins with a basic introduction to the fundamental postulates of quantum theory. These postulates are then used to develop Heisenberg's uncertainty principle and Schroedinger's equation. Solutions to Schroedinger's equation are sought, first for relatively simple systems such as square wells and harmonic oscillators, and then for the hydrogen atom. The properties of the hydrogen atom are studied in detail. The course also covers approximation methods used for physical systems with small perturbing forces acting on them.		No Course Offerings
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	PH363 PH365	
<b>PH484</b>	<b>INTERMEDIATE QUANTUM MECHANICS</b>	<b>3.0 Credit Hours</b> (BS=3.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2019-1	<b>Offerings:</b>
This is the first in a two-course sequence in Quantum Mechanics. This course begins with a basic introduction to the fundamental postulates of quantum theory. These postulates are then used to develop Heisenberg's uncertainty principle and Schroedinger's equation. Solutions to Schroedinger's equation are sought, first for relatively simple systems such as square wells and harmonic oscillators, and then for the hydrogen atom. The properties of the hydrogen atom are studied in detail. The course also covers approximation methods used for physical systems with small perturbing forces acting on them.		2019-1 2020-1 2021-1
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	PH365	
<b>PH485</b>	<b>LASER PHYSICS</b>	<b>3.0 Credit Hours</b> (BS=0.5,ET=2.5,MA=0.0)
<b>Scope:</b>	2019-1	<b>Offerings:</b>
This course provides a combined theoretical and experimental investigation into the realm of coherent optical radiation generation, amplification, propagation, and application. Cadets apply the basic principles of electromagnetism, optics, and modern physics to analyze specific laser systems. Emphasis is placed on evaluation of laser systems, and experiments are performed to demonstrate properties of specific systems. Selected topics in modern optical engineering are explored to illustrate basic applications of various systems. Laser theory is investigated using semiclassical methods. (CONDITIONAL APPROVAL in AY16 - Full Review in AY18)		2019-1 2020-1 2021-1
<b>Lessons:</b> 34 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 6 @ 120 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	PH384	
<b>PH486</b>	<b>EXPERIMENTAL PHYSICS</b>	<b>3.5 Credit Hours</b> (BS=2.0,ET=1.5,MA=0.0)
<b>Scope:</b>	2019-2	<b>Offerings:</b>

This course provides instruction and experimental experiences designed to exercise the student's knowledge of classical and modern physics and to extend his or her familiarity with equipment and techniques used in a physical science laboratory. Cadets, working in groups, execute and report on experimental projects. The program of instruction includes familiarization with electronics and instrumentation, data analysis, and laboratory procedures and practices. Knowledge and skills acquired in this course are essential for subsequent laboratory work in solid state physics, nuclear physics, and optics. (CONDITIONAL APPROVAL in AY 16 - Full Review in AY18)

**Lessons:** 24 @ 55 min (2.500 Att/wk)      **Labs:** 16 @ 120 min

**Special Requirements:** None

**Prerequisite(s):** PH484 PH485

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<b>PH487</b>	<b>ADVANCED QUANTUM MECHANICS</b>	<b>3.0 Credit Hours</b> <b>(BS=3.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2019-2

**Offerings:**

2019-2 2020-2 2021-2

This is the second in a two-course sequence on Quantum Mechanics. This course covers the application of the fundamentals learned in the first course of the sequence. The topics include, but are not limited to perturbation theory (time independent and time dependent), the variational principle, the WKB approximation, the adiabatic approximation, and quantum scattering. (CONDITIONAL APPROVAL in AY16 - Full Review in AY18)

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** PH484

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<b>PH489</b>	<b>ADV INDIV STUDY IN PHYSICS</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2013-1

**Offerings:**

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

This course is an individually supervised research and study program to familiarize students with advanced scientific procedures and techniques. The primary purpose is to acquaint students with the essential features of independent research in physics. With the approval of the Head of the Department, the cadet chooses a research project currently in progress in the Department, and is supervised by a faculty member conducting the research.

**Lessons:** 0 @ 0 min (0.000 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** Cadets must complete a written research report and present an oral report to members of the department faculty at the end of the semester. Cadets enrolled in PH489 are expected to present their research at a national or regional undergraduate conference.

**Prerequisite(s):** PH361 PH365

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<b>PH489A</b>	<b>ADV INDIV STUDY IN PHYSICS</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2013-2

**Offerings:**

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

This course is a second course in an individually supervised research and study program to familiarize students with advanced scientific procedures and techniques. The primary purpose is to foster the student's continued development of the essential features of independent research in physics. With the approval of the Head of the Department, the student continues with a research project currently in progress in the Department, and is supervised by a faculty member conducting the research.

**Lessons:** 0 @ 0 min (0.000 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):**

-Or-  
PH365

**Corequisite(s):** PH489

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<b>PH489B</b>	<b>ADV INDIV STUDY IN PHYSICS</b>	<b>3.0 Credit Hours</b> <b>(BS=1.0,ET=2.0,MA=0.0)</b>
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**Scope:** 1990-2

**Offerings:**

Similar to PH489 and PH489A but offered to students who have already completed those versions.

No Course Offerings

<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	PH489A	
<b>PH495</b>	<b>SPECIAL TOPICS IN PHYSICS</b>	<b>3.0 Credit Hours</b> <b>(BS=3.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2011-2	<b>Offerings:</b>
This course is taught by the Class of 1967 Endowed Chair or another faculty member who is not occupying an authorized USMA position, including any visiting scholar with a distinguished record of academic and professional achievement in the field of engineering, science, and technology. The Special Topics in Physics course focuses on topical issues that reflect the technical expertise of the Chair or visiting scholar. Students will apply math, science, and engineering fundamentals they have learned to these studies.		2019-2 2020-2 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>SA473</b>	<b>INTRODUCTION TO ASTRONAUTICS</b>	<b>3.0 Credit Hours</b> <b>(BS=3.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2018-1	<b>Offerings:</b>
This course is an introduction to the history, principles, and challenges of space and astronautics by way of examination of the following topics: historical satellite and space-related events; orbits; orbital mechanics; science of spacecraft subsystems including, but not limited to, satellite communications, remote-sensing payloads, power subsystems, thermal subsystems, and attitude determination and control subsystems; launch vehicles; and rocket and propulsion systems.		No Course Offerings
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	PH206	
<b>SP189</b>	<b>INTRO IND STUDY SPACE SCIENCE</b>	<b>1.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2018-7	<b>Offerings:</b>
This course is an individually supervised research and study program to familiarize cadets with advanced scientific procedures and techniques. The cadet pursues study of a research or design topic in space and missile defense on an individual or small group basis, independent of a formal classroom setting. The scope of the course is tailored to the needs of the project and interests of the cadet in consultation with a faculty advisor. Activities vary by project but the primary purpose is to acquaint students with the essential skills required for independent research in space and missile defense. With the approval of the Head of the Department, the cadet chooses a research project of interest and is supervised by a faculty member conducting the research.		2018-7
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	Enrollment by permission of Space and Missile Defense Program Director. Other requirements as determined by the Faculty Advisor.	
<b>SP289</b>	<b>INTERM IND STUDY SPACE SCI</b>	<b>2.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2018-7	<b>Offerings:</b>
This course is an individually supervised research and study program to familiarize cadets with advanced scientific procedures and techniques. The cadet pursues study of a research or design topic in space and missile defense on an individual or small group basis, independent of a formal classroom setting. The scope of the course is tailored to the needs of the project and interests of the cadet in consultation with a faculty advisor. Activities vary by project but the primary purpose is to acquaint students with the essential skills required for independent research in space and missile defense. With the approval of the Head of the Department, the cadet chooses a research project of interest and is supervised by a faculty member conducting the research.		2018-7
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	Enrollment by permission of Space and Missile Defense Program Director. Other requirements as determined by the faculty advisor.	
<b>SP471</b>	<b>ASTRONAUTICS</b>	<b>3.0 Credit Hours</b> <b>(BS=3.0,ET=0.0,MA=0.0)</b>

<b>Scope:</b>	2019-1	<b>Offerings:</b>
This course is an introduction to the history, principles, and challenges of space and astronautics by way of examination of the following topics: historical satellite and space-related events; orbits; orbital mechanics; science of spacecraft subsystems including, but not limited to, satellite communications, remote-sensing payloads, power subsystems, thermal subsystems, and attitude determination and control subsystems; launch vehicles; and rocket and propulsion systems.		2019-1 2020-1 2021-1
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	PH206 -Or- PH256	
<b>SP472</b>	<b>SPACE PHYSICS</b>	<b>3.0 Credit Hours (BS=3.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2019-2	<b>Offerings:</b>
Space Physics is concerned with understanding the environment between the sun and the Earth's upper atmosphere as well as the environment within the entire heliosphere. This course provides understanding of the structure and dynamics of the Sun, including solar events such as sun spots, prominences, coronal mass ejections and solar flares. That understanding is then used as a basis to understand the solar wind and its influence on the heliosphere to include influences on our terrestrial magnetosphere, ionosphere and thermosphere. In addition, magnetospheric storms and auroral precipitation are among phenomena studied in the context of their effects on spacecraft, satellites, and also terrestrial systems and life in general. PROVISIONAL - Full Proposal in AY18		2019-2 2020-2 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	MA205 PH206 -Or- MA205 PH256 -Or- MA255 PH206 -Or- MA255 PH256	
<b>Disqualifier(s):</b>	PH472	
<b>SP473</b>	<b>ASTRONOMY</b>	<b>3.5 Credit Hours (BS=3.5,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2019-1	<b>Offerings:</b>
This course is an introduction to the history, principles, challenges and application of astronomical observation techniques including but not limited to radar ranging, laser ranging, visual, optical and spectroscopic techniques. Techniques will be introduced and applied, and will enable cadets to comprehend the tenants of scientific observation and discovery related to our solar system, galaxy and the universe. Exploration of space will begin with observations of terrestrial satellites, the solar system, and will expand to the Milky Way galaxy and beyond. PROVISIONAL - Full proposal in AY18		2020-1 2021-1
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 8 @ 120 min	
<b>Special Requirements:</b>	Labs must be held at night to properly observe celestial objects without solar interference.	
<b>Prerequisite(s):</b>	MA205 PH206 -Or- MA205 PH206 -Or- MA255 PH206 -Or- MA255 PH256	
<b>SP474</b>	<b>ASTROPHYSICS</b>	<b>3.0 Credit Hours (BS=3.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2019-2	<b>Offerings:</b>

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This course is an introduction to Astrophysics and is a study of stellar structure and evolution, galactic structure, and cosmology. Phenomena of interest include quasars, black holes, supernovae and the cosmic microwave background radiation. Special emphasis will be placed on those galactic phenomena, such as Galactic Cosmic Rays (GCRs) and Anomalous Cosmic Rays (ACRs), which have an impact on our heliosphere. Supporting topics include an overview of orbital mechanics and relevant physics, observation techniques, and nuclear physics. PROVISIONAL - Full proposal in AY18

2019-2 2020-2 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)**Labs:** 0 @ 0 min**Special Requirements:**

None

**Prerequisite(s):**

MA205 PH206

-Or-

MA205 PH256

-Or-

MA255 PH206

-Or-

MA255 PH256

**Disqualifier(s):**PH472

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## Department of Social Sciences

### 103 Courses

SS201	ECONOMICS-PRINCIPLES/PROBLEMS	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2017-1	<b>Offerings:</b>
<p>This course presents the basic principles of economic analysis and their application to contemporary economic problems and supports the further study of economics and related disciplines in the social sciences. The course is organized into two primary branches: microeconomics, the study of the behavior of individuals, households, and firms in making decisions, in a market economy and the application of this theory to contemporary issues in both domestic and global markets; and macroeconomics, the study of the performance, structure, and behavior of the whole economy including issues of national income, output, consumption, unemployment, inflation, as well as fiscal and monetary policy. In addition, the course includes instruction on personal finance, focusing specifically on major purchase decisions (home and auto), insurance, basic investing, and investing for retirement. This instruction is intended not only to improve individual financial decision-making but also to equip Cadets with the ability to address the financial issues of their future Soldiers. Cadets develop analytical tools in order to assess the economic implications of policy decisions by military and government officials and to improve their own decision-making process.</p>		2018-5 2019-1 2019-2 2019-5 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Corequisite(s):</b>	MA104	
<b>Disqualifier(s):</b>	SS251	
SS202	AMERICAN POLITICS	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2017-1	<b>Offerings:</b>
<p>This course explores the American political system - its philosophical underpinnings, the structure and behavior of formal government institutions, and the influence of informal political actors within the political construct. The course introduces the discipline of political science by exploring a broad range of literature: classics of American politics, leading political theory, and contemporary reading. Cadets will apply their knowledge of political ideas, institutions, and behavior to public policy making and demonstrate critical analysis of contemporary debates in American politics. Finally, this course provides cadets with an understanding of the professional norms and responsibilities associated with their role as military officers within the American system of government.</p>		2018-5 2019-1 2019-2 2019-5 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	Analytical writing requirements.	
<b>Disqualifier(s):</b>	SS252	
SS251	ADVANCED ECONOMICS	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2017-1	<b>Offerings:</b>
<p>This advanced version of SS201 presents the basic principles of economic analysis with a greater focus on their application to contemporary economic problems. SS251 sections capitalize on the ability of high-performing Cadets to quickly grasp fundamental economic concepts by extending SS201 lesson objectives to more complex and ambiguous economic environments. Additionally, SS251 instructors exercise discretion in altering instructor exercises and assignments to meet the interests and abilities of their individual sections. The course is organized into two primary branches: microeconomics, the study of the behavior of individuals, households, and firms in making decisions in a market economy and the application of this theory to contemporary issues in both domestic and global markets; and macroeconomics, the study of the performance, structure, and behavior of the whole economy including issues of national income, output, consumption, unemployment, inflation, as well as fiscal and monetary policy. In addition, the course includes instruction on personal finance, focusing specifically on major purchase decisions (home and auto), insurance, basic investing, and investing for retirement. This instruction is intended not only to improve individual financial decision-making but also to equip Cadets with the ability to address the financial issues of their future Soldiers. Cadets develop analytical tools in order to assess the economic implications of policy decisions by military and government officials and to improve their own decision-making process.</p>		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	

**Prerequisite(s):** MA104

**Disqualifier(s):** SS201

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<b>SS252</b>	<b>ADVANCED AMERICAN POLITICS</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2017-1

**Offerings:**

This course explores the American political system, its philosophical underpinnings, the structure and behavior of formal government institutions, and the influence of informal political actors within the political construct. The course introduces the discipline of political science by exploring a broad range of literature: classics of American politics, leading political theory, and contemporary reading. Cadets will apply their knowledge of political ideas, institutions, and behavior to public policy-making and demonstrate critical analysis of contemporary debates in American politics. Cadets enrolled in SS252 are expected to conduct advanced undergraduate research that includes identifying additional readings related to policy debates for incorporation into policy-related classes, as well as a miniature literature review as part of their culminating research paper. These analytical research requirements exceed those levied on SS202 cadets. Further, SS252 cadets are exposed to additional seminal works in political science throughout the course, including classical political philosophy, primary historical documents from early American politicians and political thinkers, and contemporary works on civil-military relations. Finally, this course provides cadets with an understanding of the professional norms and responsibilities associated with their role as military officers within the American system of government. Aided through additional readings, this emphasis on civil-military relations focuses on contemporary and historical debates over the appropriate role of military involvement in policy development and the political process.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** Analytical writing requirements.

**Disqualifier(s):** SS202

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<b>SS307</b>	<b>INTERNATIONAL RELATIONS</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2018-1

**Offerings:**

The objectives of this course are to provide cadets with an introduction to the fundamental concepts of international politics and the analytical tools necessary to evaluate "why states do what they do." In accomplishing these objectives, SS307 builds upon a cadet's prior academic experience in History, English, Philosophy, Economics, and Political Science. Emphasizing intellectual pluralism, SS307 focuses on the value of self-consciously applying different theoretical perspectives to international events to obtain improved understanding. Cadets examine key issues such as the consequences of anarchy, the need for security, the role of power, the use of force, international trade and markets, alternative political philosophies, foreign policy making, and the influence of culture in international affairs.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** One 7-page preliminary research paper and one 15-page final analytical research paper; compensatory time provided.

**Prerequisite(s):** SS201 SS202  
-Or-  
SS201 SS252  
-Or-  
SS202 SS251  
-Or-  
SS251 SS252

**Disqualifier(s):** SS357

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<b>SS357</b>	<b>ADV INTERNATIONAL RELATIONS</b>	<b>3.5 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2004-1

**Offerings:**

This advanced version of SS307 presents cadets with an introduction to the fundamental concepts of international politics and the analytical tools necessary to evaluate "why states do what they do" with a more in-depth focus on their application to current international events. SS357 also introduces students to a wider range of theoretical approaches and applications. Emphasis is on rigorous, critical analysis, and classroom discussion.

No Course Offerings

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 7 @ 120 min

**Special Requirements:** One 3000 word analytical research paper; compensatory time provided.

<b>Prerequisite(s):</b>	SS201 SS202 -Or- SS201 SS252 -Or- SS202 SS251 -Or- SS251 SS252
<b>Disqualifier(s):</b>	SS307

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<b>SS357</b>	<b>ADV INTERNATIONAL RELATIONS</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2018-1	<b>Offerings:</b>
<p>The objectives of this course are to provide cadets with an introduction to the fundamental concepts of international politics and the analytical tools necessary to evaluate "why states do what they do." In accomplishing these objectives, SS307 builds upon a cadet's prior academic training in History, English, Philosophy, Economics, and Political Science. Emphasizing intellectual pluralism, SS307 focuses on the value of self-consciously applying different theoretical perspectives to international events to obtain improved understanding. Cadets examine key issues such as the consequences of anarchy, the need for security, the role of power, the use of force, international trade and markets, alternative political philosophies, foreign policy making, and the influence of culture in international affairs. While SS357 contains the same course content as SS307, the advanced nature of the course allows cadets to explore course topics in greater depth through classroom discussion than is generally possible in SS307.</p>		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	One 7-page preliminary research paper and one 15-page final analytical research paper; compensatory time provided.	
<b>Disqualifier(s):</b>	SS307	

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<b>SS360</b>	<b>POL SCI RESEARCH METHODS</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2017-1	<b>Offerings:</b>
<p>This course is an introduction to research methods for political science majors. It serves two main purposes. First, this course introduces research design and the myriad methodologies employed by scholars as they engage in debates within the political science community and beyond. This course will cover many aspects of research design, but will focus primarily on the ability to ask good questions and to craft research plans to best answer those questions. Second, the course is an introduction to some of the major debates within political science. The course equips students with the tools to understand and conduct research in political science in upper-level electives.</p>		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	One research design project.	
<b>Prerequisite(s):</b>	SS202 -Or- SS252	

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<b>SS364</b>	<b>GAME THEORY</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2005-2	<b>Offerings:</b>
<p>Game theory is designed to provide students with the tools necessary to think through the various courses of action available as they face a uncertain situations, determine market reaction to each alternative, identify the costs and benefits of each course of action and select the course of action that minimizes cost while maximizing benefits. The purpose of this course is to introduce cadets to the application of strategic thinking to tactical scenarios. This course consists of two components that are taught concurrently. The first component is the introduction of basic game theory and the second component is the application of those theories to tactical and strategic choice scenarios.</p>		2019-2 2020-2 2021-2
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	A research paper is required.	
<b>Prerequisite(s):</b>	MA206 -Or- MA256 -Or- MA206X	

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<b>SS366</b>	<b>COMPARATIVE POLITICS</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2005-1	<b>Offerings:</b>
<p>The objectives of this course are to analyze the sources of stability or instability in political regimes, and to examine the conditions that promote either democracy or dictatorship. Our first task is to describe different regimes--what do we mean when we call one democratic and another authoritarian? We approach this first task by building a regime model. As we do so we seek to understand what makes political regimes stable or unstable by analyzing their effectiveness, popular legitimacy, and institutional adaptability. All regimes are challenged by change, but some remain stable in the face of change, while others are transformed. Why? And is it possible to argue that there is a "best" type of regime? Are there universally valid criteria -- across time and space -- that we can use to compare regimes? Why do regimes succeed, fail, and change? As well as being central to the discipline of political science, these questions also play an important role in world politics and the formulation of US foreign policy. Since we are both students of political science and professionals who will serve as policy executors, the study of comparative politics offers significant rewards. After building the model we take it through various regions of the world, using the comparative method, analyzing the variables which change from regime to regime in liberal democracies, communist and post-communist states, newly industrializing and less developed countries, and the Islamic world.</p>		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	Research paper, oral presentations.	
<b>Prerequisite(s):</b>	SS202 -Or- SS252	
<b>Corequisite(s):</b>	SS307 -Or- SS357	
<b>SS368</b>	<b>ECONOMETRICS I</b>	<b>3.0 Credit Hours</b> (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	1989-2	<b>Offerings:</b>
<p>This course is designed to teach students how to quantify, test, and employ economic theories as they are used in real world applications. The course covers the use of economic theory and data in the construction, estimation, and interpretation of econometric models. Special emphasis is placed on estimation of parameters of economic models and statistical inference using estimated models to determine the validity of economic theories. The primary mathematical tool employed in the course is multiple regression analysis. A number of applications demonstrate the use of the techniques studied.</p>		No Course Offerings
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	Computer lab exercises conducted during regular class periods.	
<b>Prerequisite(s):</b>	MA206	
<b>SS368</b>	<b>ECONOMETRICS I</b>	<b>3.0 Credit Hours</b> (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2018-1	<b>Offerings:</b>
<p>This course is designed to teach students how to quantify, test, and employ economic theories as they are used in real world applications. The course covers the use of economic theory and data in the construction, estimation, and interpretation of econometric models. Special emphasis is placed on estimation of parameters of economic models and statistical inference using estimated models to determine the validity of economic theories. The primary mathematical tool employed in the course is multiple regression analysis. A number of applications demonstrate the use of the techniques studied.</p>		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	Computer lab exercises conducted during regular class periods.	
<b>Prerequisite(s):</b>	MA206 -Or- MA256 -Or- MA206X	
<b>SS370</b>	<b>MASS MEDIA &amp; AMER POLITICS</b>	<b>3.0 Credit Hours</b> (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2014-1	<b>Offerings:</b>

This seminar introduces cadets to what is perhaps the single most influential private institution in the American political system, oftentimes referred to as the fourth branch or fourth estate of American government. This course examines the major concepts, theoretical frameworks, and substantive issues surrounding the study of the media as a conduit between the people and the government and as a political actor in its own right. In particular, the roles, motivations, and effects of the constitutionally protected media on American political institutions and policymaking are extensively probed. The latter part of the course is dedicated to the study of the relationship between the military and the media, and prominent guest speakers are featured throughout the course to add context and practical application to the theories learned in class. The class includes a trip section to New York City to meet with journalists and news executives from national media outlets to round out the educational experience.

2019-2 2020-2 2021-2

**Lessons:** 20 @ 110 min (1.000 Att/wk) **Labs:** 0 @ 0 min

**Special Requirements:** Research paper.

**Prerequisite(s):** SS202  
-Or-  
SS252

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<b>SS372</b>	<b>POLITICS AND GOV OF CHINA</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2005-1

**Offerings:**

Lecture/seminar course designed to introduce the cadets to the politics and government of China. In particular, cadets will study the domestic politics of China beginning with the rise of the Chinese Communist movement. China's unique culture and the Mao years are examined as well as their impact on the past and emerging political system. Recent reforms and their implications for political, social, economic and military structures and processes will be examined as well as the tensions that have evolved. External developments such as Hong Kong's reversion to China, developments in Taiwan, changes in Central Asia, as well as China's emergence as a regional and world power will be considered. What are the different approaches to analyzing Chinese politics and government? What factors determine state legitimacy and influence internal choices? How does China's domestic situation influence its external relations?

No Course Offerings

**Lessons:** 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

**Special Requirements:** 3,000-word study of Chinese domestic issue, with graded bibliography and outline; two group presentations; compensatory time provided.

**Prerequisite(s):** SS202  
-Or-  
SS252

**Corequisite(s):** SS307  
-Or-  
SS357

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<b>SS372</b>	<b>POLITICS OF CHINA</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2018-2

**Offerings:**

Lecture/seminar course designed to introduce the cadets to the politics of China. In particular, cadets will study the domestic politics of China beginning with the rise of the Chinese Communist movement. China's unique culture and the Mao years are examined as well as their impact on the past and emerging political system. Recent reforms and their implications for political, social, economic and military structures and processes will be examined as well as the tensions that have evolved. External developments such as Hong Kong's reversion to China, developments in Taiwan, changes in Central Asia, as well as China's emergence as a regional and world power will be considered. What are the different approaches to analyzing Chinese politics? What factors determine state legitimacy and influence internal choices? How does China's domestic situation influence its external relations?

2019-1 2020-1 2021-1

**Lessons:** 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

**Special Requirements:** 3,000-word study of Chinese domestic issue, with graded bibliography and outline; two group presentations; compensatory time provided.

**Prerequisite(s):** SS307  
-Or-  
SS357

**Corequisite(s):** SS366

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<b>SS373</b>	<b>THE AMERICAN PRESIDENCY</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2011-1

**Offerings:**

<p>This seminar examines the concept of executive power and authority with particular emphasis on the institution of the presidency in the American political system. The course will analyze the constitutional origins and evolution of the presidency. We will place particular emphasis on the formal rules and informal norms that developed since the Founding and frame presidential behavior. We will analyze the various factors that influence the perpetual transformation of the institutional organization and operation of the modern executive branch. The course will examine the dynamic relationships the executive branch maintains with other branches of government, the media, the public, and other key stakeholders and how these relationships shape the development of public policy.</p> <p><b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)    <b>Labs:</b> 0 @ 0 min</p> <p><b>Special Requirements:</b> Case study of presidential leadership, with graded bibliography and outline; compensatory time provided.</p> <p><b>Prerequisite(s):</b> SS202 -Or- SS252</p>		2019-1 2020-1 2021-1
<b>SS374</b>	<b>POL &amp; GOV OF KOREAS &amp; JAPAN</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2004-2	<b>Offerings:</b>
<p>Seminar course designed to introduce the cadets to the politics and government in Japan and the Koreas. Students draw on an appreciation and understanding of culture, history, sociology, economic and political science foundations in studying the actors and relationships in Northeast Asia. Focusing on how ethnic, social, cultural, and economic factors determine state legitimacy and influence internal state choices, students explore the cooperation and competition between Japan, Korea and the U.S. The course incorporates an examination of US foreign policy toward Japan and Korea and explores the prospects for productive, stable relationships.</p> <p><b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)    <b>Labs:</b> 0 @ 0 min</p> <p><b>Special Requirements:</b> Three analysis papers, a book review, and policy memorandum.</p> <p><b>Prerequisite(s):</b> SS202 -Or- SS252</p> <p><b>Corequisite(s):</b> SS307 -Or- SS357</p>		No Course Offerings
<b>SS374</b>	<b>POLITICS OF NORTHEAST ASIA</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2018-2	<b>Offerings:</b>
<p>Seminar course designed to introduce the cadets to the politics of Northeast Asia. Students draw on an appreciation and understanding of culture, history, sociology, economic and political science foundations in studying the actors and relationships in Northeast Asia. Focusing on how ethnic, social, cultural, and economic factors determine state legitimacy and influence internal state choices, students explore the cooperation and competition between Japan, Korea and the U.S. The course incorporates an examination of US foreign policy toward Japan and Korea and explores the prospects for productive, stable relationships.</p> <p><b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)    <b>Labs:</b> 0 @ 0 min</p> <p><b>Special Requirements:</b> Three analysis papers, a book review, and policy memorandum.</p> <p><b>Prerequisite(s):</b> SS307 -Or- SS357</p> <p><b>Corequisite(s):</b> SS366</p>		2019-2 2020-2 2021-2
<b>SS375</b>	<b>GOV &amp; POL RUSSIA &amp; NEIGHBORS</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2004-2	<b>Offerings:</b>
<p>This course surveys the post-Soviet landscape. It explores the political, social, economic, and cultural terrain of Russia and the other states that emerged after the collapse of the Soviet Union in 1991. The course begins with a review of Russian and Soviet history - the foundation to understanding the dramatic implosion of the Soviet Union and the tumultuous events which followed. The course also employs theories and concepts to help the student assess why democratization and marketization have been so difficult in this part of the world. The course concludes with an examination of US foreign policy toward the region and the prospects for productive, stable ties with Russia and its neighbors.</p> <p><b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)    <b>Labs:</b> 0 @ 0 min</p>		No Course Offerings

<b>Special Requirements:</b>	Research paper and oral presentation.
<b>Prerequisite(s):</b>	SS202 -Or- SS252
<b>Corequisite(s):</b>	SS307 -Or- SS357

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<b>SS375</b>	<b>POL OF THE POST-SOVIET STATES</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2018-2	<b>Offerings:</b>
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This course surveys the post-Soviet landscape. It explores the political, social, economic, and cultural terrain of Russia and the other states that emerged after the collapse of the Soviet Union in 1991. The course begins with a review of Russian and Soviet history - the foundation to understanding the dramatic implosion of the Soviet Union and the tumultuous events which followed. The course also employs theories and concepts to help the student assess why democratization and marketization have been so difficult in this part of the world. The course concludes with an examination of US foreign policy toward the region and the prospects for productive, stable ties with Russia and its neighbors.

2019-1 2020-1 2021-1

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** Research paper and oral presentation.

**Prerequisite(s):** SS307  
-Or-  
SS357

**Corequisite(s):** SS366

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<b>SS376</b>	<b>AMERICAN POLITICAL DEVELOPMENT</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2015-1	<b>Offerings:</b>
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American Political Development focuses on the causes, nature, and consequences of key transformative periods and central patterns in American political history that affect the relationship between the state, politics, and institutional development. The course explores patterns in the public policy process and examines historical processes to analyze American political institutions and policy outcomes from a political standpoint. Students focus on the degree to which ideas and institutions from the Founding period created stability in American politics and investigate the role of events, ideas, and other forces in leading to periods of change. After starting with an in-depth review of the American Founding, we will examine the major epochs of state development to understand their causes and effects on political institutions, politics, and public policy. Special emphasis will be placed on the rise of the unique American regulatory and welfare state. Lastly, we will examine how the course of American political development contributes to the features of today's political environment and what these patterns of development suggest for the future of American politics.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** SS202  
-Or-  
SS252

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<b>SS377</b>	<b>POLITICS OF EUROPE</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2018-2	<b>Offerings:</b>
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This course exposes cadets to the political systems and cultures of the European Union (EU) and its Member States. The driving questions of the course are: "Why do European actors (institutions, states, and individuals) behave the way they do, within Europe and internationally?" and "How has regional integration affected European political systems?" Cadets will study the historical development of the EU and explore different theoretical perspectives on regional integration. With this foundation, the course then explores the politics of individual European states and the institutions of the EU. Using social science methods, students will consider the domestic, regional, and international dimensions of Europe's foreign relations.

2019-1 2020-1 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** Each cadet will write a research paper on a topic of their choice.

**Prerequisite(s):** SS307  
-Or-  
SS357

<b>Corequisite(s):</b>	SS366	
<b>SS378</b>	<b>ADV INTL RELATIONS THEORY</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2005-1	<b>Offerings:</b>
This course uses the foundation provided by SS307/357 to provide cadets with an in-depth assessment of the field of international relations. The course begins by evaluating alternative theoretical perspectives, including realism, liberalism/institutionalism, and constructivism. Cadets are introduced to classic as well as contemporary works, which are examined in terms of their cultural, political, and academic context. Cadets examine topical cases pertaining to war, wealth, and state formation/transformation. Throughout the course, cadets explore the value and limitations of IR theory in framing and implementing policy.		2019-1 2019-2 2020-1 2021-1
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	Two short papers (1000-1500 words each), book review, compensatory time provided.	
<b>Prerequisite(s):</b>	SS307 -Or- SS357	
<b>SS378</b>	<b>GREAT POWER COMPETITION</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2020-2	<b>Offerings:</b>
This course uses the foundation provided by SS307/357 to provide cadets with an in-depth assessment of the field of international relations. The course begins by evaluating alternative theoretical perspectives, including realism, liberalism/institutionalism, and constructivism. Cadets are introduced to classic as well as contemporary works, which are examined in terms of their cultural, political, and academic context. Cadets examine topical cases pertaining to war, wealth, and state formation/transformation. Throughout the course, cadets explore the value and limitations of IR theory in framing and implementing policy.		2020-2 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	Two short papers (1000-1500 words each), book review, compensatory time provided.	
<b>Prerequisite(s):</b>	SS307 -Or- SS357	
<b>SS379</b>	<b>LEGISLATIVE POLITICS</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2005-1	<b>Offerings:</b>
This course deals principally with the U.S. Congress but also considers other legislatures to include those of state governments. It focuses on the role of legislatures in political systems. The course addresses the development of the U.S. Congress, the behavior of legislators, the workings of committees, and the responsibilities of legislative leaders. Case studies, practical exercises, and guest lecturers are used to highlight these topics. Emphasis is also placed on the Congressional Budget Process as well as the impact of Congress on military, economic, and international issues, domestic, foreign and economic policy.		2019-2 2020-2 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	Analytical papers and briefings; compensatory time provided.	
<b>Prerequisite(s):</b>	SS202 -Or- SS252	
<b>SS380</b>	<b>MANPOWER-LABOR ECONOMICS</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2004-1	<b>Offerings:</b>
This course studies the nature and determinants of pay and employment. The course emphasizes the role of institutions which are significant in determining the pattern and speed of adjustment in the labor market. The traditional tools of micro and macroeconomics and econometrics are employed. Military manpower is examined as an application of the theories developed during the course.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	Research paper and oral presentations.	



**Prerequisite(s):** SS368 SS382

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<b>SS381</b>	<b>CULTURAL/POLIT ANTHROPOLOGY</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2005-1

**Offerings:**

The overall course goal is to provide a rich and interesting introduction to the field of anthropology. Anthropology is a holistic discipline encompassing elements of political science, economics, sociology, linguistics, and psychology. Emphasizing that one's culture is a "learned" condition, students explore the concept of cultural relativism and gain an appreciation for the diversity of human cultures and the interrelation of social, political and economic organizations. Students also examine the sub-discipline of Applied Anthropology which seeks to solve contemporary social/political problems such as ethnic conflict. A highlight of this course, students actively conduct anthropological fieldwork within the West Point community. Students develop their personal abilities to recognize their own personal biases and therefore better understand, interact and communicate with peoples from other cultural backgrounds. This is a crucial skill for future Army officers in the 21st century as recent deployment patterns have shown soldiers operating in non-traditional situations.

No Course Offerings

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** Fieldwork reports, including a 10-12 page final report including an annotated bibliography, conceptual paper, and fieldwork observations and conclusions; compensatory time provided for additional field research.

**Prerequisite(s):** SS202  
-Or-  
SS252

**Corequisite(s):** SS307 SS366  
-Or-  
SS357 SS366

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<b>SS381</b>	<b>CULTURAL/POLIT ANTHROPOLOGY</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2018-2

**Offerings:**

The overall course goal is to provide a rich and interesting introduction to the field of anthropology. Anthropology is a holistic discipline encompassing elements of political science, economics, sociology, linguistics, and psychology. Emphasizing that one's culture is a "learned" condition, students explore the concept of cultural relativism and gain an appreciation for the diversity of human cultures and the interrelation of social, political and economic organizations. Students also examine the sub-discipline of Applied Anthropology which seeks to solve contemporary social/political problems such as ethnic conflict. A highlight of this course, students actively conduct anthropological fieldwork within the West Point community. Students develop their personal abilities to recognize their own personal biases and therefore better understand, interact and communicate with peoples from other cultural backgrounds. This is a crucial skill for future Army officers in the 21st century as recent deployment patterns have shown soldiers operating in non-traditional situations.

2019-2 2020-1 2021-1  
2022-1

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** Fieldwork reports, including a 10-12 page final report including an annotated bibliography, conceptual paper, and fieldwork observations and conclusions; compensatory time provided for additional field research.

**Prerequisite(s):** SS307  
-Or-  
SS307

**Corequisite(s):** SS366

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<b>SS382</b>	<b>MICROECONOMICS</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 1980-2

**Offerings:**

This course is a theory course in which cadets develop a thorough understanding of microeconomic modeling and models; it is a prerequisite for most downstream economics courses. The course develops a methodology that economists use to study the interaction among individual economic agents (such as consumers, firms and the government) and the allocation of scarce resources among these agents. The goal is for cadets to understand optimization, markets, and to some extent policy-making, using an integrated, theoretical model. Ultimately the consequence of a change in the market environment, in public policy or in the global economy can be assessed vis-à-vis its impact on individual economic agents.

No Course Offerings

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** MA205 SS201  
-Or-  
MA205 SS251  
-Or-  
MA255 SS201  
-Or-  
MA255 SS251

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<b>SS382</b>	<b>MICROECONOMICS</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2017-2

**Offerings:**

This course is a theory course in which cadets develop a thorough understanding of microeconomic modeling and models; it is a prerequisite for most downstream economics courses. The course develops a methodology that economists use to study the interaction among individual economic agents (such as consumers, firms and the government) and the allocation of scarce resources among these agents. The goal is for cadets to understand optimization, markets, and to some extent policy-making, using an integrated, theoretical model. Ultimately the consequence of a change in the market environment, in public policy or in the global economy can be assessed vis-à-vis its impact on individual economic agents.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** MA205 SS201  
-Or-  
MA205 SS251  
-Or-  
MA255 SS201  
-Or-  
MA255 SS251

**Corequisite(s):** MA367

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<b>SS383</b>	<b>POLITICS &amp; GOVT-MIDDLE EAST</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2005-2

**Offerings:**

The Middle East is an area of constant and significant change. This course provides an overview of the Middle East (including the Arab world, Iran, Israel and Turkey) and focuses on the historical and political dynamics, which influenced and continue to shape change in the region. Several issues will be treated in detail including: religion and state in Islam; political competition among the Arab states; the Palestinian question and the Arab-Israeli conflict; oil and the Gulf states; and the meaning of non-regional power influence in the region.

No Course Offerings

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** Cadets will write a term paper.

**Prerequisite(s):** SS202  
-Or-  
SS252

**Corequisite(s):** SS307  
-Or-  
SS357

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<b>SS383</b>	<b>POLITICS OF THE MIDDLE EAST</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2018-2

**Offerings:**

The Middle East is an area of constant and significant change. This course provides an overview of the Middle East (including the Arab world, Iran, Israel and Turkey) and focuses on the historical and political dynamics, which influenced and continue to shape change in the region. Several issues will be treated in detail including: religion and state in Islam; political competition among the Arab states; the Palestinian question and the Arab-Israeli conflict; oil and the Gulf states; and the meaning of non-regional power influence in the region.

2019-2 2020-2 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** Cadets will write a term paper.

**Prerequisite(s):** SS307  
-Or-  
SS357

**Corequisite(s):** SS366

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<b>SS384</b>	<b>POLITICS OF LATIN AMERICA</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2018-2

**Offerings:**

2019-2 2021-1

This course provides a thematic study in comparative politics, focusing in particular on Latin America and scholarly explanations for political dynamics in the region. The course presents a wide variety of scholarly treatments on the chosen theme, utilizing historical institutionalist, rational actor, and hybrid approaches. The course is divided into three blocks. Block I begins with foundational texts which tend to be more or less mono-causal and offer stark comparisons in terms of the theoretical approaches used by comparative politics. Block II explores more recent hybrid theories, which blend rational actor and historical institutionalist explanations for change and continuity. Block III concludes with texts that focus on narrative and the creation of meaning in determining Latin American political behavior. At the conclusion of this course, students are able to understand and apply comparative approaches to political behavior, have a deeper understanding of Latin American history and politics, and are familiar with the tools of social science.

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** Two book reviews (800 - 1000 words) and two policy papers (800-1000 words); compensatory time provided.

**Prerequisite(s):** SS307  
-Or-  
SS357

**Corequisite(s):** SS366

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<b>SS385</b>	<b>HISTORY OF ECONOMICS</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2017-1

**Offerings:**

2019-1 2020-1 2021-1

This course provides cadets with the tools and knowledge for analyzing the effectiveness of different economic systems and efforts to change them. The major course objectives include an examination of the following: the historical evolution of prominent economic philosophy and theory on the functioning of capitalist and non-capitalist systems; the methods of defining and evaluating economic systems in terms of the rules and the cultural, political, legal, financial, and labor institutions that comprise an economy; the methods of institutional and cultural change and the challenges they face in the transition to a market economy; and the paths less developed countries may pursue towards economic growth and development. At the end of the course students understand how differences among nations' economic systems might result in differences in their economic outcomes and how nations might go about changing their systems.

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** One critical book review (1250 words); small group in-class presentations; compensatory time provided.

**Prerequisite(s):** SS201  
-Or-  
SS251

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<b>SS386</b>	<b>POLITICAL THOUGHT AND IDEAS</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2013-1

**Offerings:**

No Course Offerings

This course examines the fundamental questions of Western political philosophy. In order to better understand why these problems are of vital relevance to contemporary civilization in the late modern West, students consider six themes: the nature of politics and how theorists, citizens, and statesmen have understood political things; the nature of freedom and the conditions necessary for its establishment, maintenance, preservation, and improvement; republicanism in antiquity and modernity; liberal democracy and constitutional order; the relationship between religion and politics; and, the fundamental presuppositions of traditional, modern, and contemporary social science. This course allows students to achieve critical understanding of the ancient and modern foundations of Western political thought and how these ideas have contributed to American republicanism, liberal democracy, and representative government; to clarify a range of modern political problems at home and abroad that challenge civilization; to acquire a competence reading, writing about, and discussing classic works of political philosophy, fostering life-long learning on masterpieces of human reflection; to develop cross-disciplinary capacity to study politics by (a) integrating basic chronological knowledge of what has happened in Western intellectual life, (b) understanding how to study ideas as vital components of traditional liberal education and officer development, (c) writing a Seminar Essay that synthesizes course learning, (d) making use of language study, grammar, etymology, and philology, and (e) keeping a Commonplace Book; to apply political thought to contemporary circumstances; and, to contrast Western principles with a major non-Western tradition of political thought.

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** Colloquium and seminar essays, participation in the Discussion Leader Model, and Commonplace Book.

<b>Prerequisite(s):</b>	SS202 -Or- SS252	
<b>SS386</b>	<b>POLITICAL THOUGHT</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2017-2	<b>Offerings:</b>
This course introduces students to the fundamental questions of political life, as expressed in classic works of political philosophy. The course presents the history of political thought as a series of debates over the meaning of justice, man's place in nature, and the human good. Students explore three main approaches to these questions - ancient, medieval, and modern - and they compare and contrast Western ways of wrestling with fundamental questions to others that have arisen outside the West. The course culminates in a consideration of the place of the American regime in the history of political thought.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	Colloquium and seminar essays, participation in the Discussion Leader Model, and Commonplace Book.	
<b>Prerequisite(s):</b>	SS202 -Or- SS252	
<b>SS387</b>	<b>PUBLIC FINANCE</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2016-2	<b>Offerings:</b>
This course is an applied microeconomics course focusing on theoretical models to answer real world policy issues in the public sector. In particular, this course examines issues in public expenditures, social insurance, social welfare, redistribution, taxation, and public choice. Using economic models, this course helps students sharpen their analytical skills to solve complex governance challenges. Cadets should gain a better understanding of unique challenges that governments face when providing services while trying to balance economic efficiency with social equity.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	Analysis paper-- public expenditure program.	
<b>Prerequisite(s):</b>	SS201 SS360 SS382 -Or- SS251 SS360 SS382 -Or- SS201 SS368 SS382 -Or- SS251 SS368 SS382	
<b>SS388</b>	<b>MACROECONOMICS</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2011-1	<b>Offerings:</b>
This course is dedicated to the study of aggregate economic activity. The course examines the determinants of long run growth, and then addresses short run economic fluctuations. The course uses various models, including the Solow Growth Model, the IS-IM model, and the Aggregate Demand - Aggregate Supply model. The microeconomic foundations for macroeconomics are discussed, and current macroeconomic policy issues are debated. These issues are discussed within the context of both open and closed economies.		No Course Offerings
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	One policy analysis paper (1000 words); compensatory time provided.	
<b>Prerequisite(s):</b>	SS201 -Or- SS251	
<b>SS388</b>	<b>MACROECONOMICS</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2017-2	<b>Offerings:</b>
This course is dedicated to the study of aggregate economic activity. The course examines the determinants of long run growth, and then addresses short run economic fluctuations. The course uses various models, including the Solow Growth Model, the IS-IM model, and the Aggregate Demand - Aggregate Supply model. The microeconomic foundations for macroeconomics are discussed, and current macroeconomic policy issues are debated. These issues are discussed within the context of both open and closed economies.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2

<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	One policy analysis paper (1000 words); compensatory time provided.
<b>Prerequisite(s):</b>	SS201 -Or- SS251
<b>Corequisite(s):</b>	MA367

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<b>SS390</b>	<b>BEHAVIORAL ECONOMICS</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2017-2	<b>Offerings:</b>
<p>This course will cover how insights from psychology and behavioral economics relate to the foundational economic model of rational choice. This course will cover four main topic areas. First, the course will examine how individual preferences tend to deviate from a rational choice model. Second, the course will explore how cognitive limitations alter individual choice. Third, the course will look at how social preferences and social influence impact decisions. Fourth and finally, this course will investigate how public policy interacts with individual behavioral tendencies.</p>		

<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	None
<b>Corequisite(s):</b>	SS360 SS368 -Or- SS382

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<b>SS391</b>	<b>FINANCE FOR ARMY LEADERS</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2004-2	<b>Offerings:</b>
<p>This course examines analytical and practical approaches to financial management with emphasis on effective financial counseling, personal decision-making, and ethical issues in personal finance. The course begins with an overview of financial planning and introduces personal accounting, net worth calculation, cash budgeting, insurance, investment, and taxes. These principles are subsequently applied in evaluating major purchases, real estate, securities, and financial options. The financial institutions section investigates the major sources of financial instruments which an investor might purchase, and determines the nature and purpose behind the issue of such securities as well as diversification and performance measures requiring familiarity with applied regression analysis (Excel). The final sections relate to estate planning and culminate in the development and presentation in a counseling option of the cadet's ability to evaluate life's major purchases, select financial securities, counsel subordinates, and choose between financial options.</p>		

<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	The group projects require analysis and application of concepts learned in previous economics and political science courses (SS360/SS368 are required).
<b>Prerequisite(s):</b>	SS360 -Or- SS368

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<b>SS392</b>	<b>POLITICS-RACE,GENDER,SEXUALITY</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2017-2	<b>Offerings:</b>
<p>This seminar is an introduction to the concepts of race, gender, and sexuality in the American political system. It will focus on the fundamental institutions and processes involved in our system of government, with a focus on the concepts of civil rights and liberties as they pertain to the overarching topics of discussion. Emphasis will be placed on the inherent inequalities found within the structures, rules, and processes of the American political system. The class will also move outside the borders of the United States to consider some of these same concepts in other countries to provide a comparison of how states deal with majority-minority relations and inequalities in their governmental systems. The class will consider how the contemporary issues that relate to race, gender, and sexuality apply to the Army and how they impact the Army officer.</p>		

<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	None
<b>Prerequisite(s):</b>	SS202 SS360 -Or- SS252 SS360

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SS394	FINANCIAL STATEMENT ANALYSIS	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2015-1	<b>Offerings:</b>
<p>This course is an organizational leader's introduction to the world of business and finance, focusing on financial accounting and financial statement analysis, essential topics for cadets concentrating in economics, engineering management, and general management. Cadets study the accounting model in detail, spanning analysis and recording of business transactions to the production of the financial statements, and learn to apply economic reasoning in performing financial ratio analysis of the underlying business enterprise. The course culminates with a capstone project involving financial statement analysis of a major U.S. corporation in relation to one of its principal competitors that enables cadets to apply the subject matter as users of financial statements in a real-world context. This course is the first of a two-course financial economics sequence which culminates with SS494 - Principles of Finance.</p>		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	Financial Statement Analysis.	
<b>Prerequisite(s):</b>	SS201 -Or- SS251	
SS395	INTERNATIONAL SECURITY	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2019-1	<b>Offerings:</b>
<p>This course uses the foundation provided by SS307/357 to provide cadets with an in-depth assessment of the field of international security studies, which is a major sub-field within international relations. The purpose of this course is to provide a solid foundation in the field of international security studies, including key concepts and case studies relevant to the field today and throughout history. Cadets will explore different perspectives on security, assess the central question of 'What causes war?' and apply theories of conflict to different case studies on the use of force in the international system. (THIS COURSE IS NOT YET APPROVED BY THE GENERAL COMMITTEE BUT IS ENTERED TO SUPPORT THE NEW IA MAJOR)</p>		2020-1 2021-1
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	One major project; a research proposal (3000 words). Five short essays; one at the conclusion of each Block of material.	
<b>Prerequisite(s):</b>	SS357	
SS399	SOCSCI INTERNSHIP/PRACTCAL EXP	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2005-4	<b>Offerings:</b>
<p>The Academic Individual Advanced Development (AIAD) program is designed to give cadets practical experience in their field of study and to reflect on their experiences by completing specified academic requirements. Recent internships involve participation in the American, European and Russian (AMEURU) program hosted by the University of Maastricht, the Tri-Service Global Spectrum trip to Vietnam, study at the German Marshall Center, the American Institute on Political and Economic Systems (AIPES) in the Czech Republic, the International Institute for Political and Economic Studies (IIPES) in Greece, and the International Studies Program (ISP) in Eastern Europe. Scope, depth and material covered will meet the requirement of a 3-credit hour course in Social Sciences. Grades are determined based on preparatory briefings and essays, a journal of daily activities, the quality of the work performed during the internship, and a final paper, briefing, or exam that incorporates their experience with a topic from their field of study, due upon return.</p>		2018-7
<b>Lessons:</b>	0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	Admission to the course requires an interview with the AIAD coordinator.	
SS457	ADV STUDIES IN GRAND STRATEGY	3.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2014-1	<b>Offerings:</b>
<p>This seminar aims to examine the theory and practice of grand strategy. It does so in historical, theoretical, and contemporary practice context and from a variety of analytical perspectives. In this course, we generally define grand strategy as the calculated relation of means to large ends. We focus on how parts relate to the whole in whatever an individual, a corporation, a nation, or a collective of nation-states might be seeking to accomplish. The strategists and their strategies we consider range over some two and a half millennia. Some of them represent the "best" thinking and writing on this subject; others exemplify success and failure in the implementation of grand strategy. From a careful examination of them, we will endeavor to extract a set of principles for the making of grand strategy that will be useful in any future leadership role in which we may be called upon to connect desired ends with available means.</p>		No Course Offerings
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min

<b>Special Requirements:</b>	None	
<b>SS457</b>	<b>GRAND STRATEGY</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2018-2	<b>Offerings:</b>
<p>This seminar aims to examine the theory and practice of grand strategy. It does so in historical, theoretical, and contemporary practice context and from a variety of analytical perspectives. In this course, we generally define grand strategy as the calculated relation of means to large ends. We focus on how parts relate to the whole in whatever an individual, a corporation, a nation, or a collective of nation-states might be seeking to accomplish. The strategists and their strategies we consider range over some two and a half millennia. Some of them represent the "best" thinking and writing on this subject; others exemplify success and failure in the implementation of grand strategy. From a careful examination of them, we will endeavor to extract a set of principles for the making of grand strategy that will be useful in any future leadership role in which we may be called upon to connect desired ends with available means.</p>		2019-2 2020-2 2021-2
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	None	
<b>SS458</b>	<b>TOPICS IN GRAND STRATEGY</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2017-1	<b>Offerings:</b>
<p>SS458 Applied Topics in Grand Strategy is the second of a two-part sequence designed to build on the course material covered in SS457. The course will cover applied regional topics in the study of grand strategy in a contemporary and/or historical context to illustrate key theoretical concepts. Scope, depth and material covered will meet the requirement of a 3-hour credit course in the Grand Strategy Program. Grades are determined based on presentations, essays and other writing exercises, class participation, and a final exam, essay, and/or briefing.</p>		2019-1 2019-2 2020-1 2021-1
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	SS457	
<b>SS461</b>	<b>INDUSTRIAL ORGANIZATION</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2017-2	<b>Offerings:</b>
<p>Industrial Organization studies the decision making of the firm in a variety of market structures, with particular emphasis on markets in which firms possess some market power. Many of the restrictive assumptions imposed in models of perfect competition are relaxed. The course explores the strategic decision making of firms regarding: market entry and exit, choice of plant size/capacity, the decision to be a multi-product firm, product versioning, and vertical integration. Game-theoretic models are introduced and applied to firm decisions regarding entry, pricing, advertising, and responses to government regulation. The role of imperfect and asymmetric information in firm interactions, from bargaining games to strategic entry deterrence to uses of warranties and prices as a signal of quality, is stressed throughout. Finally, the course analyzes government regulation of markets, including information provision, product regulation, and antitrust policy.</p>		2019-1 2020-1 2021-1
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	SS368 SS382	
<b>SS462</b>	<b>ECON OF STABILIZATION &amp; GROWTH</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2015-1	<b>Offerings:</b>
<p>This course aims to introduce the fundamental concepts in economic growth, to explain and discuss the theories of economic growth, to understand the sources of economic growth, to assess the difference in growth and wealth among countries and to increase student interest in economic growth theory. It is a course designed for economics majors with an explicit purpose of familiarizing future officers with the basic theory of economic growth and development and applying these theories to post-conflict environments. The course achieves immediate relevance by examining the role of the military in economic development and understanding how economic development can help them be more effective members of the military profession. The course is designed as a seminar with the expectation of adequate preparation and spirited class discussion.</p>		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	None	

SS463	INVESTMENTS THEORY & APPL	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2017-2	<b>Offerings:</b>
This course will draw upon the theory and methods of microeconomics and applied econometrics to investigate how individual and institutional investors optimize investment portfolios to maximize risk-adjusted returns. The course is organized into five blocks: (i) financial markets and institutions; (ii) optimal asset allocation with uncertain returns; (iii) modern portfolio theory, which explores asset pricing and market efficiency; (iv) security valuation; and (v) portfolio management - how individual and institutional investors manage investment portfolios to maximize risk-adjusted returns and achieve efficient diversification, given preferences for risk.		2019-1 2019-2 2020-2 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	SS368 SS382	
SS464	HOMELAND SECURITY	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2006-1	<b>Offerings:</b>
The purpose of SS464 is to address the complex challenges of homeland security through an interdisciplinary approach. The goal of this course is to provide future leaders with a thorough understanding of the homeland security policy area. This course explores how the evolving nature of the terrorist threat, particularly catastrophic terrorism, poses unprecedented and complex challenges to how America provides for its security. The course examines how homeland security policy intersects with other domestic and foreign policy issues, how our federalist system of government affects homeland security, and how moral, ethical, and civil liberties concerns complicate the development of effective homeland security policies. By analyzing the threat and developing an understanding of the unique policy problems and tools of homeland security, the course enables students to critically assess national efforts in such areas as border security, domestic counterterrorism policy, critical infrastructure protection, and emergency preparedness and response. Students will learn about the major policy and institutional reforms underway in the homeland security policy area, examine whether these changes are improving or will improve U.S. security policy, and develop their own views on the direction of national homeland security policy. The course will enable students to think critically about how the United States' overseas efforts to combat terrorism, preempt emerging threats, and counter the proliferation of weapons of mass destruction relate to domestic homeland security efforts. By the end of the course, students will gain a solid intellectual foundation to think critically and creatively about America's efforts to prevent terrorist attacks within the United States, reduce our vulnerability to terrorist attack, and minimize the damage and recover from attacks that may occur.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 20 @ 110 min (1.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	Admission to the course will be capped with priority given to Terrorism Studies Minor students.	
<b>Prerequisite(s):</b>	SS307	
SS465	TERRORISM: NEW CHALLENGES	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2010-1	<b>Offerings:</b>
The purpose of SS465, is to address the challenges of terrorism in the current and future global security environment through an interdisciplinary approach. Specifically, this course examines the unique challenge terrorism poses to liberal democratic states, policy makers and to military professionals. By analyzing the different perspectives of terrorism, given a variety of political and strategic contexts, students better understand terrorist motivations, strategies, means and ends. Finally, the course explores how a liberal democratic state can best fight terrorism in this new threat environment.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 20 @ 110 min (1.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	Admission to the course is subject to the approval of the Comparative Politics Academy Professor.	
<b>Prerequisite(s):</b>	SS307 -Or- SS357	
<b>Disqualifier(s):</b>	SS474	
SS466	COMBATING TERRORISM	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2018-1	<b>Offerings:</b>



The Combating Terrorism course represents a unique opportunity for students to conduct in-depth and integrated study on the most pressing past, present, and future counterterrorism challenges to the United States and its interests. The objectives of this course are: (1) to synthesize and apply the cadet's studies across their core academic major and elective course work to the thematic issue of counterterrorism; (2) to apply methodological skills of research design, conceptual reasoning, analysis, and research gained to counterterrorism; (3) to extend the cadet's in-depth study of the selected area of interest beyond the level obtained in course work with regards to counterterrorism; (4) to design and conduct focused research; and (5) to develop cadet skills in conceptual reasoning, critical analysis, and effective writing.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** Ten 2-3 page analyses of current events; one 20-page research paper; significant class participation.

**Prerequisite(s):** SS465  
-Or-  
SS474

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<b>SS468</b>	<b>POLITICAL PARTICIPATION</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2004-2	<b>Offerings:</b>
		2019-1 2020-1 2021-1

This course provides a broad understanding of the dynamics of political participation. The goals of this course are two-fold. First, it comprehensively examines both individual and group participation, as well as the many ways in which participation manifests itself in the democratic process, namely in the form of electoral (voting, campaigning) and non-electoral behavior ("civicness", group action, etc). As such, this course will include topics in public opinion, the electoral process, and voting behavior. Second, the approach is both empirical - and theoretical. This course examines results of electoral behavior (primarily U.S. national and state elections), complemented with competing theoretical approaches which serve to explain and better understand this behavior.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** One 2000-word paper. Compensatory time provided.

**Prerequisite(s):** SS202 SS360  
-Or-  
SS202 SS386  
-Or-  
SS252 SS360  
-Or-  
SS252 SS386

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<b>SS469</b>	<b>ECONOMETRICS II</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2005-2	<b>Offerings:</b>
		2019-1 2020-1 2021-1

This course is designed to teach students advanced concepts in estimation and statistical inference. Building upon the material covered in SS368, students will learn how to test for failure of the data to meet the assumptions of the basic regression model and how to allow for these departures from the standard assumptions during estimation. Among the topics covered will be Generalized Least Squares, Time Series, Instrumental Variables, and Simultaneous Equations estimation. Application of the techniques to the estimation of economic models using actual economic data is an integral part of the instruction. The course makes substantial use of statistical software packages.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** End-of-semester research paper and presentation required.

**Prerequisite(s):** MA476  
-Or-  
SS368

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<b>SS470</b>	<b>MONEY AND BANKING</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2004-1	<b>Offerings:</b>
		2019-1 2020-1 2021-1

SS470 is a senior level economics course whose primary purpose is to provide depth in the student's background and understanding of macroeconomics and international economics. The focus of the course is on the financial sector of the economy, which provides the means to transfer savings from firms, households, and governments to investors who want to purchase new capital goods. The course begins by discussing the various types of financial institutions and examines the importance of financial intermediation. The course then identifies how to measure the risks faced by financial institutions and how to manage these same risks.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

<b>Special Requirements:</b>	The final eight lessons of the course comprise an extended computer banking simulation, allowing cadets to apply the theories from previous lessons.
<b>Prerequisite(s):</b>	SS388

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<b>SS472</b>	<b>THE AM STATE &amp; THE SOLDIER</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2011-2	<b>Offerings:</b>
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This seminar explores the unique role of the soldier within our democratic republic. We begin by situating the profession of arms within the Executive branch as an agent to its direct principal, the Legislative branch. We proceed by examining the similarities and differences between the military and other agents of the administrative state. We explore the military's role in providing professional expertise in the policy process and examine current trends that threaten to undermine this advisory position. Using a historical framework, we will examine the evolution of civil-military relations in times of war, peace, and perpetual conflict. We will place particular emphasis on the theories and norms of civil-military relations in a post-9/11 world including navigating the tensions inherent to the dual role of the soldier as war fighter and state builder..

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** One major research paper; compensatory time provided.

**Prerequisite(s):** SS202  
-Or-  
SS252

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<b>SS473</b>	<b>AMERICAN FOREIGN POLICY</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2008-1	<b>Offerings:</b>
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This course examines the development, implementation, and consequences of American foreign policy. It analyzes the actors who make American foreign policy, concentrating both on government sources such as the president, Congress, and the foreign policy bureaucracy, as well as external sources such as public opinion, interest groups, and the media. The course examines key events in U.S. foreign policy history through the lens of 'policy choice.' What choices did U.S. foreign policy makers confront? What policy did they choose to implement and why? What were the consequences of that policy? Utilizing the lessons from these historical case studies, the course then examines the current challenges and dilemmas that confront the United States. Some of these include U.S. relations with China, Russia, and the European Union, energy politics, the Arab-Israeli crisis, weapons of mass destruction and rogue states, terrorism, democracy promotion, and the global response to US foreign policy. In exploring each of these current challenges and dilemmas, this course attempts to understand the policies and strategies the U.S. utilizes to secure its interests and achieve its objectives.

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** 3,500-word case study of American foreign policy, with graded bibliography and outline; compensatory time provided.

**Prerequisite(s):** SS307  
-Or-  
SS357

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<b>SS475</b>	<b>COMP POLITICAL INSTITUTIONS</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2018-2	<b>Offerings:</b>
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This course uses the comparative method, in conjunction with political science theory, to explore and explain the wide variation in political institutions around the world. The course devotes significant attention to understanding the most basic institutional characteristic of a state: its regime type. The first portion of the course wrestles with key definitions: what are the defining characteristics of democracies? What are the defining characteristics of dictatorships and other forms of authoritarian rule? How do we understand regimes that do not fall neatly into either category? The second portion of the course explores the causes of regime transitions: when, where, how, and why does democracy emerge? When is democracy likely to collapse? When do dictatorships fail, and what type of regime results? Finally, the course explores the wide array of outcomes (or "dependent variables") that are influenced by a country's political institutions: economic development, inequality, intrastate conflict, and others.

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** Research paper and oral presentation.

**Prerequisite(s):** SS202  
-Or-  
SS252

**Corequisite(s):** SS307 SS366  
-Or-  
SS357 SS366

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<b>SS476</b>	<b>INTNL CONFLICT AND SETTLEMENT</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2018-2

**Offerings:**

This course provides a broad overview of the nature of global conflict in the 21st century and investigates conflict prevention, conflict intervention and management, and post-settlement operations. The course also provides students an introduction to the field of conflict resolution and inter-cultural communication, and is centered around hands-on skills-building with individual and team negotiation practical exercises which allow students to develop individual mediation and negotiation skills. In addition to graded role-play simulations, requirements include a WPR, and a final conflict analysis paper and presentation in which the students investigate an international conflict and critique and/or develop a strategy for managing the conflict utilizing the theory, methodology and tools discussed in class.

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** SS307  
-Or-  
SS357

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<b>SS477</b>	<b>ECONOMICS OF NATIONAL SECURITY</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2017-1

**Offerings:**

This is a capstone course for the economics major that is designed to integrate microeconomics, macroeconomics, and econometrics. Coursework and classroom discussion require students to apply theoretical concepts and models from the major's toolbox courses, electives, and the core curriculum to policy issues inherent to the provision of national security. The course prepares students to address the broader economic challenges of national security and provides them with a baseline understanding of the economic underpinnings and ramifications of defense policy. Students use relevant databases, econometrics, and the skills they have learned as economics majors to prepare and present term research papers that analyze major defense and public policy decisions.

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** Term Research Paper; compensatory time provided.

**Prerequisite(s):** SS368 SS382 SS388  
-Or-  
SS380  
-Or-  
SS387  
-Or-  
SS484

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<b>SS478</b>	<b>DIST PROF OF SECURITY STUD SEM</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2008-1

**Offerings:**

This course is taught by a visiting scholar with a distinguished record of academic achievement and professional service in the national security arena. The seminar focuses on topical issues that reflect the professor's area of expertise. Dr. Kori Schake, a former Director of Defense Strategy and Requirements for the National Security Council and presently a distinguished fellow at the Hoover Institution, serves as our current visiting scholar. In the seminar, students take part in detailed discussions, deliver presentations, conduct research, and prepare analytical papers. Students also benefit from guest speakers who share their experiences and expertise with the seminar. Previous Distinguished Professors include General (Retired) Barry R. McCaffrey, former Director of the White House Office of National Drug Control Policy; General (Retired) John Galvin, former commander of SACEUR and noted author; Professor Richard Shultz, Director of International Security Studies at the Fletcher School of Law and Diplomacy; Professor Linda Brady, Director of the School of International Affairs at Georgia Institute of Technology; and Admiral (Retired) Stansfield Turner, former President of the Naval War College and Director of the Central Intelligence Agency.

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** Research paper and oral presentations.

**Prerequisite(s):** SS307  
-Or-  
SS357

SS479	INTERNATIONAL ORGANIZATION	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2017-2	<b>Offerings:</b>
<p>International Relations scholars often emphasize "anarchy" as an ordering principle of the international system. Yet "organization" - the arrangement of actors and power in international affairs, as well as the existence of formal organizations like the United Nations, the World Trade Organization, and NATO - is an elemental feature of world politics. This course examines this crucial area of IR theory and practice. The course introduces conceptual approaches to the study and historical development of international organization and global governance and alternative theories to describe, explain, or predict events or developments in this field. It examines the system-level, domestic sources and consequences of international organization and introduces leading formal organizations in the international system. The course also assesses the impact and relevance of international organization as an issue of concern to Army officers and national security professionals.</p>		2019-2 2020-2 2021-2
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	SS307 SS360 -Or- SS357 SS360	
SS480	ADV AM POLITICS, POLICY, STRAT	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2008-1	<b>Offerings:</b>
<p>This course examines the major concepts, theoretical frameworks, and substantive dilemmas of the public policymaking process. The aim of this course is to arm students with a myriad of tools to understand, evaluate, and contextualize specific political problems in the public policy arena. SS480 is the capstone course for American Politics majors in the Social Sciences Department. Students will be expected to integrate the concepts of not only "Sosh" basic, toolbox, and elective courses, but knowledge acquired from other courses from other disciplines as well. Public policy spans the disciplines of politics, economics, sociology, philosophy, and psychology, as policymakers wrestle with developing and implementing value-laden decisions in a world of scarcity and uncertainty. As such, the student of public policy must use a variety of social science tools - and increasingly, physical science tools as well as to dissect policy problems, develop viable and feasible alternatives, and fashion methods of adoption and implementation. Consequently, this course is designed to build upon the student's conceptual and analytical base in the quest to establish and refine a systematic approach to public policy analysis, formulation, adoption, and implementation.</p>		No Course Offerings
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	Analytical writing requirements; compensatory time provided.	
<b>Prerequisite(s):</b>	SS202 SS360 SS386 -Or- SS252 SS360 SS386	
SS480	PUBLIC POLICYMAKING PROCESS	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2019-1	<b>Offerings:</b>
<p>SS480 is the capstone course for American Politics majors in the Social Sciences Department. This course examines the major concepts, theoretical frameworks, and substantive dilemmas of the public policymaking process. The aim of this course is to arm students with a myriad of tools to understand, evaluate, and contextualize specific political problems in the public policy arena. Students will be expected to integrate the concepts of not only basic, toolbox, and elective courses, but knowledge acquired from other courses from other disciplines. Public policy spans the disciplines of politics, economics, sociology, philosophy, and psychology, as policymakers wrestle with developing and implementing value-laden decisions in a world of scarcity and uncertainty. As such, the student of public policy must use a variety of social science tools - and increasingly, physical science tools, to dissect policy problems, develop viable and feasible alternatives, and fashion methods of adoption and implementation. Consequently, this course is designed to build upon the student's conceptual and analytical base in the quest to establish and refine a systematic approach to public policy analysis, formulation, adoption, and implementation.</p>		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	Analytical writing requirements; compensatory time provided.	
<b>Prerequisite(s):</b>	SS202 SS360 SS386 -Or- SS252 SS360 SS386	
SS481	AM GRAND STRAT/DEFENSE POLICY	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)

<b>Scope:</b>	2013-2	<b>Offerings:</b>
<p>This seminar is a survey of the politics that shape America's policy decisions over war and peace. We study the domestic influences of foreign policy and the international political dynamics that shape why and how America intervenes. It is an examination of American Grand Strategy using theoretical, historical, and practical perspectives. Drawing from various literatures, we examine and evaluate the choices our nation makes in defense policy decisions. We address questions concerning military innovation and adaptation, change and transition in the armed services, defense resources, and capacities of actors in the defense policy arena. Using the lens of "grand strategy," we examine how defense policy decisions are influenced by a broad and complex array of political and economic factors and how these decisions shape future domestic and foreign policy environments.</p>		No Course Offerings
<b>Lessons:</b>	40 @ 55 min (1.250 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	Analytical writing requirements; compensatory time provided.	
<b>Prerequisite(s):</b>	SS202 -Or- SS252	
<b>Corequisite(s):</b>	SS360	
<b>SS481</b>	<b>POLITICS OF DEFENSE POLICY</b>	<b>3.0 Credit Hours</b> (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2019-2	<b>Offerings:</b>
<p>This seminar is a survey of the politics that shape America's policy decisions over war and peace. We study the domestic influences of foreign policy and the international political dynamics that shape why and how America intervenes. It is an examination of American national security policy and institutions using theoretical, historical, and practical perspectives. Drawing from various literatures, we examine and evaluate the choices our nation makes in defense policy decisions. We address questions concerning military innovation and adaptation, change and transition in the armed services, defense resources, and capacities of actors in the defense policy arena. Using the lens of "grand strategy," we examine how defense policy decisions are influenced by a broad and complex array of political and economic factors and how these decisions shape future domestic and foreign policy environments.</p>		2019-2 2020-2 2021-2
<b>Lessons:</b>	40 @ 55 min (1.250 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	Analytical writing requirements; compensatory time provided.	
<b>Prerequisite(s):</b>	SS202 SS360 SS386 -Or- SS252 SS360 SS386	
<b>SS483</b>	<b>NATIONAL SECURITY SEMINAR</b>	<b>3.0 Credit Hours</b> (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2004-1	<b>Offerings:</b>
<p>The International Politics capstone seminar provides an overview of U.S. national security policy and examines the military, political, and economic factors that influence its formulation. It establishes a conceptual framework for exploring how national interests are translated into national security policy and force structure. The course addresses three central issues: (1) the appropriate ends of national security policy, (2) the means by which we should pursue those ends, and (3) matching means with ends. Since many factors impact on strategic decisions, the course includes discussion of international, domestic, and organizational influences on national security policy. Theoretical readings combine with case studies of past and current U.S. strategic choices to illuminate critical points. The course closes by applying the lens of strategy to conduct an analysis of current proposals to revamp the structure of the Army.</p>		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	Policy paper; Book Review, and one or more formal oral presentations.	
<b>Prerequisite(s):</b>	SS307 -Or- SS357	
<b>SS484</b>	<b>INTERNATIONAL ECONOMICS</b>	<b>3.0 Credit Hours</b> (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2005-2	<b>Offerings:</b>

This course integrates economic principles taken in SS382 and SS388. International Economics promotes understanding of the economic causes and effects of international trade, examines the justifications for and effectiveness of a variety of trade policies, explains and critiques the international flow of money, and explores the impact of these topics upon individual firms in the marketplace. The course's methodology rests on theoretical concepts and models such as profit maximization, market equilibrium, preference maximization, and macroeconomic equilibrium. The course is divided into four blocks. The first three blocks investigate the theory of international trade in goods and comparative advantage, the practice of international trade and international political economy, and the workings of international monetary markets. The final block compels cadets to apply their estimates of the international macroeconomic environment to choices made by national governments.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** One in-class case study and one analytical paper (1500 words); compensatory time provided.

**Prerequisite(s):** SS382 SS388

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<b>SS485</b>	<b>GOV &amp; POLITICS SUB-SAHARAN AFR</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2016-2	<b>Offerings:</b>
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This is a discussion-based seminar course designed to survey the origins and dimensions of contemporary issues within the post-colonial, sub-Saharan African state. The concepts of democracy, institutionalization, political economy, war, and peace remain a complex landscape for many African states. Focusing on theoretical work and case studies, cadets will examine sub-Saharan Africa's historical experiences, its economic heritage, and the international context in which it is embedded. At the same time, cadets will explore how Africans have shaped their own political and economic situations. Using social science methods, cadets will gain an understanding of how context shapes political behavior, in general, and how historical and political forces have influenced African politics, in particular.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** One group case study and oral presentation; compensatory time given.

**Prerequisite(s):** SS202  
-Or-  
SS252

**Corequisite(s):** SS307  
-Or-  
SS357

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<b>SS486</b>	<b>INTERNATIONAL SECURITY SEMINAR</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2004-2	<b>Offerings:</b>
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This Comparative Politics capstone seminar examines the special historical, domestic, and external security issues that non-Western states face, and then examines how such issues influence these states' formulation of their national security policies. Students explore how non-Western state regimes might use limited diplomatic, information, military, and economic means to achieve their regime goals. Students apply newly learned or previously learned IR or CP theories to analyze a non-Western state's national security strategy, and then attempt to anticipate what such states might do under current domestic and international conditions.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** One oral group presentation, one individual 3000 word research paper, and a shorter preliminary paper; compensatory time provided.

**Prerequisite(s):** SS307  
-Or-  
SS357

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<b>SS486</b>	<b>STATE BUILDING</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2019-1	<b>Offerings:</b>
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This course aims to help create "soldier statesmen" at the Company Grade level for the US Army. Subject matter experts from across the staff and faculty of the US Military Academy, US governmental agencies, and other international actors, discuss situations deployed leaders will likely face in the future, including counterinsurgency, cultural awareness, interagency dynamics, military-to-military engagement and exchange, governance and economics, and legal, moral, and ethical considerations, among others. This course helps future officers develop the basic knowledge and skills needed to become strategically adept in a complex and evolving strategic landscape. We also spend two nights and three days in a multi-ethnic US city interacting with Egyptian Copts, Muslims, Hindus, and various Christian denominations to more fully understand how groups with different beliefs can live and work together. This course is open to any interested sophomore, junior, or senior.

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** Three analysis papers; reflective and mentor journal, corresponding with recent graduates; group research and analysis project for the multi-ethnic city trip.

**Prerequisite(s):** SS307  
-Or-  
SS357

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<b>SS487</b>	<b>INT'L POLITICAL ECONOMY</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2004-2

**Offerings:**

This course develops, integrates, and applies the theoretical insights of political science and economics to contemporary issues of international trade, finance, and security. The theoretical concepts introduced in the first block build upon the ideas introduced in SS307, International Relations, SS202, American Politics, and SS201, Economics. The theory developed in the first block will be used to analyze and evaluate important historical and contemporary questions of international political economy. Specific issues areas explored include international monetary relations, regional economic integration (NAFTA, EC), Third World debt and development, protectionism, and the link between security and economics.

2019-2 2020-2 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** One analytic paper of 2500 words based on selected readings.

**Prerequisite(s):** SS307  
-Or-  
SS357

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<b>SS489</b>	<b>ADV INDIV STUDY IN SOC SCI</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2006-1

**Offerings:**

The course provides an environment that is conducive to independent effort in a subject area of special interest to the cadet. Original research or specialized study can be accomplished in the fields of economics, political science, international affairs, and comparative politics. The course is conducted in three phases. First, the cadet and the individual tutor from the social sciences faculty will reach agreement on a subject area for research. Research methods will be studied under the direction of the faculty member. Research may involve field trips and personal interviews with experts in the area of study. In the second phase, the cadet will engage in independent research and prepare a draft analytical paper or report detailing the findings. During this period, frequent consultation with the faculty advisor occurs regarding the progress in the project. In the third phase, the cadet will present and defend the findings before a faculty committee. This course encompasses both individual projects and those writing a senior thesis.

No Course Offerings

**Lessons:** 0 @ 0 min (0.000 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** One paper or report of variable length; oral defense.

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<b>SS489</b>	<b>SENIOR RESEARCH SEMINAR</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2018-2

**Offerings:**

The course provides an environment that is conducive to independent effort in a subject area of special interest to the cadet. Original research or specialized study can be accomplished in the fields of economics, political science, international affairs, and comparative politics. The course is conducted in three phases. First, the cadet and the individual tutor from the social sciences faculty will reach agreement on a subject area for research. Research methods will be studied under the direction of the faculty member. Research may involve field trips and personal interviews with experts in the area of study. In the second phase, the cadet will engage in independent research and prepare a draft analytical paper or report detailing the findings. During this period, frequent consultation with the faculty advisor occurs regarding the progress in the project. In the third phase, the cadet will present and defend the findings before a faculty committee. This course encompasses both individual projects and those writing a senior thesis.

2019-1 2020-1 2021-1

**Lessons:** 0 @ 0 min (0.000 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** One paper or report of variable length; oral defense.

**Prerequisite(s):** SS360

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<b>SS490A</b>	<b>COLLOQUIUM (AMER POLITICS)</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2006-1

**Offerings:**

<p>The colloquium provides cadets an opportunity for reading and analysis in depth in a topic area of special interest and timely relevance to their concentration. The course employs the seminar approach in which the instructor meets with small groups to discuss assigned readings, and cadets present their own analyses to the group. Course directors develop topics and determine the semesters in which they will be offered. Department Academic Counselors then forward course offerings and descriptions to Social Science majors and those majoring in areas related to the colloquium topic. Topics will vary by year but recent SS490 colloquiums include: Nationalism and Ethnic Conflict; Politics and Film; the Politics of Intelligence; Politics and Government of South and Southeast Asia; Philosophy, Religion, and Terror; and Winning the Peace.</p> <p><b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)      <b>Labs:</b> 0 @ 0 min</p> <p><b>Special Requirements:</b> These will vary by topic. Typically three analytical papers of 1000-2000 words based on selected readings; class attendance adjusted to provide research time.</p> <p><b>Prerequisite(s):</b> SS202 -Or- SS252</p>		2019-1 2020-2 2021-2
<b>SS490B</b>	<b>COLLOQUIUM (COMP POLITICS)</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2006-1	<b>Offerings:</b>
<p>The colloquium provides cadets an opportunity for reading and analysis in depth in a topic area of special interest and timely relevance to their concentration. The course employs the seminar approach in which the instructor meets with small groups to discuss assigned readings, and cadets present their own analyses to the group. Course directors develop topics and determine the semesters in which they will be offered. Department Academic Counselors then forward course offerings and descriptions to Social Science majors and those majoring in areas related to the colloquium topic. Topics will vary by year but recent SS490 colloquiums include: Nationalism and Ethnic Conflict; Politics and Film; the Politics of Intelligence; Politics and Government of South and Southeast Asia; Philosophy, Religion, and Terror; and Winning the Peace.</p> <p><b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)      <b>Labs:</b> 0 @ 0 min</p> <p><b>Special Requirements:</b> These will vary by topic. Typically three analytical papers of 1000-2000 words based on selected readings; class attendance adjusted to provide research time.</p> <p><b>Prerequisite(s):</b> SS307 SS366 -Or- SS357 SS366</p>		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>SS490C</b>	<b>COLLOQUIUM (INTER RELATIONS)</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2006-1	<b>Offerings:</b>
<p>The colloquium provides cadets an opportunity for reading and analysis in depth in a topic area of special interest and timely relevance to their concentration. The course employs the seminar approach in which the instructor meets with small groups to discuss assigned readings, and cadets present their own analyses to the group. Course directors develop topics and determine the semesters in which they will be offered. Department Academic Counselors then forward course offerings and descriptions to Social Science majors and those majoring in areas related to the colloquium topic. Topics will vary by year but recent SS490 colloquiums include: Nationalism and Ethnic Conflict; Politics and Film; the Politics of Intelligence; Politics and Government of South and Southeast Asia; Philosophy, Religion, and Terror; and Winning the Peace.</p> <p><b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)      <b>Labs:</b> 0 @ 0 min</p> <p><b>Special Requirements:</b> These will vary by topic. Typically three analytical papers of 1000-2000 words based on selected readings; class attendance adjusted to provide research time.</p> <p><b>Prerequisite(s):</b> SS307 -Or- SS357</p>		2019-2 2020-2 2021-2
<b>SS490D</b>	<b>COLLOQUIUM (ECONOMICS)</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2006-1	<b>Offerings:</b>



<p>The colloquium provides cadets an opportunity for reading and analysis in depth in a topic area of special interest and timely relevance to their concentration. The course employs the seminar approach in which the instructor meets with small groups to discuss assigned readings, and cadets present their own analyses to the group. Course directors develop topics and determine the semesters in which they will be offered. Department Academic Counselors then forward course offerings and descriptions to Social Science majors and those majoring in areas related to the colloquium topic. Topics will vary by year but recent SS490 colloquiums include: Nationalism and Ethnic Conflict; Politics and Film; the Politics of Intelligence; Politics and Government of South and Southeast Asia; Philosophy, Religion, and Terror; and Winning the Peace.</p>		2019-2 2020-2 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	These will vary by topic. Typically three analytical papers of 1000-2000 words based on selected readings; class attendance adjusted to provide research time.	
<b>Prerequisite(s):</b>	SS201 -Or- SS251	
<b>SS491</b>	<b>SENIOR STUDIES-INTNL RELATIONS</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2005-1	<b>Offerings:</b>
<p>This course provides cadets an opportunity for reading and analysis in depth in a topic area of special interest and timely relevance to their concentration. The course employs the seminar approach in which a senior faculty member meets with small groups to discuss assigned readings, and cadets present their own analyses to the group. Course directors develop topics and determine the semesters in which they will be offered. Department Academic Counselors then forward course offerings and descriptions to Social Science majors and those majoring in areas related to the senior studies topic. Topics will vary by year but recent senior studies include: Homeland Security, Advanced Terrorism, and Environmental Economics.</p>		No Course Offerings
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	These will vary by topic. Typically three analytical papers or projects of 3000-4500 words based on selected readings; class attendance adjusted to provide research time.	
<b>Prerequisite(s):</b>	SS307 -Or- SS357	
<b>SS491</b>	<b>SENIOR PROJECT</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2018-2	<b>Offerings:</b>
<p>This course provides cadets an opportunity for reading and analysis in depth in a topic area of special interest and timely relevance to their concentration. The course employs the seminar approach in which a senior faculty member meets with small groups to discuss assigned readings, and cadets present their own analyses to the group. Course directors develop topics and determine the semesters in which they will be offered. Department Academic Counselors then forward course offerings and descriptions to Social Science majors and those majoring in areas related to the senior studies topic. Topics will vary by year but recent senior studies include: Homeland Security, Advanced Terrorism, and Environmental Economics.</p>		2019-2 2020-2 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	These will vary by topic. Typically three analytical papers or projects of 3000-4500 words based on selected readings; class attendance adjusted to provide research time.	
<b>Prerequisite(s):</b>	SS307 -Or- SS357	
<b>SS492</b>	<b>DIST PROF DEF ECON SEMINAR</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2005-1	<b>Offerings:</b>
<p>This course is taught by the Bernard Rogers Distinguished Professor of Defense Economics, a scholar with a distinguished record of academic achievement and professional service in the arena of Defense Economics. This course is focused on topical issues that allow students to benefit from the specific expertise of the Rogers Chair. Students typically take part in seminar discussions, conduct research, and prepare analytical papers. Potential topics are Army procurement policy, contract design, the growth of military technology, the Department of Defense budget process, and corporate finance in the defense sector.</p>		No Course Offerings
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	

<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	SS368 SS382 SS388	
<b>SS493</b>	<b>SENIOR STUDIES - AMER POLITICS</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2011-2	<b>Offerings:</b>
This course provides cadets an opportunity for reading and analysis in depth in a topic area of special interest and timely relevance to their concentration. The course employs the seminar approach in which a senior faculty member meets with small groups to discuss assigned readings, and cadets present their own analyses to the group. Course directors develop topics and determine the semesters in which they will be offered. Department Academic Counselors then forward course offerings and descriptions to Social Science majors and those majoring in areas related to the senior studies topic. Topics will vary by year but recent senior studies include: Politics of Race, Gender, Sexuality and Politics, Studies in Grand Strategy, State and Local Politics, and Judicial Politics.		2019-2 2020-2 2021-2
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	One research paper (minimum length of twenty typed, double-spaced pages).	
<b>Prerequisite(s):</b>	SS360 SS386	
<b>SS494</b>	<b>PRINCIPLES OF FINANCE</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2015-1	<b>Offerings:</b>
This course applies economic principles to the financial decisions that businesses make every day, and to the capital markets in which households and firms interact. The course covers topics including project analysis using net present value techniques, risk and return of assets and projects, efficient capital markets, corporate capital structure and dividend policy, and valuation of assets. Cadets will learn methods to analyze individual projects as well as business enterprises as a whole. As the U. S. Military continues to privatize many functions, knowledge of techniques used by corporations is becoming essential for our future Army leaders. This course is the second of a two-course financial economics sequence for which SS394 ? Financial Statement Analysis is a prerequisite, except for cadets with permission of the instructor.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	Financial analysis.	
<b>Prerequisite(s):</b>	SS201 SS394 -Or- SS251 SS394	
<b>SS495</b>	<b>SENIOR STUDIES - COMP POLITICS</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2005-1	<b>Offerings:</b>
This course provides cadets an opportunity for reading and analysis in depth in a topic area of special interest and timely relevance to their concentration. The course employs the seminar approach in which a senior faculty member meets with small groups to discuss assigned readings, and cadets present their own analyses to the group. Course directors develop topics and determine the semesters in which they will be offered. Department Academic Counselors then forward course offerings and descriptions to Social Science majors and those majoring in areas related to the senior studies topic. Topics will vary by year but recent senior studies include: Homeland Security, Advanced Terrorism, and Environmental Economics.		No Course Offerings
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	These will vary by topic. Typically three analytical papers or projects of 3000-4500 words based on selected readings; class attendance adjusted to provide research time.	
<b>Prerequisite(s):</b>	SS307 -Or- SS357	
<b>SS495</b>	<b>SENIOR FACULTY COLLOQUIUM</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2018-2	<b>Offerings:</b>

This course provides cadets an opportunity for reading and analysis in depth in a topic area of special interest and timely relevance to their concentration. The course employs the seminar approach in which a senior faculty member meets with small groups to discuss assigned readings, and cadets present their own analyses to the group. Course directors develop topics and determine the semesters in which they will be offered. Department Academic Counselors then forward course offerings and descriptions to Social Science majors and those majoring in areas related to the senior studies topic. Topics will vary by year but recent senior studies include: Homeland Security, Advanced Terrorism, and Environmental Economics.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** These will vary by topic. Typically three analytical papers or projects of 3000-4500 words based on selected readings; class attendance adjusted to provide research time.

**Prerequisite(s):** SS307  
-Or-  
SS357

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<b>SS497</b>	<b>ISSUES IN MICROECONOMIC THEORY</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2011-2	<b>Offerings:</b>
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This course provides cadets an opportunity for reading and analysis in depth in a topic area of special interest and timely relevance to their concentration. The course employs the seminar approach in which a senior faculty member meets with small groups to discuss assigned readings, and cadets present their own analyses to the group. Course directors develop topics and determine the semesters in which they will be offered. Department Academic Counselors then forward course offerings and descriptions to Social Science majors and those majoring in areas related to the senior studies topic. Topics will vary by year but recent senior studies include: Homeland Security, Advanced Terrorism, and Environmental Economics.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** These will vary by topic. Typically three analytical papers or projects of 3000-4500 words based on selected readings; class attendance adjusted to provide research time.

**Prerequisite(s):** SS360  
-Or-  
SS368

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<b>SS498</b>	<b>SENIOR THESIS: SOCIAL SCIENCES</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2013-2	<b>Offerings:</b>
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This course is taken in the spring term of the senior year and comprises the second and final phase of the Senior Thesis in Economics, International Relations, Comparative Politics, or American Politics. Cadets enrolled in SS498 normally will complete their major's integrative experience course (SS477 or SS492 for Economics, SS483 for International Relations, SS486 for Comparative Politics, or SS481 for American Politics) in the fall semester of their senior year, where they will complete a prospectus, literature review, annotated bibliography, outlines, and initial draft of their senior thesis. In SS498, students will continue work on an independent study basis with their thesis advisor and committee, conducting further research and updating drafts to produce a final written thesis product generally ranging from 30-50 pages in length. Students defend their thesis before a committee in the last two weeks of classes.

**Lessons:** 0 @ 0 min (0.000 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** Cadets must receive approval from their major's Program Director in order to enroll in SS498.

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<b>SS498</b>	<b>SENIOR THESIS</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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<b>Scope:</b>	2018-2	<b>Offerings:</b>
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This course is taken in the spring term of the senior year and comprises the second and final phase of the Senior Thesis in Economics, International Relations, International Affairs, Comparative Politics, or American Politics. Cadets enrolled in SS498 normally will complete their major's integrative experience course (SS477 or SS492 for Economics, SS483 for International Relations, SS486 for Comparative Politics, or SS481 for American Politics) in the fall semester of their senior year, where they will complete a prospectus, literature review, annotated bibliography, outlines, and initial draft of their senior thesis. In the International Affairs Major, cadets will conduct their literature review and prospectus defense in SS489. In SS498, students will continue work on an independent study basis with their thesis advisor and committee, conducting further research and updating drafts to produce a final written thesis product generally ranging from 30-50 pages in length. Students defend their thesis before a committee in the last two weeks of classes.

**Lessons:** 0 @ 0 min (0.000 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** Cadets must receive approval from their major's Program Director in order to enroll in SS498.

<b>Prerequisite(s):</b>	SS360 SS489	
<b>XH397</b>	<b>GRAND STRATEGY FIELD STUDY</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2014-7	<b>Offerings:</b>
The Grand Strategy Field Study AIAD experience is designed to give cadets practical experience in this field of study and to reflect on their experiences by completing specified academic requirements. Scope, depth and material covered will meet the requirement of a 3-credit hour course in the Grand Strategy Program. Grades are determined based on preparatory briefings and essays, a journal of daily activities, the quality of the work performed during the internship, and a final paper, briefing, or exam that incorporates their experience with a topic from their field of study, due upon return.		2018-7 2019-7 2020-7 2021-7
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>XH407</b>	<b>ADVANCED CRITICAL THOUGHT</b>	<b>1.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2014-1	<b>Offerings:</b>
The purpose of XH407 Advanced Critical Thought is to build upon the foundation of critical thought established in XH497 Critical Thought. Cadets apply the concepts developed in XH497 to contemporary issues facing the United States Army, Department of Defense, Nation, and wider world. Cadets continue to refine their understanding of their place in the society and develop skills to convey this sense of self to others, both verbally and in writing. Cadets will continue to be advised by both Department of Social Sciences faculty and academic advisors in their home departments.		2019-1 2020-1 2021-1
<b>Lessons:</b> 10 @ 110 min (1.250 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	Admission to the course requires an interview and the approval of the department head.	
<b>Prerequisite(s):</b>	XH497	
<b>XH467</b>	<b>WINNING THE PEACE</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2014-2	<b>Offerings:</b>
This course aims to help create "soldier statesmen" at the Company Grade level for the US Army. Subject matter experts from across the staff and faculty of the US Military Academy, US governmental agencies, and other international actors, discuss situations deployed leaders will likely face in the future, including counterinsurgency, cultural awareness, interagency dynamics, military-to-military engagement and exchange, governance and economics, and legal, moral, and ethical considerations, among others. This course helps future officers develop the basic knowledge and skills needed to become strategically adept in a complex and evolving strategic landscape. We also spend two nights and three days in a multi-ethnic US city interacting with Egyptian Copts, Muslims, Hindus, and various Christian denominations to more fully understand how groups with different beliefs can live and work together. This course is open to any interested sophomore, junior, or senior.		No Course Offerings
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	Three analysis papers; reflective and mentor journal, corresponding with recent graduates; group research and analysis project for the multi-ethnic city trip.	
<b>Prerequisite(s):</b>	SS307 -Or- SS357	
<b>XH497</b>	<b>CRITICAL THOUGHT</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2003-1	<b>Offerings:</b>
The purpose of XH497, Critical Thought is to improve cadets' ability to evaluate complex issues involving ethical judgements and choice among scarce resources, reach reasoned positions on these issues, and effectively argue their positions verbally and in writing. The process of pursuing this goal will make cadets better officers, scholars, and citizens. The course will employ several methods to assist in this pursuit. First, it will achieve breadth by focusing on current issues from a variety of fields, examining the "hard choices" that confront society, government, military leaders, and individual citizens. Among the disciplines from which the course will draw are Philosophy, Law, Political Science, Economics, Physics, Biology, and English. Each cadet will also be assigned an individual mentor from among the faculty of the Departments of Social Sciences, History, Law, or English. Requirements include a briefing on a current issue in the cadet's major field, a book review, and a personal statement summarizing academic and other goals.		2019-2 2020-2 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** Admission to the course requires an interview and the approval of the department head.

**Prerequisite(s):** SS307  
-Or-  
SS357

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<b>ZH337</b>	<b>REGIONAL POLITICAL SYSTEMS</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2010-2

**Offerings:**

For cadets attending foreign military academies and academic institutions. Instruction may be in English or a foreign language. Cadets will attend classes and produce papers and other academic work as required by the course instructor and the institution's academic requirements. This class serves as the equivalent to a foreign course covering the politics, societies, and structures of states in different regions of the world. The course also covers the study of the relationship between the state and society in these regions. Regions include but are not limited to the Middle East, East Asia, Southwest Asia, Central Asia, North Africa, South Africa, Latin America, South America, and Europe.

No Course Offerings

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** None

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<b>ZH347</b>	<b>INT'L ORGNZTNS &amp; INSTITUTIONS</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2010-2

**Offerings:**

For cadets attending foreign military academies and academic institutions. Instruction may be in English or a foreign language. Cadets will attend classes and produce papers and other academic work as required by the course instructor and the institution's academic requirements. This class serves as the equivalent to a foreign course about international regimes, international institutions, and / or international organizations and the structure, role, and relevance of these actors in the international system. In addition, course content may include material about the relationship between international organizations and institutions and states. International organizations and institutions studied may include but are not limited to the United Nations, NATO, the European Union, International Economic Organizations, the International Criminal Court, and the Kyoto Protocol / other Climate Change Institutions.

No Course Offerings

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** None

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<b>ZH367</b>	<b>TOPICS IN MICROECONOMICS</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2011-1

**Offerings:**

For cadets attending foreign military academies and academic institutions. Instruction may be in English or in a foreign language. Cadets will attend classes and produce papers and other academic work as required by the course instructor and the institution's academic requirements. This class serves as the equivalent to a foreign course about topics covered in the study of microeconomics. Topics include, but are not limited to, history of economic thought, manpower and labor economics, public and social policy issues, energy and natural resource issues, gender, law, and applied microeconomic issues.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** None

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<b>ZH377</b>	<b>TOPICS IN MACROECONOMICS</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=0.0,MA=0.0)</b>
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**Scope:** 2011-1

**Offerings:**

For cadets attending foreign military academies and academic institutions. Instruction may be in English or in a foreign language. Cadets will attend classes and produce papers and other academic work as required by the course instructor and the institution's academic requirements. This class serves as the equivalent to a foreign course about topics covered in the study of macroeconomics. Topics include but are not limited to international trade, foreign exchange, the international monetary system, global capital markets, and globalization.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** None

ZH407	TOPICS/AMERICAN FOREIGN POLICY	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2010-2	<b>Offerings:</b>
For cadets attending foreign military academies and academic institutions. Instruction may be in English or a foreign language. Cadets will attend classes and produce papers and other academic work as required by the course instructor and the institution's academic requirements. This class serves as the equivalent to a foreign course covering the development, implementation, and consequences of American foreign policy. It analyzes the actors who make American foreign policy, concentrating both on government sources such as the President, Congress, and the foreign policy bureaucracy, as well as external sources such as public opinion, interest groups, and the media. Topics include - but are not limited to - U.S. relations with China, Russia, and the European Union, energy politics, the Arab-Israeli crisis, weapons of mass destruction and rogue states, terrorism, democracy promotion, and the global response to US foreign policy. In exploring each of these current challenges and dilemmas, this course attempts to understand the policies and strategies the U.S. utilizes to secure its interests and achieve its objectives.		No Course Offerings
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)		<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>		None
ZH427	TOPICS IN COMPARATIVE POLITICS	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2010-2	<b>Offerings:</b>
For cadets attending foreign military academies and academic institutions. Instruction may be in English or a foreign language. Cadets will attend classes and produce papers and other academic work as required by the course instructor and the institution's academic requirements. This class serves as the equivalent to a foreign course covering the history and development of state social structures, political cultures, and systems and structures of government. Topics include but are not limited to democratization, regional anthropology, and conflict resolution.		No Course Offerings
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)		<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>		None
ZH447	TOPICS: INTERNATIONAL POLITICS	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2010-2	<b>Offerings:</b>
For cadets attending foreign military academies and academic institutions. Instruction may be in English or in a foreign language. Cadets will attend classes and produce papers and other academic work as required by the course instructor and the institution's academic requirements. This class serves as the equivalent to a foreign course about topics covered in the study of international relations. Topics include but are not limited to international security studies, international political economy, economic development, and the history of the development of modern international relations and the international system.		No Course Offerings
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)		<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>		None
ZH467	TOPICS-INTERNATIONAL ECONOMICS	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)
<b>Scope:</b>	2011-1	<b>Offerings:</b>
For cadets attending foreign military academies and academic institutions. Instruction may be in English or a foreign language. Cadets will attend classes and produce papers and other academic work as required by the course instructor and the institution's academic requirements. This class serves as the equivalent to a foreign course about international economic systems, international institutions, and / or international organizations and the structure, role, and relevance of these actors in the global economic system. In addition, course content may include material about the relationship between international organizations and institutions and states. International organizations and institutions studied may include but are not limited to the United Nations, World Bank, International Monetary Fund, the European Union, World Trade Organization, the Bretton Woods system and International Financial Organizations. Topics include but are not limited to international political economy, economic development, regional economics, and the history of the modern international economic system.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)		<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>		None
ZH477	TOPICS-INT'L BUSINESS/FINANCE	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)

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**Scope:** 2011-1**Offerings:**

For cadets attending foreign military academies and academic institutions. Instruction may be in English or a foreign language. Cadets will attend classes and produce papers and other academic work as required by the course instructor and the institution's academic requirements. This class serves as the equivalent to a foreign course about international and foreign financial systems, international accounting and foreign business practices. In addition, course content may include material about the relationship between businesses, institutions and states in foreign countries. Topics include but are not limited to corporate finance, financial statements and accounting, currency issues, central banking, and commercial and retail banking.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** None

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## Department of Systems Engineering

### 36 Courses

EM381	ENGINEERING ECONOMY	3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)
<b>Scope:</b>	2017-1	<b>Offerings:</b>
<p>This course prepares cadets to consider the economic dimension in the evaluation of engineering alternatives; a consideration vital to the Systems Decision Process, engineering management, systems acquisition and many other application areas. While emphasis is on the analytical consideration of money and its impact on the areas above, the course also incorporates professional ethics in the engineering economic analysis process. The course is taught in four lesson blocks. The Time Value of Money (TVM) block includes the quantitative methods for economic analysis of engineering alternatives by introducing cost concepts, interest concepts, the cash flow diagram and developing interest formulas. The Analysis Methods block develops techniques for project evaluation and comparison and ways to account for risk and uncertainty. The After Tax Cash Flow block incorporates the real-world effect of taxes, depreciation and inflation into the analysis methods. The Capital Budgeting block completes a comprehensive introduction to engineering economy by introducing the concept of economic service life and project financing. A one lesson introduction to personal finance is included to demonstrate how many of the concepts used in the business world can also be applied for personal planning. Course concepts are applied using Excel in both graded and ungraded labs. Cadets will spend several lessons in a computer lab environment.</p>		2018-4 2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
EM384	ANYL METH FOR ENGR MANAGEMENT	3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)
<b>Scope:</b>	2009-1	<b>Offerings:</b>
<p>EM384 focuses on the application of deterministic and probabilistic models used by analysts to make engineering and management decisions. Cadets learn to apply various modeling techniques to represent and solve real-world organizational problems in the military and industry. Topics include: linear and integer programming, network modeling, decision making under uncertainty, queuing, and simulation modeling. Cadets apply concepts and tools using Microsoft Excel within a computer lab environment. The techniques taught in this course have been applied to an increasingly wide variety of complex problems in business, government, military, health care, and education. Ethical responsibilities in describing the results of analyses to decision makers are integrated throughout the course. Cadets develop communication skills through two written reports and make innovative use of spreadsheets to develop and analyze models. Cadets are tested on the application of course concepts from the four blocks of instruction during two graded labs, two out-of-classroom projects, two problem sets, and two in-class WPRs. Cadets will spend several lessons in a computer lab environment.</p>		2019-1 2020-1 2021-1
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	IT105 -Or- IT155 -Or- CS105 -Or- CS155	
<b>Corequisite(s):</b>	MA206 -Or- MA256 -Or- MA206X	
EM400	PROFESSIONAL ENGINEERING SEMIN	3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)
<b>Scope:</b>	2019-2	<b>Offerings:</b>
<p>This seminar consists of a series of lessons on topics that are within the Industrial Engineering Fundamentals of Engineering Examination. Additionally, the course will include an Information Technology/Cyber exercise. It will include all First Class cadets majoring in Engineering Management. Topics will address the concerns of professional systems engineers, such as engineering ethics, continuing education, engineering economy, social and safety considerations, and professional registration. In addition, the course will include new topics not covered in their course work that is on the Industrial Engineering Fundamentals of Engineering Exam including ergonomics, design of industrial experiments, system design, manufacturing, and material handling. (CONDITIONAL APPROVAL in AY16 - Full review in AY18)</p>		2019-2 2020-2 2021-2



**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** None

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<b>EM402</b>	<b>ENGINEERING MANAGEMENT DSN I</b>	<b>3.5 Credit Hours</b> <b>(BS=0.0,ET=3.5,MA=0.0)</b>
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**Scope:** 2009-1

**Offerings:**

This is the first course in a two-semester capstone design for EM majors. EM402 integrates the principles, concepts and models explored in previous core and engineering topic courses. The course applies the principles of systems design, engineering management, and/or reengineering to a real-world system. Cadets work under the supervision of a faculty mentor to address a problem presented by a real-world client, providing them an integrative experience for their education in engineering design.

No Course Offerings

**Lessons:** 34 @ 55 min (2.500 Att/wk)    **Labs:** 6 @ 110 min

**Special Requirements:** None

**Prerequisite(s):** EM381 EM384 SE301

**Corequisite(s):** EM411

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<b>EM402</b>	<b>ENGINEERING MANAGEMENT DSN I</b>	<b>4.0 Credit Hours</b> <b>(BS=0.0,ET=4.0,MA=0.0)</b>
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**Scope:** 2019-1

**Offerings:**

This is the first course in a two-semester capstone design for EM majors. EM402 integrates the principles, concepts and models explored in previous core and engineering topic courses. The course applies the principles of systems design, engineering management, and/or reengineering to a real-world system. Cadets work under the supervision of a faculty mentor to address a problem presented by a real-world client, providing them an integrative experience for their education in engineering design.

2019-1 2020-1 2021-1

**Lessons:** 40 @ 110 min (5.000 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** EM381 EM384 SE301

**Corequisite(s):** EM411

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<b>EM403</b>	<b>ENGINEERING MANAGEMENT DSN II</b>	<b>3.5 Credit Hours</b> <b>(BS=0.0,ET=3.5,MA=0.0)</b>
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**Scope:** 2009-2

**Offerings:**

Engineering Management Design II is the second course in a two-semester capstone experience for EM majors. EM403 integrates the principles, concepts and models explored in previous core and engineering courses. The course applies the principles of systems design, engineering management, and/or reengineering to a real-world system. Cadets work under the supervision of a faculty mentor to continue work on the same project begun in EM402, culminating the integrative experience in their education.

No Course Offerings

**Lessons:** 34 @ 55 min (2.500 Att/wk)    **Labs:** 6 @ 110 min

**Special Requirements:** None

**Prerequisite(s):** EM402

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<b>EM403</b>	<b>ENGINEERING MANAGEMENT DSN II</b>	<b>4.0 Credit Hours</b> <b>(BS=0.0,ET=4.0,MA=0.0)</b>
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**Scope:** 2019-2

**Offerings:**

Engineering Management Design II is the second course in a two-semester capstone experience for EM majors. EM403 integrates the principles, concepts and models explored in previous core and engineering courses. The course applies the principles of systems design, engineering management, and/or reengineering to a real-world system. Cadets work under the supervision of a faculty mentor to continue work on the same project begun in EM402, culminating the integrative experience in their education.

2019-2 2020-2 2021-2

**Lessons:** 40 @ 110 min (5.000 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** None

<b>Prerequisite(s):</b>	EM402	
<b>EM411</b>	<b>PROJECT MANAGEMENT</b>	<b>3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)</b>
<b>Scope:</b>	2009-1	<b>Offerings:</b>
<p>This course develops skills required to lead an organization to the achievement of their objectives through the proper application of the management of planning, implementing and controlling the organization activities, personnel and resources. The course focuses on the Implementation phase of the Systems Decision Process (SDP). Topics include project selection, roles and responsibilities of the project manager, planning the project, budgeting the project, scheduling the project, allocating resources to the project, monitoring and controlling the project, evaluating and terminating the project, risk assessment and management, organizational structure and human resources. Case studies illustrate problems and how to solve them. Course assignments are designed to help students learn and apply project management techniques taught in the course. The class design project will provide students with the opportunity to integrate project management software, Microsoft Project, into the preparation of an Engineering Management Project Plan. Cadets spend several lessons in a computer lab environment.</p>		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	None	
<b>EM420</b>	<b>PRODUCTION OPERATIONS MGMT</b>	<b>3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)</b>
<b>Scope:</b>	2018-2	<b>Offerings:</b>
<p>This course deals with the quantitative aspects of design and analysis of production operations management. Emphasis is on identification, analysis, and solution of production problems using applied quantitative techniques. Practical exercises reinforce the problem-solving techniques necessary for today's successful military and civilian engineering managers and systems engineers. Specific methods and techniques taught and applied are operations strategy, product design and selection, total quality management, capacity planning, facility location, facility layout, work system design, lean systems and scheduling. This course is required for those pursuing the Engineering Management major and an elective for the Systems Engineering, Systems and Decision Sciences, Management and other engineering majors.</p>		2019-1 2020-1 2021-1 2021-5
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	MA206 -Or- MA256 -Or- MA206X	
<b>EM481</b>	<b>SYSTEMS SIMULATION</b>	<b>3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)</b>
<b>Scope:</b>	2012-1	<b>Offerings:</b>
<p>Cadets learn and explore discrete event simulation techniques and tools used to analyze and improve complex systems. Applications include operations, transportation, manufacturing and logistics systems. Topics include functional modeling with functional flow diagrams and IDEF0 models, simulation theory, the modeling process, input data analysis, generation and testing of random numbers, verification and validation of simulation models, experimental design, output analysis, and application using simulation software. The course concepts provide cadets the tools to evaluate military and civilian systems. Emphasis is placed on using simulation in the Systems Decision Process (SDP). Cadets demonstrate proficiency and develop communication skills through design projects and briefings. Cadets spend several lessons in a computer lab environment.</p>		No Course Offerings
<b>Lessons:</b>	25 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 15 @ 120 min
<b>Special Requirements:</b>	In-process reviews and two design problems; compensatory time provided.	
<b>Disqualifier(s):</b>	SE481	
<b>EM481</b>	<b>SYSTEMS SIMULATION</b>	<b>3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)</b>
<b>Scope:</b>	2018-2	<b>Offerings:</b>

Cadets learn and explore discrete event simulation techniques and tools used to analyze and improve complex systems. Applications include operations, transportation, manufacturing and logistics systems. Topics include functional modeling with functional flow diagrams and IDEFO models, simulation theory, the modeling process, input data analysis, generation and testing of random numbers, verification and validation of simulation models, experimental design, output analysis, and application using simulation software. The course concepts provide cadets the tools to evaluate military and civilian systems. Emphasis is placed on using simulation in the Systems Decision Process (SDP). Cadets demonstrate proficiency and develop communication skills through design projects and briefings. Cadets spend several lessons in a computer lab environment.

**Lessons:** 29 @ 55 min (2.500 Att/wk)      **Labs:** 11 @ 120 min

**Special Requirements:** In-progress reviews and course project; compensatory time provided.

**Prerequisite(s):** MA206  
-Or-  
MA256  
-Or-  
MA206X

**Disqualifier(s):** SE481

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<b>EM482</b>	<b>SUPPLY CHAIN ENG &amp; INFO MGMT</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=3.0,MA=0.0)</b>
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**Scope:** 2013-1

**Offerings:**

This course teaches cadets the strategic importance of supply chain design, planning, operation, business processes, and information management systems. Cadets will become familiar with engineering a supply chain network---from conducting inventory management to establishing proper sourcing and transportation strategies to understanding capacity and facility locations to constructing the proper information technology framework needed to be successful. Cadets will develop the ability to evaluate how information flows can be a substitute for the stock of physical resources. Additionally, cadets will understand why such information systems succeed or fail through the explanation of concepts, insights, practical tools and the information technology that supports decision making. This course will focus on understanding the key drivers of a supply chain such as inventory, facilities, transportation, sourcing, pricing, and information. Cadets will learn the three types of information technology, how to mitigate risks of information technology and strategies for implementing process enabling information technology. Cadets will also learn to assess the impact of strategic alliances and globalization on supply chain strategies and best practices, to include smart pricing, customer value, and new product and supply chain design.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

**Disqualifier(s):** SM482

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<b>SE300</b>	<b>INTRO TO SYSTEMS ENGINEERING</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=3.0,MA=0.0)</b>
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**Scope:** 2017-2

**Offerings:**

SE300 serves as the "roadmap" course for all cadets taking the three-course Systems Engineering sequence. This course presents the methodological framework and techniques for designing, implementing, managing and reengineering large-scale systems or processes. Cadets learn engineering design and engineering management processes and gain an appreciation for the future environments and systems life-cycles. Cadets analyze case studies and complete practice problems to illustrate mastery of course topics. Cadets also use spreadsheet software for modeling and analyzing design alternatives. Cadets will spend eight to twelve lessons in a computer lab environment.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

**Corequisite(s):** MA206  
-Or-  
MA206X  
-Or-  
MA256

**Disqualifier(s):** SE301

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<b>SE301</b>	<b>FNDTN ENGIN DSGN &amp; SYS MGMT</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=3.0,MA=0.0)</b>
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**Scope:** 2016-2

**Offerings:**

SE301 serves as the "roadmap" course for all cadets taking the Engineering Management, Systems Engineering, or Systems and Decision Sciences majors. This course presents the methodological framework and techniques for designing, implementing, managing and reengineering complex systems or processes. Cadets learn engineering design and engineering management processes and gain an appreciation for future environments and system life-cycles. Cadets analyze case studies and complete practice problems to illustrate mastery of course topics. Cadets also use spreadsheet software for modeling and analyzing design alternatives. SE301 introduces a Systems Decision Process while incorporating material from courses in the USMA core curriculum and also previews the modeling and decision making tools that cadets will learn in follow-on Department of Systems Engineering courses. The course is designed to allow Cadets the opportunity to learn engineering design and engineering management processes on an individual level so that each Cadet will have the experience necessary to succeed in future Systems Engineering courses. Cadets will spend eight to twelve lessons in a computer lab environment.

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

**Corequisite(s):** MA206  
-Or-  
MA256  
-Or-  
MA206X

**Disqualifier(s):** SE300

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

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<b>SE302</b>	<b>FUNDAMENTALS OF SYSTEMS ENG</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=3.0,MA=0.0)</b>
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**Scope:** 2016-1

**Offerings:**

SE302 focuses on preparing students to effectively model, analyze, and understand complex, interdisciplinary, and ill-defined problems as systems in an effort to design and implement effective solutions. The course covers principles and methods for Requirements Management, Functional Analysis, and technical System Architecture from industry and DoD including IDEF modeling, the Unified Modeling Language, and the Department of Defense Architectural Framework (DoDAF). The course will also include a review of Model-based Systems Engineering (MBSE) methodologies. The techniques taught in this course have been applied to an increasingly wide variety of complex, ill-defined problems in business, government, military, health care, and national capacity development. Ethical responsibilities in describing the results of analyses to decision makers are integrated throughout the course. Cadets develop communication skills through two written reports and make innovative use of modeling packages to develop and analyze systems. A course project will challenge cadets to apply their modeling and analysis skills to a real world complex, ill-defined problem in political, military, economic, social, cultural, and informational contexts. Cadets will spend eight to twelve lessons in a computer lab environment.

2019-2 2020-2 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

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<b>SE350</b>	<b>SYSTEMS MODELING AND DESIGN</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=3.0,MA=0.0)</b>
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**Scope:** 2017-2

**Offerings:**

SE350 is the second foundation course of a three-course sequence for non-engineering cadets. It focuses on the application of deterministic and stochastic models to help cadets analyze and understand different alternatives. Cadets learn to apply various modeling techniques that represent and solve real-world problems in the military, government, and industry. SE350 utilizes traditional classroom setting and computer labs, applying the fundamental principles and assumptions of analytical models. Cadets practice uses of spreadsheets to develop and analyze models. A key goal is for cadets to communicate their analysis and recommendations to a decision maker. Ethical responsibilities in describing the results of analyses to decision-makers are integrated throughout the course. Cadets are expected to apply their knowledge of course material in several computer lab exercises throughout the course.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** SE300

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<b>SE370</b>	<b>COMPUTER AIDED SYSTEMS ENG</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=3.0,MA=0.0)</b>
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**Scope:** 2017-2

**Offerings:**

Cadets learn how to use information and technology in support of systems decision-making. They learn the basics of data collection and storage through a database design exercise. They learn how to manipulate data in spreadsheets to support decisions. The course introduces cadets to 2-dimensional and 3-dimensional virtual design and visualization. They also get an introduction to geospatial data analysis and display in support of military operations. Cadets learn how to effectively use technology while interacting with decision-makers. Communication skills are developed through both written and oral projects and development of interactive graphical presentations. Cadets will spend most lessons in a computer lab environment.

2019-2 2020-2 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** Two design projects.

**Prerequisite(s):** IT105  
-Or-  
IT155  
-Or-  
IT105X

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<b>SE375</b>	<b>STATISTICS FOR ENGINEERS</b>	<b>3.0 Credit Hours (BS=0.0,ET=2.0,MA=1.0)</b>
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**Scope:** 2014-1

**Offerings:**

This course is an integral part of the Systems Engineering major that emphasizes both the statistical analyses of data and a statistical methodology important to systems analysis and design. The over-arching course goal is to develop cadets into critical consumers and providers of statistical information as it relates to the techniques, activities, and modeling applications that typify systems engineering concerns.. The course builds on the core probability and statistics course and introduces statistics applications fundamental to the design and analysis of simulations and engineering systems. Specific topics include point and interval estimation, parametric and non-parametric tests of hypotheses, analysis of variance, linear regression, and survey design of experiments, specifically analysis of power and determination of sample size. The course emphasizes the importance of knowing and understanding the assumptions associated with the use of inferential statistics as well as the usefulness of statistical software packages. The basic principles learned in this course will facilitate data analysis in support of Army acquisition and system redesign decision-making. Ethical implications in the analysis and presentation of experimental results, as well as interactions with decision makers, are addressed.

2019-1 2019-2 2019-5  
2020-1 2020-2 2020-5  
2021-1 2021-2 2021-5

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** MA206  
-Or-  
MA256  
-Or-  
MA206X

**Disqualifier(s):** MA376

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<b>SE385</b>	<b>DECISION ANALYSIS</b>	<b>3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)</b>
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**Scope:** 2013-2

**Offerings:**

The course presents basic techniques of decision-making concentrating on both theoretical and modeling aspects. This course develops innovative systems engineers who can integrate the art and science of decision making for single and multiple objective environments to support the Decision Making phase of the Systems Decision Process (SDP). The focus of the course is modeling problem structure, uncertainty, risk and preference in the context of decision-making. Topics include influence diagrams, decision trees, sensitivity analysis, assessing subjective probability, value of information, risk and uncertainty. Cadets will also use value focused thinking to support decisions in multiple objective and resource allocation environments. A series of several computer laboratory exercises provides a key bridge between the mathematical theory and the application of skills to open-ended decision problems. Communication skills are developed with both written reports and oral presentations.

2019-2 2020-2 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)      **Labs:** 0 @ 0 min

**Special Requirements:** Course design project; compensatory time provided.

**Prerequisite(s):** MA206 SE301  
-Or-  
MA256 SE301  
-Or-  
MA206X SE301

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<b>SE387</b>	<b>DETERMINISTIC MODELS</b>	<b>3.0 Credit Hours (BS=0.0,ET=2.5,MA=0.5)</b>
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<b>Scope:</b>	2018-1	<b>Offerings:</b>
<p>This course is the first of a two-course sequence that emphasizes modeling and analysis of real-world systems. This course focuses on modeling techniques without consideration of uncertainty or probabilistic effects. The course introduces the deterministic modeling process and many of the classical deterministic models used by systems engineers, operations researchers, and management professionals to identify and analyze alternatives as part of the Systems Decision Process (SDP). Emphasis is placed on creative application of the modeling process to include formulation, solution methods, analysis of results, and interpretation. Topics include deterministic life cycle cost modeling, linear programming, sensitivity analysis, networks, transportation models, dynamic programming and integer programming. Cadets will spend several lessons in a computer lab environment.</p>		2019-1 2020-1 2021-1
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	IT105 -Or- IT155 -Or- CS105 -Or- CS155 -Or- IT105X	
<b>Disqualifier(s):</b>	EM384	
<b>SE388</b>	<b>STOCHASTIC MODELS</b>	<b>3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)</b>
<b>Scope:</b>	2009-2	<b>Offerings:</b>
<p>This course is the second of a two-course sequence that emphasizes modeling and analysis of real-world systems. Continuing from the modeling process introduced in SE387, this course introduces the stochastic modeling process and many of the classical stochastic models used by systems engineers, operations researchers and management professionals to capture and describe quantitative effects of uncertainty on decision-making as part of the Systems Decision Process (SDP). Topics include stochastic life cycle cost modeling, conditional probability models, basic inference chains, Markov Chains, Poisson Processes, birth and death processes, counting processes, queuing systems, and simulation. This course prepares cadets for the modeling required in follow-on courses, including SE481, EM484, SE485 and SE402/403. Cadets will spend several lessons in a computer lab environment.</p>		No Course Offerings
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	MA206 SE387	
<b>SE388</b>	<b>STOCHASTIC MODELS</b>	<b>3.0 Credit Hours (BS=0.0,ET=2.5,MA=0.5)</b>
<b>Scope:</b>	2018-2	<b>Offerings:</b>
<p>This course is the second of a two-course sequence that emphasizes modeling and analysis of real-world systems. Continuing from the modeling process introduced in SE387, this course introduces the stochastic modeling process and many of the classical stochastic models used by systems engineers, operations researchers and management professionals to capture and describe quantitative effects of uncertainty on decision-making as part of the Systems Decision Process (SDP). Topics include stochastic life cycle cost modeling, conditional probability models, basic inference chains, Markov Chains, Poisson Processes, birth and death processes, counting processes, queuing systems, and simulation. This course prepares cadets for the modeling required in follow-on courses, including SE481, EM484, SE485 and SE402/403. Cadets will spend several lessons in a computer lab environment.</p>		2019-2 2020-2 2021-2
<b>Lessons:</b>	40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min
<b>Special Requirements:</b>	None	
<b>Prerequisite(s):</b>	MA206 SE387 -Or- MA256 SE387 -Or- MA206X SE387	
<b>SE400</b>	<b>PROFESSIONAL ENGINEERING SEMIN</b>	<b>1.0 Credit Hours (BS=0.0,ET=1.0,MA=0.0)</b>
<b>Scope:</b>	2009-2	<b>Offerings:</b>

This seminar course for SE and EM majors meets once a week to address the concerns of professional engineers such as engineering ethics and licensing procedures. The seminar also includes presentations by guest lecturers from the military, DoD industrial base, and academic communities.

No Course Offerings

**Lessons:** 13 @ 55 min (1.000 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** None

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<b>SE400</b>	<b>PROFESSIONAL ENGINEERING SEMIN</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=3.0,MA=0.0)</b>
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**Scope:** 2019-2

**Offerings:**

This seminar consists of a series of lessons on topics that are within the Industrial Engineering Fundamentals of Engineering Examination. Additionally, the course will incorporate an Information Technology/Cyber exercise. It will include all First Class cadets majoring in systems engineering. Topics will address the concerns of professional systems engineers, such as engineering ethics, continuing education, engineering economy, social and safety considerations, and professional registration. In addition, the course will include new topics not covered in their course work that is on the Industrial Engineering Fundamentals of Engineering Exam including facility design, industrial economics, ergonomics, management, manufacturing, material handling, production planning and scheduling, and quality control.  
(CONDITIONAL APPROVAL in AY16 - Full review in AY18)

2019-2 2020-2 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** None

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<b>SE402</b>	<b>SYSTEMS DESIGN &amp; MANAGEMENT I</b>	<b>3.5 Credit Hours</b> <b>(BS=0.0,ET=3.5,MA=0.0)</b>
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**Scope:** 2014-1

**Offerings:**

Systems Design and Management I is the first course in a two-semester capstone experience for Systems Engineering, Systems Management, Engineering Management, and Operations Research majors. SE402 integrates the principles, concepts and models explored in previous core and engineering topic courses. The course applies the principles of systems design, engineering management, and/or reengineering to a real-world system. Cadets work under the supervision of a faculty member to address a problem presented by a real-world client, providing them an integrative experience for their education in engineering design.

No Course Offerings

**Lessons:** 34 @ 55 min (2.500 Att/wk)    **Labs:** 6 @ 110 min

**Special Requirements:** None

**Prerequisite(s):** SE388  
-Or-  
EM384

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<b>SE402</b>	<b>SYSTEMS DESIGN &amp; MANAGEMENT I</b>	<b>4.0 Credit Hours</b> <b>(BS=0.0,ET=4.0,MA=0.0)</b>
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**Scope:** 2019-1

**Offerings:**

Systems Design and Management I is the first course in a two-semester capstone experience for Systems Engineering, Systems and Decision Sciences, and Operations Research majors. SE402 integrates the principles, concepts and models explored in previous core and engineering topic courses. The course applies the principles of systems design, engineering management, and/or reengineering to a real-world system. Cadets work under the supervision of a faculty member to address a problem presented by a real-world client, providing them an integrative experience for their education in engineering design.

2019-1 2020-1 2021-1

**Lessons:** 40 @ 110 min (5.000 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** SE388  
-Or-  
EM384

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<b>SE403</b>	<b>SYSTEMS DESIGN &amp; MANAGEMENT II</b>	<b>3.5 Credit Hours</b> <b>(BS=0.0,ET=3.5,MA=0.0)</b>
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**Scope:** 2014-2

**Offerings:**

Systems Design and Management II is the second course in a two-semester capstone experience for Systems Engineering, Systems Management, Engineering Management, and Operations Research majors. SE403 integrates the principles, concepts and models explored in previous core and engineering courses. The course applies the principles of systems design, engineering management, and/or reengineering to a real-world system of direct concern to a real-world client. Cadets work under the supervision of a faculty member to continue work on the same project begun in SE402, culminating the integrative experience in their education.

No Course Offerings

**Lessons:** 34 @ 55 min (2.500 Att/wk)    **Labs:** 6 @ 110 min

**Special Requirements:** None

**Prerequisite(s):** SE301 SE388  
-Or-  
SE402

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<b>SE403</b>	<b>SYSTEMS DESIGN &amp; MANAGEMENT II</b>	<b>4.0 Credit Hours</b> <b>(BS=0.0,ET=4.0,MA=0.0)</b>
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**Scope:** 2019-2

**Offerings:**

Systems Design and Management II is the second course in a two-semester capstone experience for Systems Engineering, Systems and Decision Sciences, and Operations Research majors. SE403 integrates the principles, concepts and models explored in previous core and engineering courses. The course applies the principles of systems design, engineering management, and/or reengineering to a real-world system of direct concern to a real-world client. Cadets work under the supervision of a faculty member to continue work on the same project begun in SE402, culminating the integrative experience in their education.

2019-2 2020-2 2021-2

**Lessons:** 40 @ 110 min (5.000 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** SE301 SE388  
-Or-  
SE402

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<b>SE450</b>	<b>APPLIED SYS DSGN/DECISN MAKING</b>	<b>3.0 Credit Hours</b> <b>(BS=0.0,ET=3.0,MA=0.0)</b>
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**Scope:** 2017-2

**Offerings:**

This course is the third course of the three-course systems engineering sequence. The course serves as the culminating systems engineering experience for non-engineering cadets and integrates the principles, concepts, and models explored in previous courses. Cadets apply the Systems Decision Process to devise technological problem solutions that are effective and adaptable. Cadets work in groups to complete a culminating engineering design experience involving the solution of an incompletely defined problem with no single correct answer. Cadets must consider the economic, political, social and ethical constraints of the system and use creativity to generate potential design alternatives. Cadet groups will use models to analyze the alternative solutions and make a recommendation based on economic analysis and system performance. The course requires assessment of the recommended solution and a written plan for implementation.

2019-1 2019-2 2020-1  
2020-2 2021-1 2021-2

**Lessons:** 40 @ 55 min (2.500 Att/wk)    **Labs:** 0 @ 0 min

**Special Requirements:** None

**Prerequisite(s):** SE350

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<b>SE485</b>	<b>COMBAT MODELING</b>	<b>3.5 Credit Hours</b> <b>(BS=0.0,ET=3.5,MA=0.0)</b>
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**Scope:** 2018-1

**Offerings:**

This course explores the theoretical and practical issues in combat modeling and simulation - the study of combat systems, tactics, and the battlefield environment in conflicts between opposing forces. The course focuses on models and algorithms used in state-of-the-art combat simulations, and techniques for analyzing their effects. Major topics of investigation include functional analysis to support modeling using functional flow diagrams and/or IDEF0 models, combat attrition models, search and detection methods, terrain representation, and measures of effectiveness. Cadets learn to manipulate 3D visual and system characteristic databases to build and test virtual prototypes of new combat system designs. Application of design of experiments and statistical analysis methods assist cadets in assessing the effectiveness of weapons systems, doctrine, and tactics on the future battlefield. The cadet can apply the concepts learned in this course to evaluate potential new Army combat systems, force structures, or doctrinal changes. The techniques taught in this course are a significant part of the Systems Decision Process (SDP) as they encourage creative and independent thought that applies mathematical, physical, and computer sciences to solve future technological problems. Ethical implications in the development and use of combat models also are discussed.

2019-1 2020-1 2021-1

**Lessons:** 28 @ 55 min (2.500 Att/wk)    **Labs:** 10 @ 120 min



<b>Special Requirements:</b>	Course projects will require significant (about 18 hours) of out of class time.	
<b>Prerequisite(s):</b>	EM384 -Or- MA376 -Or- SE375	
<b>SE489</b>	<b>AD IND STY IN SYS ENG/ENG MGMT</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2008-1	<b>Offerings:</b>
This is a tutorial course in which an individual cadet or a group of cadets study in depth an advanced topic in systems engineering or engineering management under the direct mentorship of a faculty advisor. The scope of the course is tailored to the desires of the cadet(s) in consultation with a faculty advisor. Cadets will coordinate with a faculty mentor who has an interest and background in the research area and who will assist in scoping and developing course content. Communication skills are developed and assessed through both written reports and oral presentations.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	As determined by faculty advisor.	
<b>SE490</b>	<b>AD TOPICS IN SYS ENG/ENG MGMT</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2008-2	<b>Offerings:</b>
This course provides in-depth study of a special topic or topics in systems engineering or engineering management not offered elsewhere in the USMA curriculum. This course is intended to broaden a cadet's or group of cadets' exposure to the systems engineering or engineering management discipline. The Department of Systems Engineering visiting professor or senior faculty member assigned to the course is responsible for developing the course topic or topics and advertising the course to prospective cadets.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 40 @ 55 min (2.500 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	To be announced.	
<b>SE491</b>	<b>RSRCH PROJ IN SYS ENG/ENG MGMT</b>	<b>3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2008-1	<b>Offerings:</b>
The cadet, or cadet team, integrates the concepts and techniques learned in previous Systems Engineering or Engineering Management courses to solve a current problem of interest to the Academy, the Department of the Army, or other agencies in the Department of Defense. Subject to approval from the course and program directors, cadets may select project topics which are follow-on research from their summer AIAD experience, a topic of interest to them, or one that is compatible with on-going research within the Department of Systems Engineering and/or the Operations Research Center of Excellence. Cadets will coordinate with a faculty mentor who has an interest and background in the research area and who will assist in scoping the project and directing the research effort. Cadets may work individually or in small teams, depending on the nature of the research. The course will culminate with a student presentation and a written report.		2019-1 2019-2 2020-1 2020-2 2021-1 2021-2
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	As determined by Faculty Advisor.	
<b>SE492</b>	<b>IND ADV DEVELOPMENT COURSE</b>	<b>1.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)</b>
<b>Scope:</b>	2001-4	<b>Offerings:</b>
This course offers the opportunity for cadets to receive academic credit for study and/or work completed during the Academic Individual Advanced Development (AIAD) program. The content of the course and the nature of academic credit will be determined by the Head of Department in consultation with the cadet and the summer host agency. Communication skills are developed with both written reports and oral presentations.		No Course Offerings
<b>Lessons:</b> 0 @ 0 min (0.000 Att/wk)	<b>Labs:</b> 0 @ 0 min	
<b>Special Requirements:</b>	To be announced.	
<b>SM484</b>	<b>SYSTEM DYNAMICS SIMULATION</b>	<b>3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)</b>

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# **PART IV: MAJORS AND MINORS**



## 2021 MAJOR Offerings

Majors available to the Class of 2021 are listed below along with the department that has primary responsibility for them.

By Department:

Dept	Code	Description	Transcript Description
MACC-P	<a href="#">KIN1</a>	Kinesiology Major	Kinesiology
MACC-Q	<a href="#">DSS2</a>	Defense and Strategic Studies Major	Defense and Strategic Studies
MADN-BSL	<a href="#">EPS1</a>	Engineering Psychology Major	Engineering Psychology
MADN-BSL	<a href="#">MGB0</a>	Management Major: Business Management	Management
MADN-BSL	<a href="#">MGP0</a>	Management Major: Public Administration	Management
MADN-BSL	<a href="#">MGS0</a>	Management Major: Social Enterprise	Management
MADN-BSL	<a href="#">PSA0</a>	Psychology Major: Applied General Psychology	Psychology
MADN-BSL	<a href="#">PSO0</a>	Psychology Major: Organizational Psychology & Leadership	Psychology
MADN-BSL	<a href="#">SOC1</a>	Sociology Major	Sociology
MADN-CHEM	<a href="#">CEN1</a>	Chemical Engineering Major	Chemical Engineering
MADN-CHEM	<a href="#">CES0</a>	Chemical Engineering Studies Major	Chemical Engineering Studies
MADN-CHEM	<a href="#">CHM1</a>	Chemistry Major	Chemistry
MADN-CHEM	<a href="#">LSC1</a>	Life Science Major	Life Science
MADN-CME	<a href="#">CVN2</a>	Civil Engineering Major	Civil Engineering
MADN-CME	<a href="#">CNG0</a>	Civil Engineering Studies Major	Civil Engineering Studies
MADN-CME	<a href="#">MEN1</a>	Mechanical Engineering Major	Mechanical Engineering
MADN-CME	<a href="#">MES0</a>	Mechanical Engineering Studies Major	Mechanical Engineering Studies
MADN-DEP	<a href="#">ENL1</a>	English Major	English
MADN-DEP	<a href="#">PYL1</a>	Philosophy Major	Philosophy
MADN-EECS	<a href="#">CSC1</a>	Computer Science Major	Computer Science
MADN-EECS	<a href="#">EEN1</a>	Electrical Engineering Major	Electrical Engineering
MADN-EECS	<a href="#">ITE1</a>	Information Technology Major	Information Technology
MADN-FL	<a href="#">FSI1</a>	Foreign Area Studies Major: Africa	Foreign Area Studies: Africa
MADN-FL	<a href="#">FSA1</a>	Foreign Area Studies Major: East Asia	Foreign Area Studies: East Asia
MADN-FL	<a href="#">FSU1</a>	Foreign Area Studies Major: Eurasia	Foreign Area Studies: Eurasia
MADN-FL	<a href="#">FSE1</a>	Foreign Area Studies Major: Europe	Foreign Area Studies: Europe
MADN-FL	<a href="#">FSL1</a>	Foreign Area Studies Major: Latin America	Foreign Area Studies: Latin America
MADN-FL	<a href="#">FSM1</a>	Foreign Area Studies Major: Middle East	Foreign Area Studies: Middle East
MADN-FL	<a href="#">FLA1</a>	Foreign Language Major: Arabic	Foreign Language: Arabic
MADN-FL	<a href="#">FAC1</a>	Foreign Language Major: Arabic & Chinese	Foreign Language: Arabic & Chinese
MADN-FL	<a href="#">FAF1</a>	Foreign Language Major: Arabic & French	Foreign Language: Arabic & French
MADN-FL	<a href="#">FAG0</a>	Foreign Language Major: Arabic & German	Foreign Language: Arabic & German
MADN-FL	<a href="#">FAZ1</a>	Foreign Language Major: Arabic & Persian	Foreign Language: Arabic & Persian
MADN-FL	<a href="#">FAP1</a>	Foreign Language Major: Arabic & Portuguese	Foreign Language: Arabic & Portuguese
MADN-FL	<a href="#">FAR1</a>	Foreign Language Major: Arabic & Russian	Foreign Language: Arabic & Russian
MADN-FL	<a href="#">FAS1</a>	Foreign Language Major: Arabic & Spanish	Foreign Language: Arabic & Spanish
MADN-FL	<a href="#">FLC1</a>	Foreign Language Major: Chinese	Foreign Language: Chinese
MADN-FL	<a href="#">FCA0</a>	Foreign Language Major: Chinese & Arabic	Foreign Language: Chinese & Arabic
MADN-FL	<a href="#">FCF1</a>	Foreign Language Major: Chinese & French	Foreign Language: Chinese & French
MADN-FL	<a href="#">FCG1</a>	Foreign Language Major: Chinese & German	Foreign Language: Chinese & German

MADN-FL	<a href="#">FCZ1</a>	Foreign Language Major: Chinese & Persian	Foreign Language: Chinese & Persian
MADN-FL	<a href="#">FCP1</a>	Foreign Language Major: Chinese & Portuguese	Foreign Language: Chinese & Portuguese
MADN-FL	<a href="#">FCR1</a>	Foreign Language Major: Chinese & Russian	Foreign Language: Chinese & Russian
MADN-FL	<a href="#">FCS1</a>	Foreign Language Major: Chinese & Spanish	Foreign Language: Chinese & Spanish
MADN-FL	<a href="#">FLF1</a>	Foreign Language Major: French	Foreign Language: French
MADN-FL	<a href="#">FFA0</a>	Foreign Language Major: French & Arabic	Foreign Language: French & Arabic
MADN-FL	<a href="#">FFC0</a>	Foreign Language Major: French & Chinese	Foreign Language: French & Chinese
MADN-FL	<a href="#">FFG1</a>	Foreign Language Major: French & German	Foreign Language: French & German
MADN-FL	<a href="#">FFZ1</a>	Foreign Language Major: French & Persian	Foreign Language: French & Persian
MADN-FL	<a href="#">FFP1</a>	Foreign Language Major: French & Portuguese	Foreign Language: French & Portuguese
MADN-FL	<a href="#">FFR1</a>	Foreign Language Major: French & Russian	Foreign Language: French & Russian
MADN-FL	<a href="#">FFS1</a>	Foreign Language Major: French & Spanish	Foreign Language: French & Spanish
MADN-FL	<a href="#">FLG1</a>	Foreign Language Major: German	Foreign Language: German
MADN-FL	<a href="#">FGA1</a>	Foreign Language Major: German & Arabic	Foreign Language: German & Arabic
MADN-FL	<a href="#">FGC0</a>	Foreign Language Major: German & Chinese	Foreign Language: German & Chinese
MADN-FL	<a href="#">FGF0</a>	Foreign Language Major: German & French	Foreign Language: German & French
MADN-FL	<a href="#">FGZ1</a>	Foreign Language Major: German & Persian	Foreign Language: German & Persian
MADN-FL	<a href="#">FGP1</a>	Foreign Language Major: German & Portuguese	Foreign Language: German & Portuguese
MADN-FL	<a href="#">FGR1</a>	Foreign Language Major: German & Russian	Foreign Language: German & Russian
MADN-FL	<a href="#">FGS1</a>	Foreign Language Major: German & Spanish	Foreign Language: German & Spanish
MADN-FL	<a href="#">FLP1</a>	Foreign Language Major: Portuguese	Foreign Language: Portuguese
MADN-FL	<a href="#">FPA0</a>	Foreign Language Major: Portuguese & Arabic	Foreign Language: Portuguese & Arabic
MADN-FL	<a href="#">FPC0</a>	Foreign Language Major: Portuguese & Chinese	Foreign Language: Portuguese & Chinese
MADN-FL	<a href="#">FPF0</a>	Foreign Language Major: Portuguese & French	Foreign Language: Portuguese & French
MADN-FL	<a href="#">FPG0</a>	Foreign Language Major: Portuguese & German	Foreign Language: Portuguese & German
MADN-FL	<a href="#">FPZ1</a>	Foreign Language Major: Portuguese & Persian	Foreign Language: Portuguese & Persian
MADN-FL	<a href="#">FPR1</a>	Foreign Language Major: Portuguese & Russian	Foreign Language: Portuguese & Russian
MADN-FL	<a href="#">FPS1</a>	Foreign Language Major: Portuguese & Spanish	Foreign Language: Portuguese & Spanish
MADN-FL	<a href="#">FLR1</a>	Foreign Language Major: Russian	Foreign Language: Russian
MADN-FL	<a href="#">FRA0</a>	Foreign Language Major: Russian & Arabic	Foreign Language: Russian & Arabic
MADN-FL	<a href="#">FRC0</a>	Foreign Language Major: Russian & Chinese	Foreign Language: Russian & Chinese
MADN-FL	<a href="#">FRF0</a>	Foreign Language Major: Russian & French	Foreign Language: Russian & French
MADN-FL	<a href="#">FRG0</a>	Foreign Language Major: Russian & German	Foreign Language: Russian & German
MADN-FL	<a href="#">FRZ1</a>	Foreign Language Major: Russian & Persian	Foreign Language: Russian & Persian
MADN-FL	<a href="#">FRP0</a>	Foreign Language Major: Russian & Portuguese	Foreign Language: Russian & Portuguese
MADN-FL	<a href="#">FRS1</a>	Foreign Language Major: Russian & Spanish	Foreign Language: Russian & Spanish
MADN-FL	<a href="#">FLS1</a>	Foreign Language Major: Spanish	Foreign Language: Spanish
MADN-FL	<a href="#">FSB0</a>	Foreign Language Major: Spanish & Arabic	Foreign Language: Spanish & Arabic
MADN-FL	<a href="#">FSC0</a>	Foreign Language Major: Spanish & Chinese	Foreign Language: Spanish & Chinese
MADN-FL	<a href="#">FSF0</a>	Foreign Language Major: Spanish & French	Foreign Language: Spanish & French
MADN-FL	<a href="#">FSG0</a>	Foreign Language Major: Spanish & German	Foreign Language: Spanish & German
MADN-FL	<a href="#">FSZ1</a>	Foreign Language Major: Spanish & Persian	Foreign Language: Spanish & Persian
MADN-FL	<a href="#">FSP0</a>	Foreign Language Major: Spanish & Portuguese	Foreign Language: Spanish & Portuguese
MADN-FL	<a href="#">FSR0</a>	Foreign Language Major: Spanish & Russian	Foreign Language: Spanish & Russian
MADN-GEEnE	<a href="#">EVE1</a>	Environmental Engineering Major	Environmental Engineering
MADN-GEEnE	<a href="#">EES0</a>	Environmental Engineering Studies Major	Environmental Engineering Studies
MADN-GEEnE	<a href="#">ESC1</a>	Environmental Science Major	Environmental Science
MADN-GEEnE	<a href="#">GEH0</a>	Geography Major: Human	Geography

MADN-GEEnE	<a href="#">GEE0</a>	Geography Major: Human-Environment	Geography
MADN-GEEnE	<a href="#">GEP0</a>	Geography Major: Physical	Geography
MADN-GEEnE	<a href="#">GIS1</a>	Geospatial Information Science Major	Geospatial Information Science
MADN-HIST	<a href="#">HNT2</a>	History Major: International	History: International
MADN-HIST	<a href="#">HMH2</a>	History Major: Military	History: Military
MADN-HIST	<a href="#">HUS2</a>	History Major: United States	History: United States
MADN-LAW	<a href="#">LLS2</a>	Law and Legal Studies Major	Law and Legal Studies
MADN-MATH	<a href="#">MSC1</a>	Mathematical Sciences Major	Mathematical Sciences
MADN-MATH	<a href="#">ORE1</a>	Operations Research Major	Operations Research
MADN-PNE	<a href="#">NEN1</a>	Nuclear Engineering Major	Nuclear Engineering
MADN-PNE	<a href="#">NES0</a>	Nuclear Engineering Science Major	Nuclear Engineering Science
MADN-PNE	<a href="#">PHY1</a>	Physics Major	Physics
MADN-PNE	<a href="#">SSC0</a>	Space Science Major	Space Science
MADN-SE	<a href="#">ENM1</a>	Engineering Management Major	Engineering Management
MADN-SE	<a href="#">SDS0</a>	Systems and Decision Sciences Major	Systems and Decision Sciences
MADN-SE	<a href="#">SEN1</a>	Systems Engineering Major	Systems Engineering
MADN-SOC	<a href="#">ECN2</a>	Economics Major	Economics
MADN-SOC	<a href="#">PIF0</a>	International Affairs Major - Foreign Policy and Security Studies	International Affairs
MADN-SOC	<a href="#">PII0</a>	International Affairs Major - Institutions, Governance, and Development	International Affairs
MADN-SOC	<a href="#">PAP2</a>	Political Science Major: American Politics	Political Science: American Politics

By Major:

Code	Description	Transcript Description	Dept
<a href="#">CEN1</a>	Chemical Engineering Major	Chemical Engineering	MADN-CHEM
<a href="#">CES0</a>	Chemical Engineering Studies Major	Chemical Engineering Studies	MADN-CHEM
<a href="#">CHM1</a>	Chemistry Major	Chemistry	MADN-CHEM
<a href="#">CNG0</a>	Civil Engineering Studies Major	Civil Engineering Studies	MADN-CME
<a href="#">CSC1</a>	Computer Science Major	Computer Science	MADN-EECS
<a href="#">CVN2</a>	Civil Engineering Major	Civil Engineering	MADN-CME
<a href="#">DSS2</a>	Defense and Strategic Studies Major	Defense and Strategic Studies	MACC-Q
<a href="#">ECN2</a>	Economics Major	Economics	MADN-SOC
<a href="#">EEN1</a>	Electrical Engineering Major	Electrical Engineering	MADN-EECS
<a href="#">EES0</a>	Environmental Engineering Studies Major	Environmental Engineering Studies	MADN-GEEnE
<a href="#">ENL1</a>	English Major	English	MADN-DEP
<a href="#">ENM1</a>	Engineering Management Major	Engineering Management	MADN-SE
<a href="#">EPS1</a>	Engineering Psychology Major	Engineering Psychology	MADN-BSL
<a href="#">ESC1</a>	Environmental Science Major	Environmental Science	MADN-GEEnE
<a href="#">EVE1</a>	Environmental Engineering Major	Environmental Engineering	MADN-GEEnE
<a href="#">FAC1</a>	Foreign Language Major: Arabic & Chinese	Foreign Language: Arabic & Chinese	MADN-FL
<a href="#">FAF1</a>	Foreign Language Major: Arabic & French	Foreign Language: Arabic & French	MADN-FL
<a href="#">FAG0</a>	Foreign Language Major: Arabic & German	Foreign Language: Arabic & German	MADN-FL
<a href="#">FAP1</a>	Foreign Language Major: Arabic & Portuguese	Foreign Language: Arabic & Portuguese	MADN-FL
<a href="#">FAR1</a>	Foreign Language Major: Arabic & Russian	Foreign Language: Arabic & Russian	MADN-FL
<a href="#">FAS1</a>	Foreign Language Major: Arabic & Spanish	Foreign Language: Arabic & Spanish	MADN-FL
<a href="#">FAZ1</a>	Foreign Language Major: Arabic & Persian	Foreign Language: Arabic & Persian	MADN-FL



FCA0	Foreign Language Major: Chinese & Arabic	Foreign Language: Chinese & Arabic	MADN-FL
FCF1	Foreign Language Major: Chinese & French	Foreign Language: Chinese & French	MADN-FL
FCG1	Foreign Language Major: Chinese & German	Foreign Language: Chinese & German	MADN-FL
FCP1	Foreign Language Major: Chinese & Portuguese	Foreign Language: Chinese & Portuguese	MADN-FL
FCR1	Foreign Language Major: Chinese & Russian	Foreign Language: Chinese & Russian	MADN-FL
FCS1	Foreign Language Major: Chinese & Spanish	Foreign Language: Chinese & Spanish	MADN-FL
FCZ1	Foreign Language Major: Chinese & Persian	Foreign Language: Chinese & Persian	MADN-FL
FFA0	Foreign Language Major: French & Arabic	Foreign Language: French & Arabic	MADN-FL
FFC0	Foreign Language Major: French & Chinese	Foreign Language: French & Chinese	MADN-FL
FFG1	Foreign Language Major: French & German	Foreign Language: French & German	MADN-FL
FFP1	Foreign Language Major: French & Portuguese	Foreign Language: French & Portuguese	MADN-FL
FFR1	Foreign Language Major: French & Russian	Foreign Language: French & Russian	MADN-FL
FFS1	Foreign Language Major: French & Spanish	Foreign Language: French & Spanish	MADN-FL
FFZ1	Foreign Language Major: French & Persian	Foreign Language: French & Persian	MADN-FL
FGA1	Foreign Language Major: German & Arabic	Foreign Language: German & Arabic	MADN-FL
FGC0	Foreign Language Major: German & Chinese	Foreign Language: German & Chinese	MADN-FL
FGF0	Foreign Language Major: German & French	Foreign Language: German & French	MADN-FL
FGP1	Foreign Language Major: German & Portuguese	Foreign Language: German & Portuguese	MADN-FL
FGR1	Foreign Language Major: German & Russian	Foreign Language: German & Russian	MADN-FL
FGS1	Foreign Language Major: German & Spanish	Foreign Language: German & Spanish	MADN-FL
FGZ1	Foreign Language Major: German & Persian	Foreign Language: German & Persian	MADN-FL
FLA1	Foreign Language Major: Arabic	Foreign Language: Arabic	MADN-FL
FLC1	Foreign Language Major: Chinese	Foreign Language: Chinese	MADN-FL
FLF1	Foreign Language Major: French	Foreign Language: French	MADN-FL
FLG1	Foreign Language Major: German	Foreign Language: German	MADN-FL
FLP1	Foreign Language Major: Portuguese	Foreign Language: Portuguese	MADN-FL
FLR1	Foreign Language Major: Russian	Foreign Language: Russian	MADN-FL
FLS1	Foreign Language Major: Spanish	Foreign Language: Spanish	MADN-FL
FPA0	Foreign Language Major: Portuguese & Arabic	Foreign Language: Portuguese & Arabic	MADN-FL
FPC0	Foreign Language Major: Portuguese & Chinese	Foreign Language: Portuguese & Chinese	MADN-FL
PPF0	Foreign Language Major: Portuguese & French	Foreign Language: Portuguese & French	MADN-FL
FPG0	Foreign Language Major: Portuguese & German	Foreign Language: Portuguese & German	MADN-FL
FPR1	Foreign Language Major: Portuguese & Russian	Foreign Language: Portuguese & Russian	MADN-FL
FPS1	Foreign Language Major: Portuguese & Spanish	Foreign Language: Portuguese & Spanish	MADN-FL
FPZ1	Foreign Language Major: Portuguese & Persian	Foreign Language: Portuguese & Persian	MADN-FL
FRA0	Foreign Language Major: Russian & Arabic	Foreign Language: Russian & Arabic	MADN-FL
FRC0	Foreign Language Major: Russian & Chinese	Foreign Language: Russian & Chinese	MADN-FL
FRF0	Foreign Language Major: Russian & French	Foreign Language: Russian & French	MADN-FL
FRG0	Foreign Language Major: Russian & German	Foreign Language: Russian & German	MADN-FL
FRP0	Foreign Language Major: Russian & Portuguese	Foreign Language: Russian & Portuguese	MADN-FL
FRS1	Foreign Language Major: Russian & Spanish	Foreign Language: Russian & Spanish	MADN-FL
FRZ1	Foreign Language Major: Russian & Persian	Foreign Language: Russian & Persian	MADN-FL
FSA1	Foreign Area Studies Major: East Asia	Foreign Area Studies: East Asia	MADN-FL
FSB0	Foreign Language Major: Spanish & Arabic	Foreign Language: Spanish & Arabic	MADN-FL
FSC0	Foreign Language Major: Spanish & Chinese	Foreign Language: Spanish & Chinese	MADN-FL
FSE1	Foreign Area Studies Major: Europe	Foreign Area Studies: Europe	MADN-FL
FSF0	Foreign Language Major: Spanish & French	Foreign Language: Spanish & French	MADN-FL
FSG0	Foreign Language Major: Spanish & German	Foreign Language: Spanish & German	MADN-FL

FSI1	Foreign Area Studies Major: Africa	Foreign Area Studies: Africa	MADN-FL
FSL1	Foreign Area Studies Major: Latin America	Foreign Area Studies: Latin America	MADN-FL
FSM1	Foreign Area Studies Major: Middle East	Foreign Area Studies: Middle East	MADN-FL
FSP0	Foreign Language Major: Spanish & Portuguese	Foreign Language: Spanish & Portuguese	MADN-FL
FSR0	Foreign Language Major: Spanish & Russian	Foreign Language: Spanish & Russian	MADN-FL
FSU1	Foreign Area Studies Major: Eurasia	Foreign Area Studies: Eurasia	MADN-FL
FSZ1	Foreign Language Major: Spanish & Persian	Foreign Language: Spanish & Persian	MADN-FL
GEE0	Geography Major: Human-Environment	Geography	MADN-GENE
GEH0	Geography Major: Human	Geography	MADN-GENE
GEP0	Geography Major: Physical	Geography	MADN-GENE
GIS1	Geospatial Information Science Major	Geospatial Information Science	MADN-GENE
HMH2	History Major: Military	History: Military	MADN-HIST
HNT2	History Major: International	History: International	MADN-HIST
HUS2	History Major: United States	History: United States	MADN-HIST
ITE1	Information Technology Major	Information Technology	MADN-EECS
KIN1	Kinesiology Major	Kinesiology	MACC-P
LLS2	Law and Legal Studies Major	Law and Legal Studies	MADN-LAW
LSC1	Life Science Major	Life Science	MADN-CHEM
MEN1	Mechanical Engineering Major	Mechanical Engineering	MADN-CME
MES0	Mechanical Engineering Studies Major	Mechanical Engineering Studies	MADN-CME
MGB0	Management Major: Business Management	Management	MADN-BSL
MGP0	Management Major: Public Administration	Management	MADN-BSL
MGS0	Management Major: Social Enterprise	Management	MADN-BSL
MSC1	Mathematical Sciences Major	Mathematical Sciences	MADN-MATH
NEN1	Nuclear Engineering Major	Nuclear Engineering	MADN-PNE
NES0	Nuclear Engineering Science Major	Nuclear Engineering Science	MADN-PNE
ORE1	Operations Research Major	Operations Research	MADN-MATH
PAP2	Political Science Major: American Politics	Political Science: American Politics	MADN-SOC
PHY1	Physics Major	Physics	MADN-PNE
PIF0	International Affairs Major - Foreign Policy and Security Studies	International Affairs	MADN-SOC
PII0	International Affairs Major - Institutions, Governance, and Development	International Affairs	MADN-SOC
PSA0	Psychology Major: Applied General Psychology	Psychology	MADN-BSL
PSO0	Psychology Major: Organizational Psychology & Leadership	Psychology	MADN-BSL
PYL1	Philosophy Major	Philosophy	MADN-DEP
SDS0	Systems and Decision Sciences Major	Systems and Decision Sciences	MADN-SE
SEN1	Systems Engineering Major	Systems Engineering	MADN-SE
SOC1	Sociology Major	Sociology	MADN-BSL
SSC0	Space Science Major	Space Science	MADN-PNE



## 2021 MINOR Offerings 20 Records

Minors available to the Class of 2021 are listed below along with the department that has primary responsibility for them.

By Department:

Dept	Code	Description	Transcript Description
MADN-BSL	<a href="#">DIS0N</a>	Diversity and Inclusion Studies Minor	Diversity and Inclusion Studies Minor
MADN-CME	<a href="#">AER0N</a>	Aeronautical Engineering Minor	Aeronautical Engineering Minor
MADN-EECS	<a href="#">CYB1N</a>	Cyber Security Minor	Cyber Security Minor
MADN-EECS	<a href="#">ROB0N</a>	Robotics Minor	Robotics Minor
MADN-FL	<a href="#">RSI0N</a>	Regional Studies Minor - Africa	Regional Studies Minor - Africa
MADN-FL	<a href="#">RSA0N</a>	Regional Studies Minor - East Asia	Regional Studies Minor - East Asia
MADN-FL	<a href="#">RSU0N</a>	Regional Studies Minor - Eurasia	Regional Studies Minor - Eurasia
MADN-FL	<a href="#">RSE0N</a>	Regional Studies Minor - Europe	Regional Studies Minor - Europe
MADN-FL	<a href="#">RSL0N</a>	Regional Studies Minor - Latin America	Regional Studies Minor - Latin America
MADN-FL	<a href="#">RSM0N</a>	Regional Studies Minor - Middle East	Regional Studies Minor - Middle East
MADN-GEEnE	<a href="#">GEO0N</a>	Geography Minor	Geography Minor
MADN-MATH	<a href="#">AST1N</a>	Applied Statistics Minor	Applied Statistics Minor
MADN-MATH	<a href="#">NSC1N</a>	Network Science Minor	Network Science Minor
MADN-PNE	<a href="#">NSM0N</a>	Nuclear Science Minor	Nuclear Science Minor
MADN-PNE	<a href="#">PHT0N</a>	Photonics Minor	Photonics Minor
MADN-PNE	<a href="#">SPA0N</a>	Space Science Minor	Space Science Minor
MADN-SE	<a href="#">EMN0N</a>	Engineering Management Minor	Engineering Management Minor
MADN-SE	<a href="#">SEN0N</a>	Systems Engineering Minor	Systems Engineering Minor
MADN-SOC	<a href="#">GST1N</a>	Grand Strategy Minor	Grand Strategy Minor
MADN-SOC	<a href="#">TST1N</a>	Terrorism Studies Minor	Terrorism Studies Minor

By Minor:

Code	Description	Transcript Description	Dept
<a href="#">AER0N</a>	Aeronautical Engineering Minor	Aeronautical Engineering Minor	MADN-CME
<a href="#">AST1N</a>	Applied Statistics Minor	Applied Statistics Minor	MADN-MATH
<a href="#">CYB1N</a>	Cyber Security Minor	Cyber Security Minor	MADN-EECS
<a href="#">DIS0N</a>	Diversity and Inclusion Studies Minor	Diversity and Inclusion Studies Minor	MADN-BSL
<a href="#">EMN0N</a>	Engineering Management Minor	Engineering Management Minor	MADN-SE
<a href="#">GEO0N</a>	Geography Minor	Geography Minor	MADN-GEEnE
<a href="#">GST1N</a>	Grand Strategy Minor	Grand Strategy Minor	MADN-SOC
<a href="#">NSC1N</a>	Network Science Minor	Network Science Minor	MADN-MATH
<a href="#">NSM0N</a>	Nuclear Science Minor	Nuclear Science Minor	MADN-PNE
<a href="#">PHT0N</a>	Photonics Minor	Photonics Minor	MADN-PNE
<a href="#">ROB0N</a>	Robotics Minor	Robotics Minor	MADN-EECS
<a href="#">RSA0N</a>	Regional Studies Minor - East Asia	Regional Studies Minor - East Asia	MADN-FL
<a href="#">RSE0N</a>	Regional Studies Minor - Europe	Regional Studies Minor - Europe	MADN-FL
<a href="#">RSI0N</a>	Regional Studies Minor - Africa	Regional Studies Minor - Africa	MADN-FL
<a href="#">RSL0N</a>	Regional Studies Minor - Latin America	Regional Studies Minor - Latin America	MADN-FL

<a href="#">RSM0N</a>	Regional Studies Minor - Middle East	Regional Studies Minor - Middle East	MADN-FL
<a href="#">RSU0N</a>	Regional Studies Minor - Eurasia	Regional Studies Minor - Eurasia	MADN-FL
<a href="#">SEN0N</a>	Systems Engineering Minor	Systems Engineering Minor	MADN-SE
<a href="#">SPA0N</a>	Space Science Minor	Space Science Minor	MADN-PNE
<a href="#">TST1N</a>	Terrorism Studies Minor	Terrorism Studies Minor	MADN-SOC



# PART IV: FIELD TABLES





## Department of Behavioral Sciences and Leadership

### 2021 Diversity and Inclusion Studies Minor Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
DIS0N	Diversity and Inclusion Studies Minor	Diversity and Inclusion Studies Minor	Diversity and Inclusion Studies Minor	0	5

### 2021 Diversity and Inclusion Studies Minor Tracks

Subject Area	Description
<b>Essential Courses</b>	
Cadets pursuing the DIS Minor are expected to conduct directed research on diversity and inclusion topics in the essential courses.	
<b>Sociology/English/Politics</b>	Choose 2 of 3
EN352	POWER AND DIFFERENCE
PL377	SOCIAL INEQUALITY
SS392	POLITICS-RACE,GENDER,SEXUALITY
<b>AND</b>	
<b>History</b>	Choose 1 of 3
HI391	WORLD RELIGIONS
HI461	TOPICS IN GENDER HISTORY
HI463	RACE, ETHNICITY, NATION
<b>AND</b>	
<b>Interdisciplinary Electives</b>	Choose 2 of 42
Cadets can choose two electives to support this minor from disciplines including sociology, history, English, psychology, philosophy, geography, law, foreign languages, and social sciences. PL300B (Leading Diverse Teams) will be added once approved by the GC/AB.	
EN321	AMERICAN LITERATURE I
EN322	AMERICAN LITERATURE II
EN332	BRITISH LITERATURE II
EN340	CONTEMPORARY LITERATURE
EN351	WORLD LITERATURE
EN352	POWER AND DIFFERENCE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV390B	URBAN GEOGRAPHY
HI391	WORLD RELIGIONS
HI398	SOCIETY & CULTURE IN AMER HIST
HI461	TOPICS IN GENDER HISTORY
HI463	RACE, ETHNICITY, NATION
HI498	COLLOQUIUM IN HISTORY
HI499	SENIOR THESIS
LN451	ADV LANG & CULTURE IN CONTEXT
LW199	CIVIL RIGHTS STAFF RIDE
LW461	CIVIL RIGHTS AND THE LAW
LW490	SPECIAL TOPICS IN THE LAW
LW498	THESIS I: PROPOSAL & RESEARCH
LW499	THESIS II: PAPER & DEFENSE
PL371	INTRODUCTORY SOCIOLOGY
PL372	SOCIOLOGY OF THE FAMILY

PL373	LIFE CYCLE & HUMAN DEVEL
PL376	PERSONALITY & AB PSYCH
PL377	SOCIAL INEQUALITY
PL383	EXPERIMENTAL SOCIAL PSYCHOLOGY
PL384	SOCIOLOGICAL THEORY
PL399	BEH SCI & LEADERSHIP PRACTICUM
PL470	TOPICS-BEHAVIOR SCI/LDRSHIP
PL482	ARMED FORCES AND SOCIETY
PL497	SEMINAR IN BEHAVIORAL SCI
PL498	ADV STUDY-BEHAVIOR SCI
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS392	POLITICS-RACE,GENDER,SEXUALITY
SS468	POLITICAL PARTICIPATION
SS489	ADV INDIV STUDY IN SOC SCI
SS490A	COLLOQUIUM (AMER POLITICS)
SS490B	COLLOQUIUM (COMP POLITICS)
SS490C	COLLOQUIUM (INTER RELATIONS)
XH400	INTERCOLLEGIATE SEMINAR
XH405	THE HOLOCAUST AND ITS LEGACY
XH415	GENOCIDE AND ETHNIC CLEANSING

### 2021 Engineering Psychology Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
EPS1	Engineering Psychology	Engineering Psychology Major	Engineering Psychology	10	3

### 2021 Engineering Psychology Major Tracks

Subject Area	Description
<b>Required Courses</b>	Choose 9 of 9
MA376	APPLIED STATISTICS
PL386	EXPERIMENTAL PSYCHOLOGY
PL390	BIOLOGICAL PSYCHOLOGY
PL391	SENSATION/PERCEPTN/PSYCPHYS
PL392	COGNITIVE PSYCHOLOGY
PL394	ANTHROPOMETRICS & BIOMECHANICS
PL475	HUMAN-COMPUTER INTERACTION
PL485	HUMAN FACTORS ENGINEERING
PL488E	COLLOQUIUM-BSL-ENGIN PSYCH
<b>AND</b>	
<b>Complementary Support Courses</b>	
For a study in depth choose three complementary support courses within any of the following focus areas. For a broadening study, choose any three complementary support courses from across the focus areas. You are limited to one complementary support course from within the Department of Behavioral Sciences and Leadership, so as to ensure you meet the academic intent of complementary support. That is to experience the field of engineering psychology from the perspective of professionals outside your field with whom you will work with as part of a multidisciplinary design team.	
<b>Quantitative Modeling</b>	Choose 3 of 5

MA391	MATHEMATICAL MODELING
MA394	FUNDAMENTALS/NETWORK SCIENCE
MA476	MATHEMATICAL STATISTICS
PH206	PHYSICS II
PY350	PHILOSOPHY OF SCIENCE
<b>OR</b>	
<b>Physiological Status</b>	Choose 3 of 6
CH383 and CH384 are Pre-med only	
CH383	ORGANIC CHEMISTRY I
CH384	ORGANIC CHEMISTRY II
CH387	HUMAN PHYSIOLOGY
KN355	FUNCTIONAL ANATOMY
KN365	NUTRITION FOR PERFORMANCE
KN455	PSYCHOLOGY OF EXERCISE
<b>OR</b>	
<b>Workspace/Environment</b>	Choose 3 of 5
CS473	COMPUTER GRAPHICS
DS360	SP OPNS/LOW-INTENSITY CONFLICT
IT383	USER INTERFACE DEVELOPMENT
KN360	BIOMECHANICS OF HUMAN MOVEMENT
SE485	COMBAT MODELING
<b>OR</b>	
<b>Physical Stature/Signal Processing</b>	Choose 3 of 5
CH460	HUMAN ANATOMY
KN355	FUNCTIONAL ANATOMY
KN465	MOTOR CONTROL AND LEARNING
PY355	PHILOSOPHY OF MIND
SE385	DECISION ANALYSIS
<b>OR</b>	
<b>Health Hazards</b>	Choose 3 of 3
EV300	ENVIRONMENTAL SCIENCE
EV396	ENVIRONMENTAL BIOLOGICAL SYS
NE474	RADIOLOGICAL SAFETY
<b>OR</b>	
<b>Team Dynamics</b>	Choose 3 of 4
Cadets choosing this track may only select one BS&L course. They must select two courses from other tracks and outside the BS&L department to satisfy the remaining two CSC course requirement.	
MG379	LEADING TEAMS
MG390	NEGOTIATION FOR LEADERS
PL383	EXPERIMENTAL SOCIAL PSYCHOLOGY
PL396	SNA FOR PUBLIC POLICY
<b>OR</b>	
<b>Language</b>	Choose 3 of 3
Cadets can choose any 3-course language sequence for which they qualify.	
LA371	INTENSIVE INTERMEDIATE ARABIC
LA475	ARABIC RDG/WRTG THRU MEDIA
LA476	MILITARY SPKG/RDG - ARABIC
<b>AND</b>	
<b>Integrative Experience for the Major</b>	Choose 1 of 1
PL490	ENGINEERING PSYCHOLOGY
<b>AND</b>	
<b>Science Depth</b>	

Cadets in this major may take any approved choice to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II

#### STEM Depth

Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

#### AND

#### Curriculum Requirements

This section describes how cadets in this major satisfy various curriculum requirements.

#### IT/CYBER Requirements

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

#### Core Engineering Sequence

Cadets in this major can choose any approved three-course Core Engineering Sequence.

#### Writing-in-the-Major

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and PL386 and PL490.

PL386	EXPERIMENTAL PSYCHOLOGY
PL490	ENGINEERING PSYCHOLOGY

## 2021 Engineering Psychology Major w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
EPS1H	Engineering Psychology w/ Honors	Engineering Psychology Major w/ Honors	Engineering Psychology w/ Honors	2	0

## 2021 Engineering Psychology Major w/ Honors Tracks

Subject Area	Description
Complete any one of the following two-course tracks.	
<b>Engineering Psychology Research</b>	Choose 2 of 2
PL497	SEMINAR IN BEHAVIORAL SCI
PL498	ADV STUDY-BEHAVIOR SCI
<b>OR</b>	
Choose 2 courses from a focus area in the major for a study in depth of an aspect of Engineering Psychology. The 2 courses are recommended to come from a focus area. Notwithstanding, the 2 courses can be decided in consultation with an academic counselor to meet specific intellectual interests within the field of Engineering Psychology.	
<b>AND</b>	

Complete the requirements of the major as shown above, attain a minimum APSC of 3.0 in the core curriculum and 3.5 in the major.

## 2021 Management Major: Business Management Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
MGB0	Management: Business Management	Management Major: Business Management	Management	8	5

## 2021 Management Major: Business Management Tracks

Subject Area	Description
<b>Required Courses</b>	Choose 6 of 6
MG380	MARKETING
MG381	INTRODUCTION TO MANAGEMENT
MG382	HUMAN RESOURCE MANAGEMENT
MG395	FUNDAMENTALS OF ACCOUNTING
MG410	MANAGERIAL FINANCE
MG472	INTERNATIONAL MANAGEMENT
<b>AND</b>	
<b>Business Management Concentration</b>	
Cadets choosing the Business Management Concentration must take these courses.	
<b>Additional Required Courses</b>	Choose 1 of 1
MG420	OPERATIONS MANAGEMENT
<b>AND</b>	
<b>Additional Electives</b>	Choose 2 of 4
MG462 will be added to this list once approved.	
MG379	LEADING TEAMS
MG390	NEGOTIATION FOR LEADERS
PL479	LEADING ORGNZS THRU CHANGE
<b>AND</b>	
<b>Complementary Support Courses</b>	
Cadets who select the Business Management Concentration must choose 3 CSC courses from this list of 24 (one from each group).	
<b>Systems/Analytics Group</b>	Choose 1 of 5
EM381	ENGINEERING ECONOMY
EM411	PROJECT MANAGEMENT
EM420	PRODUCTION OPERATIONS MGMT
EM482	SUPPLY CHAIN ENG & INFO MGMT
SE385	DECISION ANALYSIS
<b>AND</b>	
<b>Social/Behavioral Group</b>	Choose 1 of 11
In order to graduate with honors PL361 must be taken.	
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV386	GEOGRAPHY OF EUROPE
PL361	RESEARCH METHODS I
PL371	INTRODUCTORY SOCIOLOGY
PL383	EXPERIMENTAL SOCIAL PSYCHOLOGY

PL384	SOCIOLOGICAL THEORY
PL392	COGNITIVE PSYCHOLOGY
PL398	LEADERSHIP THEORY & DEVEL
PY329	TOPICS IN ETHICS
PY365	ETHICS-MILITARY PROFESSION
SS381	CULTURAL/POLIT ANTHROPOLOGY

**AND****Economics Group**

Choose 1 of 9

DS370	STRATEGY AND POLICY
LW488	BUSINESS LAW
MA367	MATH FOR THE SOCIAL SCIENCES
SS368	ECONOMETRICS I
SS382	MICROECONOMICS
SS388	MACROECONOMICS
SS394	FINANCIAL STATEMENT ANALYSIS
SS470	MONEY AND BANKING
SS494	PRINCIPLES OF FINANCE

**AND****Integrative Experience for the Major**

Choose 1 of 1

MG421

STRATEGIC MANAGEMENT

**AND****Science Depth**

Cadets in this major may take any approved choice to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II

**STEM Depth**

Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**AND****Curriculum Requirements**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirements**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**Core Engineering Sequence**

Cadets in this major can choose any approved three-course Core Engineering Sequence.

**Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and several courses in the management major including MG472.

MG472	INTERNATIONAL MANAGEMENT
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**2021 Management Major: Business Management Remarks For Management: Business we chose "Management, Industrial" as the DA Code**

## 2021 Management Major w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
MGB0H	Management w/ Honors	Management Major w/ Honors	Management w/ Honors	2	0

### 2021 Management Major w/ Honors Tracks

Subject Area	Description
<b>Required Courses</b>	Choose 2 of 2
PL497	SEMINAR IN BEHAVIORAL SCI
PL498	ADV STUDY-BEHAVIOR SCI
<b>AND</b>	

Complete the requirements for the major as shown above, attain a minimum APSC of 3.0 in the core curriculum and 3.5 in the major.

## 2021 Management Major: Public Administration Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
MGPO	Management: Public Administration	Management Major: Public Administration	Management	7	6

### 2021 Management Major: Public Administration Tracks

Subject Area	Description
<b>Required Courses</b>	Choose 6 of 6
MG380	MARKETING
MG381	INTRODUCTION TO MANAGEMENT
MG382	HUMAN RESOURCE MANAGEMENT
MG395	FUNDAMENTALS OF ACCOUNTING
MG410	MANAGERIAL FINANCE
MG472	INTERNATIONAL MANAGEMENT
<b>AND</b>	

#### Public Administration Concentration

Cadets choosing the Public Administration Concentration must take three of the following courses.

<b>Additional Electives</b>	Choose 3 of 5
MG462 will be added to this list once approved.	
MG379	LEADING TEAMS
MG390	NEGOTIATION FOR LEADERS
MG420	OPERATIONS MANAGEMENT
PL479	LEADING ORGNZS THRU CHANGE
<b>AND</b>	

#### Complementary Support Courses

Cadets who select the Public Administration Concentration must choose 3 CSC courses from this list of 21 (one from each group).

<b>Politics Group</b>	Choose 1 of 7
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LW488	BUSINESS LAW
SS360	POL SCI RESEARCH METHODS
SS370	MASS MEDIA & AMER POLITICS
SS379	LEGISLATIVE POLITICS
SS386	POLITICAL THOUGHT
SS464	HOMELAND SECURITY
SS472	THE AM STATE & THE SOLDIER
<b>AND</b>	
<b>Economics Group</b>	Choose 1 of 7
EM381	ENGINEERING ECONOMY
EV391A	LAND USE PLAN & MGT
MA367	MATH FOR THE SOCIAL SCIENCES
SS380	MANPOWER-LABOR ECONOMICS
SS387	PUBLIC FINANCE
SS470	MONEY AND BANKING
SS477	ECONOMICS OF NATIONAL SECURITY
<b>AND</b>	
<b>Social/Behavioral Group</b>	Choose 1 of 7
PL361	RESEARCH METHODS I
PL363	QUALITATIVE RESEARCH METHODS
PL371	INTRODUCTORY SOCIOLOGY
PL377	SOCIAL INEQUALITY
PL383	EXPERIMENTAL SOCIAL PSYCHOLOGY
PL393	CRIMINOLOGY-CRIM JUST SYSTM
PL476	EDUCATIONAL PSYCHOLOGY
<b>AND</b>	
<b>Integrative Experience for the Major</b>	Choose 1 of 1
MG421	STRATEGIC MANAGEMENT
<b>AND</b>	
<b>Science Depth</b>	
Cadets in this major may take any approved choice to satisfy the Science Depth requirement.	
CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II
<b>STEM Depth</b>	
Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.	
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>AND</b>	
<b>Curriculum Requirements</b>	
This section describes how cadets in this major satisfy various curriculum requirements.	
<b>IT/CYBER Requirements</b>	
Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.	
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>Core Engineering Sequence</b>	
Cadets in this major can choose any approved three-course Core Engineering Sequence.	
<b>Writing-in-the-Major</b>	
Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and several courses in the management major including MG472.	
MG472	INTERNATIONAL MANAGEMENT



## 2021 Management Major: Public Administration Remarks For the Management Major: Public Administration Concentration, we used the DA Code, "Management, General".

### 2021 Management Major w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
MGP0H	Management w/ Honors	Management Major w/ Honors	Management w/ Honors	2	0

### 2021 Management Major w/ Honors Tracks

Subject Area	Description
<b>Required Courses</b>	Choose 2 of 2
PL497	SEMINAR IN BEHAVIORAL SCI
PL498	ADV STUDY-BEHAVIOR SCI
<b>AND</b>	

Complete the requirements for the major as shown above, attain a minimum APSC of 3.0 in the core curriculum and 3.5 in the major.

### 2021 Management Major: Social Enterprise Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
MGS0	Management: Social Enterprise	Management Major: Social Enterprise	Management	7	6

### 2021 Management Major: Social Enterprise Tracks

Subject Area	Description
<b>Required Courses</b>	Choose 6 of 6
MG380	MARKETING
MG381	INTRODUCTION TO MANAGEMENT
MG382	HUMAN RESOURCE MANAGEMENT
MG395	FUNDAMENTALS OF ACCOUNTING
MG410	MANAGERIAL FINANCE
MG472	INTERNATIONAL MANAGEMENT
<b>AND</b>	

#### Social Enterprise Concentration

Cadets choosing the Social Enterprise Concentration must take these courses.

#### Additional Electives

Choose 3 of 4

MG462 will be added to this list once approved.

MG379 LEADING TEAMS

MG390	NEGOTIATION FOR LEADERS
PL479	LEADING ORGNZS THRU CHANGE
<b>AND</b>	
<b>Complementary Support Courses</b>	
Cadets who select the Social Enterprise Concentration must choose 3 CSC courses from this list of 15 (one from each group).	
<b>Individual/Human Psychology Group</b>	Choose 1 of 5
PL361	RESEARCH METHODS I
PL383	EXPERIMENTAL SOCIAL PSYCHOLOGY
PL387	FOUNDATIONS OF COUNSELING
PL392	COGNITIVE PSYCHOLOGY
PL398	LEADERSHIP THEORY & DEVEL
<b>AND</b>	
<b>Ethics and Law Group</b>	Choose 1 of 4
LW472	CRIMINAL LAW
LW488	BUSINESS LAW
PY329	TOPICS IN ETHICS
PY365	ETHICS-MILITARY PROFESSION
<b>AND</b>	
<b>Individual/Cultural Group</b>	Choose 1 of 7
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV386	GEOGRAPHY OF EUROPE
PL371	INTRODUCTORY SOCIOLOGY
PL377	SOCIAL INEQUALITY
PL384	SOCIOLOGICAL THEORY
PL482	ARMED FORCES AND SOCIETY
SS381	CULTURAL/POLIT ANTHROPOLOGY
<b>AND</b>	
<b>Integrative Experience for the Major</b>	Choose 1 of 1
MG421	STRATEGIC MANAGEMENT
<b>AND</b>	
<b>Science Depth</b>	
Cadets in this major may take any approved choice to satisfy the Science Depth requirement.	
CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II
<b>STEM Depth</b>	
Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.	
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>AND</b>	
<b>Curriculum Requirements</b>	
This section describes how cadets in this major satisfy various curriculum requirements.	
<b>IT/CYBER Requirements</b>	
Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.	
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>Core Engineering Sequence</b>	
Cadets in this major can choose any approved three-course Core Engineering Sequence.	
<b>Writing-in-the-Major</b>	

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and several courses in the management major including MG472.

MG472

INTERNATIONAL MANAGEMENT

## 2021 Management Major: Social Enterprise Remarks For the Management Major: Social enterprise, we choose the DA Code "Management, Institutional."

### 2021 Management Major w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
MGS0H	Management w/ Honors	Management Major w/ Honors	Management w/ Honors	2	0

### 2021 Management Major w/ Honors Tracks

Subject Area	Description
<b>Required Courses</b>	Choose 2 of 2
PL497	SEMINAR IN BEHAVIORAL SCI
PL498	ADV STUDY-BEHAVIOR SCI
<b>AND</b>	

Complete the requirements for the major as shown above, attain a minimum APSC of 3.0 in the core curriculum and 3.5 in the major.

### 2021 Psychology Major: Applied General Psychology Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
PSA0	Psychology: Applied General Psychology	Psychology Major: Applied General Psychology	Psychology	8	5

### 2021 Psychology Major: Applied General Psychology Tracks

Subject Area	Description
<b>Required Courses</b>	Choose 4 of 4
PL361	RESEARCH METHODS I
PL383	EXPERIMENTAL SOCIAL PSYCHOLOGY
PL387	FOUNDATIONS OF COUNSELING
PL462	EXPERIMENTAL APP IN PSYCHOLOGY
<b>AND</b>	
<b>Applied General Psychology Additional Required Courses</b>	Choose 3 of 3
Cadets choosing the Applied General Psychology Concentration must take the following three courses.	
PL250	NEUROCOG FNDTNS OF BEHAVIOR

PL373	LIFE CYCLE & HUMAN DEVEL
PL376	PERSONALITY & AB PSYCH
<b>AND</b>	
<b>Depth of Discipline Electives</b>	Choose 2 of 9
MG379	LEADING TEAMS
PL360	PSYCH ELITE PERFORMANCE
PL390	BIOLOGICAL PSYCHOLOGY
PL391	SENSATION/PERCEPTN/PSYCPHYS
PL392	COGNITIVE PSYCHOLOGY
PL398	LEADERSHIP THEORY & DEVEL
PL470	TOPICS-BEHAVIOR SCI/LDRSHIP
PL471	LEADERSHIP IN COMBAT
PL479	LEADING ORGNZS THRU CHANGE
<b>AND</b>	
<b>Complementary Support Courses</b>	
Cadets must select ONE sub-grouping. Note: Some courses listed as CSC require prerequisites that will need to be satisfied.	
<b>Psychology and Medicine</b>	Choose 3 of 4
Cadets cannot double count CH375 or PH206 to satisfy both the CSC requirement and the Science Depth requirement.	
CH375	INTRODUCTION TO BIOLOGY
CH385	INTRODUCTION TO CELL BIOLOGY
CH387	HUMAN PHYSIOLOGY
PH206	PHYSICS II
<b>OR</b>	
<b>Psychology and Law</b>	Choose 3 of 5
LW310	INTRO TO LEGAL METHOD
LW472	CRIMINAL LAW
LW474	LAW OF ARMED CONFLICT
LW481	INTERNATIONAL LAW
PL393	CRIMINOLOGY-CRIM JUST SYSTM
<b>OR</b>	
<b>Psychology and Society</b>	Choose 3 of 6
HI398	SOCIETY & CULTURE IN AMER HIST
HI463	RACE, ETHNICITY, NATION
PL371	INTRODUCTORY SOCIOLOGY
PL372	SOCIOLOGY OF THE FAMILY
PL377	SOCIAL INEQUALITY
SS370	MASS MEDIA & AMER POLITICS
<b>OR</b>	
<b>Psychology of Peace and Conflict</b>	Choose 3 of 4
MG390	NEGOTIATION FOR LEADERS
SS476	CONFLICT AND NEGOTIATION
XH405	THE HOLOCAUST AND ITS LEGACY
XH467	WINNING THE PEACE
<b>OR</b>	
<b>Psychology of Sex and Gender</b>	Choose 3 of 4
HI461	TOPICS IN GENDER HISTORY
PL377	SOCIAL INEQUALITY
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS392	POLITICS-RACE,GENDER,SEXUALITY
<b>OR</b>	
<b>Psychology and the Military</b>	Choose 3 of 6
DS350	PERSUASIVE COMMUNICATIONS
DS360	SP OPNS/LOW-INTENSITY CONFLICT

DS455	COMPARATIVE DEFENSE POLICY
DS460	INSURGENCY & COUNTERINSURGENCY
PL482	ARMED FORCES AND SOCIETY
SS465	TERRORISM: NEW CHALLENGES
<b>OR</b>	
<b>Psychology and Human Performance</b>	Choose 3 of 4
KN355	FUNCTIONAL ANATOMY
KN360	BIOMECHANICS OF HUMAN MOVEMENT
KN455	PSYCHOLOGY OF EXERCISE
PL394	ANTHROPOMETRICS & BIOMECHANICS
<b>OR</b>	
<b>Psychology and Philosophy</b>	Choose 3 of 12
PY305	LOGICAL REASONING
PY310	REALITY AND KNOWLEDGE
PY325	MILITARY ETHICS
PY329	TOPICS IN ETHICS
PY345	PHILOSOPHY OF RELIGION
PY350	PHILOSOPHY OF SCIENCE
PY355	PHILOSOPHY OF MIND
PY360	ANCIENT PHILOSOPHY
PY369	EASTERN THOUGHT
PY370	17TH & 18TH CENTURY PHILOSOPHY
PY375	KANT & 19TH CENTURY PHILOSOPHY
PY380	20TH CENTURY PHILOSOPHY
<b>OR</b>	
<b>Cultural Psychology</b>	Choose 3 of 9
Cadets can substitute any approved language for the LA4XX courses.	
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV390B	URBAN GEOGRAPHY
HI398	SOCIETY & CULTURE IN AMER HIST
LA483	ARAB CIVILIZATION I
LA484	ARAB CIVILIZATION II
LA485	ARABIC LITERATURE I
LA486	ARABIC LITERATURE II
LN380	NATURE OF MODERN LANGUAGES
SS381	CULTURAL/POLIT ANTHROPOLOGY
<b>OR</b>	
<b>Mathematical Psychology</b>	Choose 3 of 3
MA391	MATHEMATICAL MODELING
MA476	MATHEMATICAL STATISTICS
MA490	APP PROB FROM MATH, SCI & ENGR
<b>OR</b>	
<b>Cyberpsychology</b>	Choose 3 of 5
IT383	USER INTERFACE DEVELOPMENT
IT460	CYBER POLICY, STRATEGY & OPNS
MA394	FUNDAMENTALS/NETWORK SCIENCE
PL396	SNA FOR PUBLIC POLICY
PL475	HUMAN-COMPUTER INTERACTION
<b>OR</b>	
<b>Psychology and Business</b>	Choose 3 of 6
EM411	PROJECT MANAGEMENT
MG381	INTRODUCTION TO MANAGEMENT
MG382	HUMAN RESOURCE MANAGEMENT
MG472	INTERNATIONAL MANAGEMENT

SS390	BEHAVIORAL ECONOMICS
SS394	FINANCIAL STATEMENT ANALYSIS
<b>AND</b>	
<b>Integrative Experience for the Major</b>	Choose 1 of 1
PL488B	COLLOQUIUM-BSL-PSYCHOLOGY
<b>AND</b>	
<b>Science Depth</b>	
Although CH275 will be recommended, cadets can select among the three science depth courses.	
CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
CH375	INTRODUCTION TO BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II
<b>STEM Depth</b>	
Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.	
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>AND</b>	
<b>Curriculum Requirements</b>	
This section describes how cadets in this major satisfy various curriculum requirements.	
<b>IT/CYBER Requirements</b>	
Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.	
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>Core Engineering Sequence</b>	
Cadets in this major can choose any approved three-course Core Engineering Sequence.	
<b>Writing-in-the-Major</b>	
Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and PL361 and PL462.	
PL361	RESEARCH METHODS I
PL462	EXPERIMENTAL APP IN PSYCHOLOGY

## 2021 Psychology Major w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
PSA0H	Psychology w/ Honors	Psychology Major w/ Honors	Psychology w/ Honors	0	2

## 2021 Psychology Major w/ Honors Tracks

Subject Area	Description
<b>Complete one of the following two-course tracks:</b>	
<b>Psychological Research</b>	Choose 2 of 2
PL497	SEMINAR IN BEHAVIORAL SCI

PL498	ADV STUDY-BEHAVIOR SCI
<b>OR</b>	
<b>Biological Psychology</b>	Choose 2 of 2
CH383	ORGANIC CHEMISTRY I
CH384	ORGANIC CHEMISTRY II
<b>AND</b>	

Complete the requirements for the major as shown above, attain a minimum APSC of 3.0 in the core curriculum and 3.5 in the major.

## 2021 Psychology Major: Organizational Psychology & Leadership Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
PSO0	Psychology: Org Psych & Leadership	Psychology Major: Organizational Psychology & Leadership	Psychology	8	5

## 2021 Psychology Major: Organizational Psychology & Leadership Tracks

Subject Area	Description
<b>Required Courses</b>	Choose 4 of 4
PL361	RESEARCH METHODS I
PL383	EXPERIMENTAL SOCIAL PSYCHOLOGY
PL387	FOUNDATIONS OF COUNSELING
PL462	EXPERIMENTAL APP IN PSYCHOLOGY
<b>AND</b>	
<b>Organizational Psychology &amp; Leadership Additional Required Courses</b>	Choose 3 of 3
Cadets choosing the Organizational Psychology & Leadership Concentration must take the following three courses.	
MG379	LEADING TEAMS
PL398	LEADERSHIP THEORY & DEVEL
PL479	LEADING ORGNZS THRU CHANGE
<b>AND</b>	
<b>Depth of Discipline Electives</b>	Choose 2 of 9
PL250	NEUROCOG FNDTNS OF BEHAVIOR
PL360	PSYCH ELITE PERFORMANCE
PL373	LIFE CYCLE & HUMAN DEVEL
PL376	PERSONALITY & AB PSYCH
PL390	BIOLOGICAL PSYCHOLOGY
PL391	SENSATION/PERCEPTN/PSYCPHYS
PL392	COGNITIVE PSYCHOLOGY
PL470	TOPICS-BEHAVIOR SCI/LDRSHIP
PL471	LEADERSHIP IN COMBAT
<b>AND</b>	
<b>Complementary Support Courses</b>	
Cadets must select ONE sub-grouping. Note: Some courses listed as CSC require prerequisites that will need to be satisfied.	
<b>Psychology and Medicine</b>	Choose 3 of 4

Cadets cannot double count CH375 or PH206 to satisfy both the CSC requirement and the Science Depth requirement.

CH375

INTRODUCTION TO BIOLOGY

CH385

INTRODUCTION TO CELL BIOLOGY

CH387

HUMAN PHYSIOLOGY

PH206

PHYSICS II

**OR****Psychology and Law**

Choose 3 of 5

LW310

INTRO TO LEGAL METHOD

LW472

CRIMINAL LAW

LW474

LAW OF ARMED CONFLICT

LW481

INTERNATIONAL LAW

PL393

CRIMINOLOGY-CRIM JUST SYSTM

**OR****Psychology and Society**

Choose 3 of 6

HI398

SOCIETY &amp; CULTURE IN AMER HIST

HI463

RACE, ETHNICITY, NATION

PL371

INTRODUCTORY SOCIOLOGY

PL372

SOCIOLOGY OF THE FAMILY

PL377

SOCIAL INEQUALITY

SS370

MASS MEDIA &amp; AMER POLITICS

**OR****Psychology of Peace and Conflict**

Choose 3 of 4

MG390

NEGOTIATION FOR LEADERS

SS476

CONFLICT AND NEGOTIATION

XH405

THE HOLOCAUST AND ITS LEGACY

XH467

WINNING THE PEACE

**OR****Psychology of Sex and Gender**

Choose 3 of 4

HI461

TOPICS IN GENDER HISTORY

PL377

SOCIAL INEQUALITY

SS381

CULTURAL/POLIT ANTHROPOLOGY

SS392

POLITICS-RACE,GENDER,SEXUALITY

**OR****Psychology and the Military**

Choose 3 of 6

DS350

PERSUASIVE COMMUNICATIONS

DS360

SP OPNS/LOW-INTENSITY CONFLICT

DS455

COMPARATIVE DEFENSE POLICY

DS460

INSURGENCY &amp; COUNTERINSURGENCY

PL482

ARMED FORCES AND SOCIETY

SS465

TERRORISM: NEW CHALLENGES

**OR****Psychology and Human Performance**

Choose 3 of 4

KN355

FUNCTIONAL ANATOMY

KN360

BIOMECHANICS OF HUMAN MOVEMENT

KN455

PSYCHOLOGY OF EXERCISE

PL394

ANTHROPOMETRICS &amp; BIOMECHANICS

**OR****Psychology and Philosophy**

Choose 3 of 12

PY305

LOGICAL REASONING

PY325

MILITARY ETHICS

PY329

TOPICS IN ETHICS

PY330

POLITICAL PHILOSOPHY

PY345

PHILOSOPHY OF RELIGION



PY350	PHILOSOPHY OF SCIENCE
PY355	PHILOSOPHY OF MIND
PY360	ANCIENT PHILOSOPHY
PY369	EASTERN THOUGHT
PY370	17TH & 18TH CENTURY PHILOSOPHY
PY375	KANT & 19TH CENTURY PHILOSOPHY
PY380	20TH CENTURY PHILOSOPHY

**OR****Cultural Psychology**

Choose 3 of 9

Cadets can substitute any approved language for the LA4XX courses.

EV365	GEOGRAPHY OF GLOBAL CULTURES
EV390B	URBAN GEOGRAPHY
HI398	SOCIETY & CULTURE IN AMER HIST
LA483	ARAB CIVILIZATION I
LA484	ARAB CIVILIZATION II
LA485	ARABIC LITERATURE I
LA486	ARABIC LITERATURE II
LN380	NATURE OF MODERN LANGUAGES
SS381	CULTURAL/POLIT ANTHROPOLOGY

**OR****Mathematical Psychology**

Choose 3 of 3

MA391	MATHEMATICAL MODELING
MA476	MATHEMATICAL STATISTICS
MA490	APP PROB FROM MATH, SCI & ENGR

**OR****Cyberpsychology**

Choose 3 of 5

IT383	USER INTERFACE DEVELOPMENT
IT460	CYBER POLICY, STRATEGY & OPNS
MA394	FUNDAMENTALS/NETWORK SCIENCE
PL396	SNA FOR PUBLIC POLICY
PL475	HUMAN-COMPUTER INTERACTION

**OR****Psychology and Business**

Choose 3 of 6

EM411	PROJECT MANAGEMENT
MG381	INTRODUCTION TO MANAGEMENT
MG382	HUMAN RESOURCE MANAGEMENT
MG472	INTERNATIONAL MANAGEMENT
SS390	BEHAVIORAL ECONOMICS
SS394	FINANCIAL STATEMENT ANALYSIS

**AND****Integrative Experience for the Major** Choose 1 of 1

PL488B	COLLOQUIUM-BSL-PSYCHOLOGY
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**AND****Science Depth**

Although CH275 will be recommended, cadets can select among the three science depth courses.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
CH375	INTRODUCTION TO BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II

**STEM Depth**

Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**AND****Curriculum Requirements**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirements**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305

CYBER FOUNDATIONS

CY355

CYBER FOUNDATIONS - COMPUTING

**Core Engineering Sequence**

Cadets in this major can choose any approved three-course Core Engineering Sequence.

**Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and PL361 and PL462.

PL361

RESEARCH METHODS I

PL462

EXPERIMENTAL APP IN PSYCHOLOGY

## 2021 Psychology Major w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
PSO0H	Psychology w/ Honors	Psychology Major w/ Honors	Psychology w/ Honors	0	2

## 2021 Psychology Major w/ Honors Tracks

Subject Area	Description
<b>Complete one of the following two-course tracks:</b>	
<b>Psychological Research</b>	Choose 2 of 2
PL497	SEMINAR IN BEHAVIORAL SCI
PL498	ADV STUDY-BEHAVIOR SCI
<b>OR</b>	
<b>Biological Psychology</b>	Choose 2 of 2
CH383	ORGANIC CHEMISTRY I
CH384	ORGANIC CHEMISTRY II
<b>AND</b>	

Complete the requirements for the major as shown above, attain a minimum APSC of 3.0 in the core curriculum and 3.5 in the major.

## 2021 Sociology Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
SOC1	Sociology Major	Sociology Major	Sociology	13	0

### 2021 Sociology Major Tracks

Subject Area	Description
<b>Required Courses</b>	Choose 7 of 7
PL363	QUALITATIVE RESEARCH METHODS
PL371	INTRODUCTORY SOCIOLOGY
PL372	SOCIOLOGY OF THE FAMILY
PL377	SOCIAL INEQUALITY
PL384	SOCIOLOGICAL THEORY
PL393	CRIMINOLOGY-CRIM JUST SYSTM
PL488D	COLLOQUIUM-BSL-SOCIOLOGY
<b>AND</b>	
<b>Depth of Discipline Electives</b>	Choose 2 of 5
PL361	RESEARCH METHODS I
PL383	EXPERIMENTAL SOCIAL PSYCHOLOGY
PL497	SEMINAR IN BEHAVIORAL SCI
PL498	ADV STUDY-BEHAVIOR SCI
SS381	CULTURAL/POLIT ANTHROPOLOGY
<b>AND</b>	
<b>Complementary Support Courses</b>	
Cadets choose one of 17 sociological subfields/groupings of CSCs. Cadets choose three courses in a selected group.	
<b>Sociology of Networks and CYBER</b>	Choose 3 of 5
IT383	USER INTERFACE DEVELOPMENT
IT460	CYBER POLICY, STRATEGY & OPNS
MA394	FUNDAMENTALS/NETWORK SCIENCE
PL396	SNA FOR PUBLIC POLICY
SS364	GAME THEORY
<b>OR</b>	
<b>Sociology of Organizational Leadership and Management</b>	Choose 3 of 8
HI358	STRATEGY, POLICY & GENERALSHIP
LW488	BUSINESS LAW
MG379	LEADING TEAMS
MG381	INTRODUCTION TO MANAGEMENT
MG382	HUMAN RESOURCE MANAGEMENT
MG472	INTERNATIONAL MANAGEMENT
PL398	LEADERSHIP THEORY & DEVEL
PL479	LEADING ORGNZS THRU CHANGE
<b>OR</b>	
<b>Sociology of Culture</b>	Choose 3 of 15
Cadets can substitute similar courses, based on languages other than Arabic, for LA484/484/485/486.	
EP333	CULTURAL STUDIES
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV371	GEOGRAPHY OF RUSSIA
EV372	GEOGRAPHY OF ASIA
EV373	GEOGRAPHY OF LATIN AMERICA
EV375	GEOGRAPHY OF AFRICA
EV376	GEOGRAPHY OF THE MIDDLE EAST
EV386	GEOGRAPHY OF EUROPE

EV390B	URBAN GEOGRAPHY
HI398	SOCIETY & CULTURE IN AMER HIST
LA483	ARAB CIVILIZATION I
LA484	ARAB CIVILIZATION II
LA485	ARABIC LITERATURE I
LA486	ARABIC LITERATURE II
LN380	NATURE OF MODERN LANGUAGES
<b>OR</b>	
<b>Sociology of Moral Experience</b>	Choose 3 of 9
EN353	WAR LITERATURE
HI391	WORLD RELIGIONS
PY310	REALITY AND KNOWLEDGE
PY325	MILITARY ETHICS
PY345	PHILOSOPHY OF RELIGION
PY350	PHILOSOPHY OF SCIENCE
PY369	EASTERN THOUGHT
PY375	KANT & 19TH CENTURY PHILOSOPHY
PY380	20TH CENTURY PHILOSOPHY
<b>OR</b>	
<b>Environmental Sociology</b>	Choose 3 of 5
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV390B	URBAN GEOGRAPHY
EV391A	LAND USE PLAN & MGT
EV486	ENVIRONMENT AND DEVELOPMENT
LW473	ENVIRONMENTAL LAW
<b>OR</b>	
<b>Historical Sociology</b>	Choose 3 of 9
HI358	STRATEGY, POLICY & GENERALSHIP
HI381	HISTORY OF IRREGULAR WARFARE
HI385	WAR & ITS THEORISTS
HI391	WORLD RELIGIONS
HI397	COLD WAR AMERICA
HI398	SOCIETY & CULTURE IN AMER HIST
HI461	TOPICS IN GENDER HISTORY
HI463	RACE, ETHNICITY, NATION
XH405	THE HOLOCAUST AND ITS LEGACY
<b>OR</b>	
<b>Sociology of Law</b>	Choose 3 of 6
LW310	INTRO TO LEGAL METHOD
LW472	CRIMINAL LAW
LW474	LAW OF ARMED CONFLICT
LW481	INTERNATIONAL LAW
LW488	BUSINESS LAW
LW495	JURISPRUDENCE AND LEGAL THEORY
<b>OR</b>	
<b>Sociology and Mathematics</b>	Choose 3 of 6
MA367	MATH FOR THE SOCIAL SCIENCES
MA391	MATHEMATICAL MODELING
MA394	FUNDAMENTALS/NETWORK SCIENCE
MA476	MATHEMATICAL STATISTICS
MA490	APP PROB FROM MATH, SCI & ENGR
PL396	SNA FOR PUBLIC POLICY
<b>OR</b>	
<b>Sociology of the Military</b>	Choose 3 of 8
DS345	MILITARY INNOVATION

DS350	PERSUASIVE COMMUNICATIONS
DS360	SP OPNS/LOW-INTENSITY CONFLICT
DS370	STRATEGY AND POLICY
DS455	COMPARATIVE DEFENSE POLICY
DS460	INSURGENCY & COUNTERINSURGENCY
SS465	TERRORISM: NEW CHALLENGES
SS472	THE AM STATE & THE SOLDIER
<b>OR</b>	
<b>Sociology of Exercise and Sport</b>	Choose 3 of 5
KN365	NUTRITION FOR PERFORMANCE
KN455	PSYCHOLOGY OF EXERCISE
KN465	MOTOR CONTROL AND LEARNING
PL360	PSYCH ELITE PERFORMANCE
PL391	SENSATION/PERCEPTN/PSYCPHYS
<b>OR</b>	
<b>Sociology of Politics and Government</b>	Choose 3 of 15
SS366	COMPARATIVE POLITICS
SS370	MASS MEDIA & AMER POLITICS
SS372	POLITICS AND GOV OF CHINA
SS373	THE AMERICAN PRESIDENCY
SS374	POL & GOV OF KOREAS & JAPAN
SS375	GOV & POL RUSSIA & NEIGHBORS
SS377	POLITICS & GOV OF EUROPE
SS383	POLITICS & GOVT-MIDDLE EAST
SS384	POLITICS & GOVT-LATIN AMER
SS465	TERRORISM: NEW CHALLENGES
SS475	DEMOCRATIZATION
SS479	INTERNATIONAL ORGANIZATION
SS485	GOV & POLITICS SUB-SAHARAN AFR
XH467	WINNING THE PEACE
ZH365	POLITICS AND DIPLOMACY
<b>OR</b>	
<b>Sociology of Race and Ethnicity</b>	Choose 3 of 5
HI463	RACE, ETHNICITY, NATION
LW461	CIVIL RIGHTS AND THE LAW
SS493	SENIOR STUDIES - AMER POLITICS
XH405	THE HOLOCAUST AND ITS LEGACY
XH415	GENOCIDE AND ETHNIC CLEANSING
<b>OR</b>	
<b>Sociology of Sex/Gender</b>	Choose 3 of 3
EN370	SHAKESPEARE
HI461	TOPICS IN GENDER HISTORY
SS493	SENIOR STUDIES - AMER POLITICS
<b>OR</b>	
<b>Sociology of Art and Film</b>	Choose 3 of 9
EN362	FILM AND FILM THEORY
LF475	FRENCH RDG/WRTG THRU MEDIA
LG475	GERMAN RDG/WRTG THRU MEDIA
LP475	PORTUGUESE RDG/WRTG THRU MEDIA
LR476	MILITARY SPKG/RDG - RUSSIAN
LS475	SPANISH RDG/WRTG THRU MEDIA
LZ475	PERSIAN RDG/WRTG THRU MEDIA
SS370	MASS MEDIA & AMER POLITICS
SS490A	COLLOQUIUM (AMER POLITICS)

<b>OR</b>	
<b>Sociology of Peace and Conflict</b>	Choose 3 of 8
MG390	NEGOTIATION FOR LEADERS
SS465	TERRORISM: NEW CHALLENGES
SS476	CONFLICT AND NEGOTIATION
SS479	INTERNATIONAL ORGANIZATION
SS483	NATIONAL SECURITY SEMINAR
SS486	INTERNATIONAL SECURITY SEMINAR
XH405	THE HOLOCAUST AND ITS LEGACY
XH467	WINNING THE PEACE
<b>OR</b>	
<b>Sociology of Media, Science and Technology</b>	Choose 3 of 3
IT460	CYBER POLICY, STRATEGY & OPNS
PY350	PHILOSOPHY OF SCIENCE
SS370	MASS MEDIA & AMER POLITICS
<b>OR</b>	
<b>Psychology</b>	Choose 3 of 4
PL360	PSYCH ELITE PERFORMANCE
PL373	LIFE CYCLE & HUMAN DEVEL
PL376	PERSONALITY & AB PSYCH
PL387	FOUNDATIONS OF COUNSELING
<b>AND</b>	
<b>Integrative Experience for the Major</b>	Choose 1 of 1
PL482	ARMED FORCES AND SOCIETY
<b>AND</b>	
<b>Science Depth</b>	
Cadets in this major may take any approved choice to satisfy the Science Depth requirement.	
CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II
<b>STEM Depth</b>	
Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.	
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>AND</b>	
<b>Curriculum Requirements</b>	
This section describes how cadets in this major satisfy various curriculum requirements.	
<b>IT/CYBER Requirement</b>	
Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.	
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>Core Engineering Sequence</b>	
Cadets in this major can choose any approved three-course Core Engineering Sequence.	
<b>Writing-in-the-Major</b>	
Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and PL363 and PL371.	
PL371	INTRODUCTORY SOCIOLOGY

### 2021 Sociology Major w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
SOC1H	Sociology w/ Honors	Sociology Major w/ Honors	Sociology w/ Honors	2	0

### 2021 Sociology Major w/ Honors Tracks

Subject Area	Description
<b>Sociological Research</b>	Choose 2 of 2
*To qualify for Honors, these classes cannot count as depth-in-discipline selections	
PL497	SEMINAR IN BEHAVIORAL SCI
PL498	ADV STUDY-BEHAVIOR SCI
<b>AND</b>	

Complete the requirements of the major as shown above, attain a minimum APSC of 3.0 in the core curriculum and 3.5 in the major.

## Department of Chemistry & Life Science

### 2021 Chemical Engineering Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
CEN1	Chemical Engineering	Chemical Engineering Major	Chemical Engineering	16	3

### 2021 Chemical Engineering Major Tracks

Subject Area	Description
<b>Required Courses</b>	Choose 12 of 12
CH362	MASS & ENERGY BALANCES
CH363	SEPARATION PROCESSES
CH364	CHEMICAL REACTION ENGINEERING
CH365	CHEMICAL ENG THERMODYNAMICS
CH367	INTRO / AUTOMATIC PROC CONTROL
CH383	ORGANIC CHEMISTRY I
CH400	CHEM ENG PROFESSIONAL PRACTICE
CH459	CHEM ENGR LABORATORY
CH485	HEAT AND MASS TRANSFER
MC300	FUND OF ENGR MECH AND DESIGN
MC311	THERMAL-FLUID SYSTEMS I
MC312	THERMAL-FLUID SYSTEMS II
<b>AND</b>	
<b>Electives</b>	Choose 3 of 17
Prerequisites must be satisfied. Additional electives are available on approval of the program director and must meet minimum engineering content of 3.0 credit hours per course.	
EE360	DIGITAL LOGIC W/ EMBEDDED SYS
EE377	ELECTRICAL POWER ENGRNG
EM411	PROJECT MANAGEMENT
EM420	PRODUCTION OPERATIONS MGMT
EM481	SYSTEMS SIMULATION
MC306	DYNAMICS
MC364	MECHANICS OF MATERIALS
MC380	ENGINEERING MATERIALS
ME472	ENERGY CONVERSION SYSTEMS
ME480	HEAT TRANSFER
ME491	MECHANICAL POWER PLANTS
NE300	FUNDAMENTALS OF NUCLEAR ENGR
NE350	RADIOLOGICAL ENGR DESIGN
NE450	NUCLEAR WEAPONS EFFECTS
SE301	FNDTN ENGIN DSGN & SYS MGMT
SM484	SYSTEM DYNAMICS SIMULATION
XE475	MECHATRONICS
<b>AND</b>	
<b>Complementary Support Courses</b>	Choose 3 of 5
The following courses provide foundational math and applied science for cadets in the chemical engineering major. Cadets who complete MA255 will enroll in MA365 in lieu of MA364.	
EE301	FUNDAMENTALS OF ELEC ENGIN



MA364	ENGINEERING MATHEMATICS
MA365	ADV MATH FOR ENGRS/SCIENTISTS
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II
<b>AND</b>	
<hr/>	
<b>Integrative Experience for the Major</b>	Choose 1 of 1
CH402	CHEM ENG PROCESS DESIGN
<b>AND</b>	
<hr/>	
<b>Science Depth</b>	
Cadets in this major must take CH102 to satisfy the Science Depth requirement.	
CH102	GENERAL CHEMISTRY II
<b>STEM Depth</b>	
Cadets in this major must take MA205 or MA255 to satisfy the STEM Depth requirement	
MA205	CALCULUS II
MA255	ADV MULTIVARIABLE CALCULUS
<b>AND</b>	
<hr/>	
<b>Curriculum Requirements</b>	
This section describes how cadets in this major will satisfy various curriculum requirements.	
<b>IT/CYBER Requirement</b>	
Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the core curriculum, EE301 and CH367.	
CH367	INTRO / AUTOMATIC PROC CONTROL
EE301	FUNDAMENTALS OF ELEC ENGIN
<b>Core Engineering Sequence</b>	
Cadets in this major will satisfy the core engineering requirement as an ABET accredited engineering major.	
<b>Writing-in-the-Major</b>	
Cadets in this major will satisfy the West Point Writing Program requirement by successfully completing the writing requirements in the core curriculum and several other courses in the major, including: MC312.	
MC312	THERMAL-FLUID SYSTEMS II

## 2021 Chemical Engineering Major w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
CEN1H	Chemical Engineering w/ Honors	Chemical Engineering Major w/ Honors	Chemical Engineering w/ Honors	1	0

## 2021 Chemical Engineering Major w/ Honors Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
CH489	INDIVIDUAL RESEARCH I
<b>AND</b>	

Complete the requirements of the major as shown above, attain a minimum APSC of 3.0 in the core curriculum and 3.5 in the major.

## 2021 Chemical Engineering Studies Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
CES0	Chemical Engineering Studies	Chemical Engineering Studies Major	Chemical Engineering Studies	14	0

## 2021 Chemical Engineering Studies Major Tracks

Subject Area	Description
<b>IT Course</b>	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
<b>AND</b>	
<b>Required Courses</b>	Choose 11 of 11
CH362	MASS & ENERGY BALANCES
CH363	SEPARATION PROCESSES
CH364	CHEMICAL REACTION ENGINEERING
CH365	CHEMICAL ENG THERMODYNAMICS
CH383	ORGANIC CHEMISTRY I
CH402	CHEM ENG PROCESS DESIGN
EE301	FUNDAMENTALS OF ELEC ENGIN
MA366	APPLIED ENGINEERING MATH
MC311	THERMAL-FLUID SYSTEMS I
MC312	THERMAL-FLUID SYSTEMS II
XE472	DYNAMIC MODELING AND CONTROL
<b>AND</b>	
<b>Elective</b>	Choose 2 of 32
Prerequisites must be satisfied. Additional electives are available on approval of the program director.	
CE364	MECHANICS OF MATERIALS
CH371	INTRO TO ANALYTICAL CHEM
CH384	ORGANIC CHEMISTRY II
CH385	INTRODUCTION TO CELL BIOLOGY
CH387	HUMAN PHYSIOLOGY
CH459	CHEM ENGR LABORATORY
CH471	APPLICATIONS OF POLYMER CHEM
CH472	INORGANIC CHEMISTRY
CH473	BIOCHEMISTRY
CH474	INSTRU METHODS OF ANALYSIS
CH481	PHYSICAL CHEMISTRY I
CH482	PHYSICAL CHEMISTRY II
CH485	HEAT AND MASS TRANSFER
EE360	DIGITAL LOGIC W/ EMBEDDED SYS
EE377	ELECTRICAL POWER ENGRNG
EM411	PROJECT MANAGEMENT
EM420	PRODUCTION OPERATIONS MGMT
MA371	LINEAR ALGEBRA
MA396	NUM METH SOLUTIONS DIFF EQNS

MC300	FUND OF ENGR MECH AND DESIGN
MC306	DYNAMICS
MC380	ENGINEERING MATERIALS
ME472	ENERGY CONVERSION SYSTEMS
ME480	HEAT TRANSFER
ME491	MECHANICAL POWER PLANTS
NE300	FUNDAMENTALS OF NUCLEAR ENGR
NE350	RADIOLOGICAL ENGR DESIGN
NE450	NUCLEAR WEAPONS EFFECTS
SE301	FNDTN ENGIN DSGN & SYS MGMT
SE481	SYSTEMS SIMULATION
SM484	SYSTEM DYNAMICS SIMULATION
XE475	MECHATRONICS

### 2021 Chemistry Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
CHM1	Chemistry	Chemistry Major	Chemistry	12	1

### 2021 Chemistry Major Tracks

Subject Area	Description
<b>Required Courses</b>	Choose 9 of 9
CH371	INTRO TO ANALYTICAL CHEM
CH383	ORGANIC CHEMISTRY I
CH384	ORGANIC CHEMISTRY II
CH471	POLYMER CHEMISTRY
CH472	INORGANIC CHEMISTRY
CH473	BIOCHEMISTRY
CH474	INSTRU METHODS OF ANALYSIS
CH481	PHYSICAL CHEMISTRY I
CH482	PHYSICAL CHEMISTRY II
<b>AND</b>	
<b>Complementary Support Courses</b>	
Cadets must take MA205 and PH206 and an additional elective to satisfy the Complementary Support Course requirement.	
<b>Complementary Support Courses - Required</b>	Choose 2 of 2
MA205	CALCULUS II
PH206	PHYSICS II
<b>AND</b>	
<b>Complementary Support Course - Elective</b>	Choose 1 of 12
Electives from other programs and departments may be chosen upon approval of the Chemistry Program Director. A Cadet cannot double count a course from this list to satisfy both the CSC requirement and the requirements for Science Depth or STEM Depth or the Core Engineering Sequence.	
CH362	MASS & ENERGY BALANCES
CH375	INTRODUCTION TO BIOLOGY
CH385	INTRODUCTION TO CELL BIOLOGY

CS350	DATABASE DESIGN & IMPLEMENT
EV350	ENVIRONMENTAL ENGR TECHNOLOGIES
MA364	ENGINEERING MATHEMATICS
MA365	ADV MATH FOR ENGRS/SCIENTISTS
MA376	APPLIED STATISTICS
MC311	THERMAL-FLUID SYSTEMS I
PH365	MODERN PHYSICS
PL390	BIOLOGICAL PSYCHOLOGY
XS391	PRIN & APPL OF ENV CHEM

**AND****Integrative Experience for the Major**

Choose 1 of 1

CH487

ADVANCED CHEMISTRY  
LABORATORY**AND****Science Depth**

Cadets in this major must take CH102 as the Science Depth course.

CH102

GENERAL CHEMISTRY II

**STEM Depth**

Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.

CY305

CYBER FOUNDATIONS

CY355

CYBER FOUNDATIONS - COMPUTING

**AND****Curriculum Requirements****IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305

CYBER FOUNDATIONS

CY355

CYBER FOUNDATIONS - COMPUTING

**Core Engineering Sequence**

Cadets in this major may choose any approved three-course Core Engineering Sequence.

**Writing-in-the-Major**

Cadets in the major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and CH487.

CH487

ADVANCED CHEMISTRY  
LABORATORY**2021 Chemistry Major w/ ACS Certification Curriculum**

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
CHM1A	Chemistry w/ ACS Certification	Chemistry Major w/ ACS Certification	Chemistry w/ ACS Certification	0	2

**2021 Chemistry Major w/ ACS Certification Tracks**

Subject Area	Description
<b>Research Requirement</b>	
Cadets must take at least 4.5 credit hours of research from the following courses.	
CH289	INTRODUCTION TO RESEARCH I

CH290	INTRODUCTION TO RESEARCH II
CH389	ADVANCED LAB PROJECTS I
CH390	ADVANCED LAB PROJECTS II
CH391	ADV LAB PROJECTS III
CH392	ADVANCED LAB PROJECTS IV
CH489	INDIVIDUAL RESEARCH I
CH490	INDIVIDUAL RESEARCH II
CH491	ADVANCED INDIVIDUAL STUDY I
CH492	ADVANCED INDIVIDUAL STUDY II

### 2021 Chemistry Major w/ ACS Certification (Honors) Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
CHM1H	Chemistry w/ ACS (Honors)	Chemistry Major w/ ACS Certification (Honors)	Chemistry w/ ACS (Honors)	2	0

### 2021 Chemistry Major w/ ACS Certification (Honors) Tracks

Subject Area	Description
<b>Required Courses</b>	Choose 2 of 2
CH489	INDIVIDUAL RESEARCH I
CH490	INDIVIDUAL RESEARCH II
<b>AND</b>	

Complete the requirements of the Chemistry major as shown above, take above two research courses, and attain a minimum APSC of 3.0 in the core curriculum and 3.5 in the major.

### 2021 Life Science Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
LSC1	Life Science	Life Science Major	Life Science	11	2

### 2021 Life Science Major Tracks

Subject Area	Description
<b>Required Courses</b>	Choose 7 of 7
CH383	ORGANIC CHEMISTRY I
CH384	ORGANIC CHEMISTRY II
CH385	INTRODUCTION TO CELL BIOLOGY
CH387	HUMAN PHYSIOLOGY
CH388	GENETICS

CH457	MICROBIOLOGY
CH473	BIOCHEMISTRY
<b>AND</b>	
<b>Electives</b>	Choose 2 of 13
CH362	MASS & ENERGY BALANCES
CH371	INTRO TO ANALYTICAL CHEM
CH399	TOPICS IN CHEM/LS/CHMENG
CH460	HUMAN ANATOMY
CH471	POLYMER CHEMISTRY
CH474	INSTRU METHODS OF ANALYSIS
CH481	PHYSICAL CHEMISTRY I
CH499	TOPICS IN CHEM/LS/CHMENG W/LAB
EV471	ECOLOGY
KN355	FUNCTIONAL ANATOMY
NE474	RADIOLOGICAL SAFETY
PH365	MODERN PHYSICS
PL390	BIOLOGICAL PSYCHOLOGY
<b>AND</b>	
<b>Complementary Support Courses</b>	Choose 3 of 5
The CSCs will provide foundational math and science support for cadets in this major.	
CH102	GENERAL CHEMISTRY II
MA205	CALCULUS II
MA255	ADV MULTIVARIABLE CALCULUS
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II
<b>AND</b>	
<b>Integrative Experience for the Major</b>	Choose 1 of 1
CH479	METHODS & APPS OF BIOTECH
<b>AND</b>	
<b>Science Depth</b>	
Cadets in this major must take CH375 to satisfy the Science Depth requirement.	
CH375	INTRODUCTION TO BIOLOGY
<b>STEM Depth</b>	
Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.	
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>AND</b>	
<b>Curriculum Requirements</b>	
This section describes how cadets in this major satisfy various curriculum requirements.	
<b>IT/CYBER Requirement</b>	
Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.	
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>Core Engineering Sequence</b>	
Cadets in this major may take any approved core engineering sequence.	
<b>Writing-in-the-Major</b>	
Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of CH479.	
CH479	METHODS & APPS OF BIOTECH

### 2021 Life Science Major w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
LSC1H	Life Science w/ Honors	Life Science Major w/ Honors	Life Science w/ Honors	2	0

### 2021 Life Science Major w/ Honors Tracks

Subject Area	Description
<b>Required Courses</b>	Choose 2 of 2
CH489	INDIVIDUAL RESEARCH I
CH490	INDIVIDUAL RESEARCH II
<b>AND</b>	

Complete the requirements of the major as shown above, attain a minimum APSC of 3.0 in the core curriculum and 3.5 in the major.

## Department of Civil and Mechanical Engineering

### 2021 Aeronautical Engineering Minor Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
AER0N	Aeronautical Engineering Minor	Aeronautical Engineering Minor	Aeronautical Engineering Minor	3	2

### 2021 Aeronautical Engineering Minor Tracks

Subject Area	Description
<b>Aeronautical Engineering Minor</b>	
	You must select three of the first three offerings and two of the remaining seven in order to complete the minor. No more than two courses can also count toward any other curricular component to include a Major or Core Engineering Sequence (CES).
	Choose 3 of 3
ME387	INTRO APPLIED AERODYNAMICS
ME388	HELICOPTER AERONAUTICS
ME481	AIRCRAFT PERFOR/STAT STBLTY
<b>AND</b>	
	Choose 2 of 7
	Cadets who select ME389/489 or EE489 must complete an advanced study related to Aeronautical Engineering and cannot apply an additional advanced study course to count for the minor.
EE360	DIGITAL LOGIC W/ EMBEDDED SYS
EE477	DIGITAL COMMUNICATIONS SYSTEMS
EE489	ADV IND STUDY IN ELECT ENGR
MC312	THERMAL-FLUID SYSTEMS II
ME389	INTRO TO ADV STUDY IN MECH ENG
ME489	ADV STUDY IN MECH ENGRNG
XE472	DYNAMIC MODELING AND CONTROL

### 2021 Civil Engineering Studies Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
CNG0	Civil Engineering Studies	Civil Engineering Studies Major	Civil Engineering Studies	14	0

### 2021 Civil Engineering Studies Major Tracks

Subject Area	Description
<b>IT Course</b>	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
<b>AND</b>	
<b>Required Courses</b>	Choose 10 of 10



CE350	INFRASTRUCTURE ENGINEERING
CE371	SOIL MECHANICS/FNDTN ENGNRG
CE380	HYDROLOGY/HYDRAULIC DESIGN
CE403	STRUCTURAL ANALYSIS
CE404	DSN STEEL AND WOOD STRUCTURES
CE450	CONSTRUCTION MANAGEMENT
CE483	DSN CONC AND MASON STRUCTURES
CE492	DESIGN-STRUCTURAL SYSTEMS
MC300	FUND OF ENGR MECH AND DESIGN
MC311	THERMAL-FLUID SYSTEMS I
<b>AND</b>	
<b>Enrichment Electives</b>	Choose 3 of 29
CE390	CIVIL ENGINEERING SITE DESIGN
CE399	CIVIL ENG PRAC-FIELD ENG
CE472	ADV SOIL MECHNCS/FNDTN ENGRNG
CE489	ADV IND STUDY CIVIL ENGRING
CE490	TOPICS IN CIVIL ENGINEERING
CE491	ADV STRUCTURAL ANALYSIS
CE495	TRANSPORTATION ENGINEERING
CH371	INTRO TO ANALYTICAL CHEM
EV301	ENV SCIENCE FOR ENGR & SCIEN
EV380	SURVEYING
EV385	INTRO TO ENVIRON ENGR
EV388A	PHYSICAL GEOLOGY
EV394	HYDROGEOLOGY/HYDRAULIC SYSTEMS
EV398	GEOG INFORMATION SYSTEMS
EV401	PHYS & CHEM TREATMENT
EV481	WATER RESOURCES PLAN & DESIGN
MA364	ENGINEERING MATHEMATICS
MA365	ADV MATH FOR ENGRS/SCIENTISTS
MA371	LINEAR ALGEBRA
MA376	APPLIED STATISTICS
MC306	DYNAMICS
MC364	MECHANICS OF MATERIALS
MC380	ENGINEERING MATERIALS
MC478	STRUCTURAL MECHANICS
MC486	VIBRATION ENGINEERING
ME370	COMPUTER AIDED DESIGN
PH365	MODERN PHYSICS
SE375	STATISTICS FOR ENGINEERS
XS391	PRIN & APPL OF ENV CHEM

## 2021 Civil Engineering Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
CVN2	Civil Engineering Major	Civil Engineering Major	Civil Engineering	15	3

## 2021 Civil Engineering Major Tracks

Subject Area	Description
<b>Required Courses</b>	Choose 11 of 11
CE201	INTRO TO CIVIL ENGINEERING
CE350	INFRASTRUCTURE ENGINEERING
CE371	SOIL MECHANICS/FNDTN ENGNRG
CE380	HYDROLOGY/HYDRAULIC DESIGN
CE401	CIV ENG PROF PRAC AND APP
CE403	STRUCTURAL ANALYSIS
CE404	DSN STEEL AND WOOD STRUCTURES
CE450	CONSTRUCTION MANAGEMENT
CE483	DSN CONC AND MASON STRUCTURES
MC300	FUND OF ENGR MECH AND DESIGN
MC364	MECHANICS OF MATERIALS
<b>AND</b>	
<b>Civil Engineering Electives</b>	Choose 2 of 26
CE389	INDEPENDENT STUDY IN CE (3CR)
CE389A	INDEPENDENT STUDY IN CE (3CR)
CE390	CIVIL ENGINEERING SITE DESIGN
CE399	CIVIL ENG PRAC-FIELD ENG
CE472	ADV SOIL MECHNCS/FNDTN ENGRNG
CE489	ADV IND STUDY CIVIL ENGRING
CE489A	ADV IND STUDY CIVIL ENGRING
CE490	TOPICS IN CIVIL ENGINEERING
CE491	ADV STRUCTURAL ANALYSIS
CE495	TRANSPORTATION ENGINEERING
EE301	FUNDAMENTALS OF ELEC ENGIN
EV380	SURVEYING
EV385	INTRO TO ENVIRON ENGR
EV394	HYDROGEOLOGY/HYDRAULIC SYSTEMS
EV398	GEOG INFORMATION SYSTEMS
EV401	PHYS & CHEM TREATMENT
EV481	WATER RESOURCES PLAN & DESIGN
MC306	DYNAMICS
MC312	THERMAL-FLUID SYSTEMS II
MC380	ENGINEERING MATERIALS
MC478	STRUCTURAL MECHANICS
MC486	VIBRATION ENGINEERING
ME370	COMPUTER AIDED DESIGN
ME472	ENERGY CONVERSION SYSTEMS
ME491	MECHANICAL POWER PLANTS
XE490	SUSTAINABILITY ENGINEERING
<b>AND</b>	
<b>Complementary Support Courses - Required</b>	Choose 2 of 3
The CSCs for this major are divided between two required and one elective courses. The CSCs will provide foundational math, science and engineering support for cadets in this major. For cadets in the advanced math program, they must take MA365 in lieu of MA366.	
MA365	ADV MATH FOR ENGRS/SCIENTISTS
MA366	APPLIED ENGINEERING MATH
MC311	THERMAL-FLUID SYSTEMS I
<b>AND</b>	
<b>Complementary Support Course - Elective</b>	Choose 1 of 5
CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
MA371	LINEAR ALGEBRA

MA376	APPLIED STATISTICS
MA386	INTRO TO NUMERICAL ANALYSIS
<b>AND</b>	
<b>Integrative Experience for the Major</b>	Choose 2 of 2
CE493	CIV ENG CAPSTONE DESIGN I
CE494	CIV ENG CAPSTONE DESIGN II
<b>AND</b>	
<b>Science Depth</b>	
Cadets in this major must take PH206 to satisfy the Science Depth requirement.	
PH206	PHYSICS II
<b>STEM Depth</b>	
Cadets in this major must take CY305 to satisfy the STEM Depth requirement.	
CY305	CYBER FOUNDATIONS
<b>AND</b>	
<b>Curriculum Requirements</b>	
This section describes how cadets in this major satisfy various curriculum requirements.	
<b>IT/CYBER Requirement</b>	
Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305.	
CY305	CYBER FOUNDATIONS
<b>Core Engineering Sequence</b>	
Cadets in this major will have the civil engineering sequence embedded in their major.	
CE350	INFRASTRUCTURE ENGINEERING
CE450	CONSTRUCTION MANAGEMENT
MC300	FUND OF ENGR MECH AND DESIGN
<b>Writing-in-the-Major</b>	
Cadets in this major will satisfy the West Point Writing Program requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of CE401.	
CE401	CIV ENG PROF PRAC AND APP

## 2021 Civil Engineering Major with Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
CVN2H	Civil Engineering Major with Honors	Civil Engineering Major with Honors	Civil Engineering w/ Honors	0	1

## 2021 Civil Engineering Major with Honors Tracks

Subject Area	Description
<b>Coursework Requirements</b>	
Complete 42 total academic courses, which requires one additional course than the requirements for the major as shown above. The additional course can be selected from the Math and Basic Science Electives, the Civil Engineering Electives, or as approved by the Civil Engineering Program Director.	
<b>AND</b>	
<b>Requirements for Graduation</b>	
To graduate with Individual Honors a cadet must submit an individual paper or report which can be any of the following:	

- (1) A project report for an individual CE489 Advanced Study Project.
- (2) An individual paper written for a regional or national student paper competition.
- (3) An individual paper, suitable for publication or presentation at a professional conference, drawn from one of the following sources:

..... A CE489 Advanced Study Project.

..... A Senior Design Project.

..... An engineering-related Academic Individual Advanced Development (AIAD).

..... An experience relevant to the cadet's program of study and approved by the associated Program Director.

Cadets desiring to aspire to Individual Honors will coordinate with their Department Academic Counselor to develop a plan no later than the end of second class year for completing the individual paper or report. The Department Academic Counselor will certify the completion of the significant individual paper component of the Academic Honors Program.

#### AND

#### Grade Requirements

Complete the requirements of the major as shown above, and attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

#### AND

#### Examination Requirement

Pass the Fundamentals of Engineering Examination in the final semester of study.

## 2021 Mechanical Engineering Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
MEN1	Mechanical Engineering	Mechanical Engineering Major	Mechanical Engineering	16	3

## 2021 Mechanical Engineering Major Tracks

Subject Area	Description
<b>Required Courses</b>	Choose 10 of 10
MC300	FUND OF ENGR MECH AND DESIGN
MC306	DYNAMICS
MC311	THERMAL-FLUID SYSTEMS I
MC312	THERMAL-FLUID SYSTEMS II
MC364	MECHANICS OF MATERIALS
MC380	ENGINEERING MATERIALS
ME201	INTRO TO MECH ENGINEERING
ME370	COMPUTER AIDED DESIGN
ME403	MANUFACTURING/MACHINE COMP DSN
ME480	HEAT TRANSFER
<b>AND</b>	

**Dynamic Systems Elective**

Choose 1 of 2

MC486

VIBRATION ENGINEERING

XE472

DYNAMIC MODELING AND CONTROL

**AND****General Electives**

Choose 3 of 25

The electives selected from this list must together contain at least 3.0 credit hours of Engineering Topics (ET). One elective may be chosen from outside this list with approval of the ME program director and if it contains at least 3.0 credit hours of Math (MA), Basic Science (BS) or Engineering Topics (ET).

CE350

INFRASTRUCTURE ENGINEERING

CE403

STRUCTURAL ANALYSIS

CH362

MASS &amp; ENERGY BALANCES

CH364

CHEMICAL REACTION ENGINEERING

EE360

DIGITAL LOGIC W/ EMBEDDED SYS

EE377

ELECTRICAL POWER ENGRNG

EM381

ENGINEERING ECONOMY

MC486

VIBRATION ENGINEERING

ME387

INTRO APPLIED AERODYNAMICS

ME388

HELICOPTER AERONAUTICS

ME389

INTRO TO ADV STUDY IN MECH ENG

ME389A

INTRO TO ADV STUDY IN MECH ENG

ME472

ENERGY CONVERSION SYSTEMS

ME481

AIRCRAFT PERFOR/STAT STBLTY

ME489

ADV STUDY IN MECH ENGRNG

ME489A

ADV STUDY IN MECH ENGRNG

ME490

TOPICS IN MECHANICAL ENGRNG

ME491

MECHANICAL POWER PLANTS

ME492

PWR TRAINS &amp; VEH DYNAMICS

NE300

FUNDAMENTALS OF NUCLEAR ENGR

NE355

NUCLEAR REACTOR ENGINEERING

XE310

INTRO TO BIOMECH ENGINEERING

XE472

DYNAMIC MODELING AND CONTROL

XE475

MECHATRONICS

XE495

TOPICS: ADVANCED TECHNOLOGY

**AND****Complementary Support Courses** Choose 3 of 4

The following courses provide foundational math and applied science for cadets in the mechanical engineering major. For the math requirement, a cadet should take MA364 but may substitute MA365 if qualified.

CH102

GENERAL CHEMISTRY II

EE301

FUNDAMENTALS OF ELEC ENGIN

MA364

ENGINEERING MATHEMATICS

MA365

ADV MATH FOR ENGRS/SCIENTISTS

**AND****Integrative Experience for the Major**

Choose 2 of 2

ME404

MECHANICAL ENGINEERING DESIGN

ME496

MECHANICAL SYSTEM DESIGN

**AND****Science Depth**

Cadets in this major must take PH206 or PH256 to satisfy the Science Depth requirement.

PH206

PHYSICS II

PH256

ADVANCED PHYSICS II

**STEM Depth**

Cadets in this major must take MA205 or MA255 to satisfy the STEM Depth requirement.

MA205	CALCULUS II
MA255	ADV MULTIVARIABLE CALCULUS
<b>AND</b>	

**Curriculum Requirements**

This section describes how cadets in this major will satisfy various curriculum requirements.

**IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the core curriculum, EE301 and ME370.

EE301	FUNDAMENTALS OF ELEC ENGIN
ME370	COMPUTER AIDED DESIGN

**Core Engineering Sequence**

Cadets in this major will satisfy the core engineering requirement as an ABET accredited engineering major.

**Writing-in-the-Major**

Cadets in this major will satisfy the West Point Writing Program requirement by successfully completing the writing requirements in the core curriculum and several other courses in the major, including MC312, a writing enhanced course.

MC312	THERMAL-FLUID SYSTEMS II
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**2021 Mechanical Engineering Major w/ Honors Curriculum**

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
MEN1H	Mechanical Engineering w/ Honors	Mechanical Engineering Major w/ Honors	Mechanical Engineering w/ Honors	0	0

**2021 Mechanical Engineering Major w/ Honors Tracks**

Subject Area	Description
<b>Examination Requirement</b>	Pass the Fundamentals of Engineering Examination in the final semester of study.
<b>Scholarship Requirement</b>	Complete a significant scholarly activity outside of the normal curricular requirements for the mechanical engineering major, as approved by the ME Program Director.
<b>Grade Requirements</b>	Complete the requirements of the major as shown above, and attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

**2021 Mechanical Engineering Studies Major Curriculum**

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
MES0	Mechanical Engineering Studies	Mechanical Engineering Studies Major	Mechanical Engineering Studies	14	0

## 2021 Mechanical Engineering Studies Major Tracks

Subject Area	Description
<b>IT Course</b>	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
<b>AND</b>	
<b>Required Courses</b>	Choose 11 of 11
EE301	FUNDAMENTALS OF ELEC ENGIN
MC300	FUND OF ENGR MECH AND DESIGN
MC306	DYNAMICS
MC311	THERMAL-FLUID SYSTEMS I
MC312	THERMAL-FLUID SYSTEMS II
MC364	MECHANICS OF MATERIALS
MC380	ENGINEERING MATERIALS
ME370	COMPUTER AIDED DESIGN
ME403	MANUFACTURING/MACHINE COMP DSN
ME404	MECHANICAL ENGINEERING DESIGN
ME496	MECHANICAL SYSTEM DESIGN
<b>AND</b>	
<b>Technical Elective</b>	Choose 2 of 19
CE403	STRUCTURAL ANALYSIS
CH364	CHEMICAL REACTION ENGINEERING
CH385	INTRODUCTION TO CELL BIOLOGY
CH387	HUMAN PHYSIOLOGY
EE360	DIGITAL LOGIC W/ EMBEDDED SYS
EE377	ELECTRICAL POWER ENGRNG
EM381	ENGINEERING ECONOMY
EM420	PRODUCTION OPERATIONS MGMT
MA364	ENGINEERING MATHEMATICS
MA365	ADV MATH FOR ENGRS/SCIENTISTS
ME387	INTRO APPLIED AERODYNAMICS
ME388	HELICOPTER AERONAUTICS
ME472	ENERGY CONVERSION SYSTEMS
ME489	ADV STUDY IN MECH ENGRNG
ME490	TOPICS IN MECHANICAL ENGNRG
ME491	MECHANICAL POWER PLANTS
NE300	FUNDAMENTALS OF NUCLEAR ENGR
NE355	NUCLEAR REACTOR ENGINEERING
XE472	DYNAMIC MODELING AND CONTROL

## Department of Electrical Engineering and Computer Science

### 2021 Computer Science Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
CSC1	Computer Science	Computer Science Major	Computer Science	13	4

### 2021 Computer Science Major Tracks

Subject Area	Description
<b>Required Courses</b>	Choose 9 of 9
CS380	COMPUTER ORGANIZATION
CS384	DATA STRUCTURES
CS385	DESIGN & ANALYS-ALGORITHMS
CS400	PROFESSIONAL CONSIDERATIONS
CS403	SOFTWARE TESTING & DEVELOPMENT
CS474	FUNDAMENTALS-COMPUTER THEORY
CS478	PROGRAMMING LANGUAGES
CS481	OPERATING SYSTEMS
CY300	PROGRAMMING FUNDAMENTALS
<b>AND</b>	
<b>Networking Group</b>	Choose 1 of 2
CS484	COMPUTER NETWORKS
CY350	NETWORK ENGR & MGT
<b>AND</b>	
<b>Computer Science Major Electives</b>	Choose 2 of 18
CS393	DATABASE SYSTEMS
CS394	DISTRIB APPLICATION ENGRNG
CS473	COMPUTER GRAPHICS
CS483	DIGITAL FORENSICS
CS484	COMPUTER NETWORKS
CS485	SPEC TOPICS IN COMPUTER SCI
CS486	ARTIFICIAL INTELLIGENCE
CS489	ADV IND STUDY COMPUTER SCI
CS489A	ADV IND STUDY COMPUTER SCI
CS490	COMPUTR SCI SUMMER RESEARCH
CY350	NETWORK ENGR & MGT
CY450	CYBER SECURITY ENGINEERING
EE375	COMPUTER ARCHITECTURE W/MICRO
EE487	EMBEDDED SYSTEMS DEVELOPMENT
IT383	USER INTERFACE DEVELOPMENT
MA386	INTRO TO NUMERICAL ANALYSIS
MA464	APPLIED ALGEBRA W/ CRYPTOLOGY
XE492	DISRUPTIVE INNOVATIONS
<b>AND</b>	
<b>Complementary Support Courses (CS Foundation)</b>	Choose 2 of 2
EE360	DIGITAL LOGIC W/ EMBEDDED SYS
MA372	INTRODUCTION TO DISCRETE MATH



**AND****Complementary Support Course  
(Math Elective)**

Choose 1 of 15

MA205	CALCULUS II
MA255	ADV MULTIVARIABLE CALCULUS
MA371	LINEAR ALGEBRA
MA376	APPLIED STATISTICS
MA383	FOUNDATIONS OF MATH
MA385	CHAOS AND FRACTALS
MA386	INTRO TO NUMERICAL ANALYSIS
MA388	SABERMETRICS
MA391	MATHEMATICAL MODELING
MA394	FUNDAMENTALS/NETWORK SCIENCE
MA461	GRAPH THEORY AND NETWORKS
MA462	COMBINATORICS
MA464	APPLIED ALGEBRA W/ CRYPTOLOGY
MA466	ABSTRACT ALGEBRA
MA476	MATHEMATICAL STATISTICS

**AND****Integrative Experience for the Major**

Choose 2 of 2

XE401	INTEGRATIVE SYSTEM DESIGN I
XE402	INTEGRATIVE SYSTEM DESIGN II

**AND****Science Depth**

Cadets in this major may take any of the approved options to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II

**STEM Depth**

Cadets in this major will satisfy the STEM Depth requirement by taking CY355.

CY355	CYBER FOUNDATIONS - COMPUTING
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**AND****Curriculum Requirements**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY355.

CY355	CYBER FOUNDATIONS - COMPUTING
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**Core Engineering Sequence**

Cadets in this major will satisfy the core engineering requirement as an ABET accredited engineering major.

**Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and CS400.

CS400	PROFESSIONAL CONSIDERATIONS
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**2021 Computer Science Major w/ Honors Curriculum**

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
CSC1H	Computer Science w/ Honors	Computer Science Major w/ Honors	Computer Science w/ Honors	0	1
2021 Computer Science Major w/ Honors Tracks					
Subject Area		Description			
Computer Science Honors Electives		Choose 1 of 11			
CS394		DISTRIB APPLICATION ENGRNG			
CS473		COMPUTER GRAPHICS			
CS483		DIGITAL FORENSICS			
CS484		COMPUTER NETWORKS			
CS485		SPEC TOPICS IN COMPUTER SCI			
CS486		ARTIFICIAL INTELLIGENCE			
CS489		ADV IND STUDY COMPUTER SCI			
CS489A		ADV IND STUDY COMPUTER SCI			
CS490		COMPUTR SCI SUMMER RESEARCH			
EE487		EMBEDDED SYSTEMS DEVELOPMENT			
XE492		DISRUPTIVE INNOVATIONS			
AND					
Research Requirement					
Consists of both a written document and an oral presentation of a depth and quality suitable for submission to a professional conference.					
The research will normally be accomplished as an extension of a project begun in the CS Honors Elective. The research must reflect individual effort, although it may build on an existing group project (especially the context of XE401/402).					
Neither the project/research work nor the resulting paper and presentation need be completed during the same semester they are begun, but must be complete by the end of the TEE period of semester 8.					
The project/research must be conducted under the supervision/mentorship of a member of the faculty, normally the instructor of the corresponding course. The final written document and oral presentation must be approved by both the research mentor and the Computer Science Program Director.					
AND					
Grade Requirements					
Complete the requirements of the major as shown above, attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.					

### 2021 Cyber Security Minor Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
CYB1N	Cyber Security Minor	Cyber Security Minor	Cyber Security Minor	0	5

### 2021 Cyber Security Minor Tracks

Subject Area	Description
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### Cyber Foundations Course Track

A total of three courses in the overall program of study must be unique to the minor. You must take both courses in the Technical Track. Wherever possible, these courses may be double-counted, such as for cadets pursuing the Cyber Three-Course Engineering Sequence, or EECS, Math, and Systems majors. You must also take at least one course from the Non-Technical Track. Other courses from the Non-Technical Track may be taken as Cyber Application Electives.

#### Technical Track

Choose 2 of 2

CY350

NETWORK ENGR & MGT

CY450

CYBER SECURITY ENGINEERING

#### AND

#### Non-Technical Track

Choose 1 of 3

IT460

CYBER POLICY, STRATEGY & OPNS

LW462

CYBER LAW

PY326

CYBER ETHICS

#### AND

#### Cyber Application Electives

Choose 2 of 36

You must select two courses as electives, focusing on areas where cyber is applied to specific domains or learning about thought processes/tools from other disciplines that can be relevant to cyber security. Cyber requires a balance of both technical and non-technical knowledge and skills, as well as application. Cadets may achieve this in any way practical.

CH457

MICROBIOLOGY

CS393

DATABASE SYSTEMS

CY300

PROGRAMMING FUNDAMENTALS

DS370

STRATEGY AND POLICY

EE360

DIGITAL LOGIC W/ EMBEDDED SYS

EE377

ELECTRICAL POWER ENGRNG

EM420

PRODUCTION OPERATIONS MGMT

EN374

THE ARTS OF WAR

EV377

REMOTE SENSING

EV398

GEOG INFORMATION SYSTEMS

EV478

MILITARY GEOSPATIAL OPERATIONS

HI358

STRATEGY, POLICY & GENERALSHIP

IT384

NETWORK SYSTEM PROG

IT392

NETWORK SERVICES MGT

IT460

CYBER POLICY, STRATEGY & OPNS

LA475

ARABIC RDG/WRTG THRU MEDIA

LC475

CHINESE RDG/WRTG THRU MEDIA

LF475

FRENCH RDG/WRTG THRU MEDIA

LG475

GERMAN RDG/WRTG THRU MEDIA

LP475

PORTUGUESE RDG/WRTG THRU MEDIA

LR475

RUSSIAN RDG/WRTG THRU MEDIA

LS475

SPANISH RDG/WRTG THRU MEDIA

LW462

CYBER LAW

LW482

NATIONAL SECURITY LAW

LZ475

PERSIAN RDG/WRTG THRU MEDIA

MA371

LINEAR ALGEBRA

MA394

FUNDAMENTALS/NETWORK SCIENCE

MA464

APPLIED ALGEBRA W/ CRYPTOLOGY

NE300

FUNDAMENTALS OF NUCLEAR ENGR

PY326

CYBER ETHICS

SS464

HOMELAND SECURITY

SS465

TERRORISM: NEW CHALLENGES

SS483

NATIONAL SECURITY SEMINAR

SS486

INTERNATIONAL SECURITY SEMINAR

XE472

DYNAMIC MODELING AND CONTROL

XE492

DISRUPTIVE INNOVATIONS

## 2021 Electrical Engineering Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
EEN1	Electrical Engineering	Electrical Engineering Major	Electrical Engineering	13	4

## 2021 Electrical Engineering Major Tracks

Subject Area	Description
<b>Required Courses</b>	Choose 9 of 9
EE302	INTRO ELECTRICAL ENGIN
EE360	DIGITAL LOGIC W/ EMBEDDED SYS
EE362	INTRODUCTION TO ELECTRONICS
EE377	ELECTRICAL POWER ENGNRNG
EE381	SIGNALS AND SYSTEMS
EE383	ELECTROMAGN FIELDS & WAVES
EE400	EE PROFESSIONAL CONSIDERATIONS
EE462	ELECTRONIC DESIGN
XE401	INTEGRATIVE SYSTEM DESIGN I
<b>AND</b>	
<b>EECS Electives</b>	Choose 1 of 16
CS393	DATABASE SYSTEMS
CY300	PROGRAMMING FUNDAMENTALS
EE477	DIGITAL COMMUNICATIONS SYSTEMS
EE480	OPTICAL FIBER COMMUNICATIONS
EE482	WIRELESS COMM SYS ENGINEERING
EE483	PHOTONICS ENGINEERING
EE485	SPEC TOPICS IN EE
EE486	SOLID STATE ELECTRONICS
EE487	EMBEDDED SYSTEMS DEVELOPMENT
EE489	ADV IND STUDY IN ELECT ENGR
EE489A	ADV IND STUDY IN ELECT ENGR
EE490	ELEC ENGRNG SUMMER RESEARCH
XE442	ALTERNATIVE ENERGY ENGINEERING
XE472	DYNAMIC MODELING AND CONTROL
XE475	MECHATRONICS
XE492	DISRUPTIVE INNOVATIONS
<b>AND</b>	
<b>Depth Option</b>	
Choose one of the following five depth options.	
<b>Depth Option 1 - Robotics</b>	Choose 3 of 3
If this Depth Option is chosen, EE477 must be selected as the EECS Elective.	
EE487	EMBEDDED SYSTEMS DEVELOPMENT
XE472	DYNAMIC MODELING AND CONTROL
XE475	MECHATRONICS
<b>OR</b>	
<b>Depth Option 2 - Communications</b>	Choose 3 of 3
EE477	DIGITAL COMMUNICATIONS SYSTEMS

EE480	OPTICAL FIBER COMMUNICATIONS
EE482	WIRELESS COMM SYS ENGINEERING
<b>OR</b>	
<b>Depth Option 3 - Alternative Energy</b>	Choose 3 of 3
EE486	SOLID STATE ELECTRONICS
XE442	ALTERNATIVE ENERGY ENGINEERING
XE472	DYNAMIC MODELING AND CONTROL
<b>OR</b>	
<b>Depth Option 4 - OptoElectronics</b>	Choose 3 of 3
EE480	OPTICAL FIBER COMMUNICATIONS
EE483	PHOTONICS ENGINEERING
EE486	SOLID STATE ELECTRONICS
<b>OR</b>	
<b>Depth Option 5 - Cyber Engineering</b>	Choose 3 of 3
If this Depth Option is chosen, EE477 must be selected as the EECS Elective.	
CY300	PROGRAMMING FUNDAMENTALS
CY350	NETWORK ENGR & MGT
CY450	CYBER SECURITY ENGINEERING
<b>AND</b>	
<b>Complementary Support Courses</b>	Choose 3 of 4
For the Math CSC course, most cadets will take MA364, but some may qualify for MA365.	
EE375	COMPUTER ARCHITECTURE W/MICRO
MA364	ENGINEERING MATHEMATICS
MA365	ADV MATH FOR ENGRS/SCIENTISTS
MC311	THERMAL-FLUID SYSTEMS I
<b>AND</b>	
<b>Integrative Experience for the Major</b>	Choose 1 of 1
XE402	INTEGRATIVE SYSTEM DESIGN II
<b>AND</b>	
<b>Science Depth</b>	
Cadets in this major must take PH206 to satisfy the Science Depth requirement.	
PH206	PHYSICS II
<b>STEM Depth</b>	
Cadets in this major must take MA205 to satisfy the STEM Depth requirement.	
MA205	CALCULUS II
<b>AND</b>	
<b>Curriculum Requirements</b>	
This section describes how cadets in this major will satisfy various curriculum requirements.	
<b>IT/CYBER Requirement</b>	
Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the core curriculum, EE375 and several other courses in the EE major.	
EE360	DIGITAL LOGIC W/ EMBEDDED SYS
EE362	INTRODUCTION TO ELECTRONICS
EE375	COMPUTER ARCHITECTURE W/MICRO
EE377	ELECTRICAL POWER ENGRNG
EE381	SIGNALS AND SYSTEMS
EE383	ELECTROMAGN FIELDS & WAVES
EE400	EE PROFESSIONAL CONSIDERATIONS
EE462	ELECTRONIC DESIGN
XE401	INTEGRATIVE SYSTEM DESIGN I
XE402	INTEGRATIVE SYSTEM DESIGN II
<b>Core Engineering Sequence</b>	

Cadets in this major will satisfy the core engineering requirement as an ABET accredited engineering major.

#### Writing-in-the-Major

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and several other courses in the major, including EE400 and XE402.

EE400

EE PROFESSIONAL CONSIDERATIONS

XE402

INTEGRATIVE SYSTEM DESIGN II

## 2021 Electrical Engineering Major w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
EEN1H	Electrical Engineering w/ Honors	Electrical Engineering Major w/ Honors	Electrical Engineering w/ Honors	0	1

## 2021 Electrical Engineering Major w/ Honors Tracks

**Subject Area**                      **Description**

**Required Course**

Choose an additional elective from one of the 16 EECS electives listed above.

**AND**

Participate in either an undergraduate research experience or report on their engineering design experience.

Research-focused programs will typically include enrollment in the Advanced Individual Study in Electrical Engineering, EE489, EE489A, EE490, or XE492 the grade for which will be based on a research paper suitable for submission to a conference.

The engineering design experience can result from participation in the Integrative System Design I and II series. The requirement for the engineering paper will be in addition to the XE401-XE402 coursework.

**AND**

#### Grade Requirements

Cadets must complete the requirements of the major as shown above, attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

## 2021 Information Technology Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
ITE1	Information Technology	Information Technology Major	Information Technology	14	2

## 2021 Information Technology Major Tracks

Subject Area	Description
<b>Required Courses</b>	Choose 11 of 11
CS393	DATABASE SYSTEMS
CY300	PROGRAMMING FUNDAMENTALS
CY350	NETWORK ENGR & MGT
CY450	CYBER SECURITY ENGINEERING
EE360	DIGITAL LOGIC W/ EMBEDDED SYS
IT383	USER INTERFACE DEVELOPMENT
IT384	NETWORK SYSTEM PROG
IT392	NETWORK SERVICES MGT
IT394	DISTRIB APPLICATION DEVELOPMNT
IT400	IT PROFESSIONAL CONSIDERATIONS
IT460	CYBER POLICY, STRATEGY & OPNS
<b>AND</b>	
<b>Complementary Support Course - Project Management</b>	Choose 1 of 1
EM411	PROJECT MANAGEMENT
<b>AND</b>	
<b>Complementary Support Courses - IT APP Thread</b>	
Cadets must choose one of the following IT Application Threads to satisfy the remaining two Complementary Support Course requirements.	
<b>CSC - GIS Thread</b>	Choose 2 of 2
EV398	GEOG INFORMATION SYSTEMS
EV498	ADV GEOGRAPHIC INFORMATION SYS
<b>OR</b>	
<b>CSC - Remote Sensing Thread</b>	Choose 2 of 2
EV377	REMOTE SENSING
EV477	ADVANCED REMOTE SENSING
<b>OR</b>	
<b>CSC - Military Thread</b>	Choose 2 of 2
DS345	MILITARY INNOVATION
DS475	STRATEGIC DECISION MAKING
<b>OR</b>	
<b>CSC - Homeland Security Thread</b>	Choose 2 of 2
SS464	HOMELAND SECURITY
SS465	TERRORISM: NEW CHALLENGES
<b>OR</b>	
<b>CSC - Human Interaction Thread</b>	Choose 2 of 3
PL250	NEUROCOG FNDTNS OF BEHAVIOR
PL392	COGNITIVE PSYCHOLOGY
PL394	ANTHROPOMETRICS & BIOMECHANICS
<b>AND</b>	
<b>Integrative Experience for the Major</b>	Choose 2 of 2
XE401	INTEGRATIVE SYSTEM DESIGN I
XE402	INTEGRATIVE SYSTEM DESIGN II
<b>AND</b>	
<b>Science Depth</b>	
Cadets in this major may take any approved choice to satisfy the Science Depth requirement.	

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II

**STEM Depth**

Cadets in this major must take CY355 to satisfy the STEM Depth requirement.

CY355	CYBER FOUNDATIONS - COMPUTING
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**AND****Curriculum Requirements**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirements**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY355.

CY355	CYBER FOUNDATIONS - COMPUTING
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**Core Engineering Sequence**

Cadets in this major satisfy the Core Engineering Sequence requirement with the embedded CYBER Sequence courses.

CY300	PROGRAMMING FUNDAMENTALS
CY350	NETWORK ENGR & MGT
CY450	CYBER SECURITY ENGINEERING

**Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and IT400.

IT400	IT PROFESSIONAL CONSIDERATIONS
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## 2021 Information Technology Major w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
ITE1H	Information Technology w/ Honors	Information Technology Major w/ Honors	Information Technology w/ Honors	0	2

## 2021 Information Technology Major w/ Honors Tracks

Subject Area	Description
<b>Information Technology Honors Electives</b>	Choose 1 of 2
IT493	IT INDEPENDENT STUDY
XE492	DISRUPTIVE INNOVATIONS
<b>AND</b>	
	Choose 1 of 6
CS380	COMPUTER ORGANIZATION
CS384	DATA STRUCTURES
CS403	SOFTWARE TESTING & DEVELOPMENT
CS481	OPERATING SYSTEMS
PY326	CYBER ETHICS
SM484	SYSTEM DYNAMICS SIMULATION



**AND****Project/Research Requirement**

Consists of both a written document and an oral presentation of a depth and quality suitable for submission to a professional conference.

The project/research will normally be accomplished as an extension of an effort begun in the IT Honors Elective, IT493. The project/research must reflect individual effort, although it may build on an existing group project (especially the context of XE401/402).

The project/research must be conducted under the supervision/mentorship of a member of the faculty, normally the instructor of the corresponding course. The final written document and oral presentation must be approved by both the research mentor and the Information Technology Program Director.

**AND****Grade Requirements**

Complete the requirements of the major as shown above, attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

## 2021 Robotics Minor Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
ROB0N	Robotics Minor	Robotics Minor	Robotics Minor	2	3

### 2021 Robotics Minor Tracks

Subject Area	Description
<b>Robotics Core Course</b>	Choose 2 of 2
XE472	DYNAMIC MODELING AND CONTROL
XE475	MECHATRONICS
<b>AND</b>	
<b>Electives</b>	Choose 3 of 29
Advanced Individual Study projects in CS489, EE489, ME389 and ME489 must be robot-related and approved by the EE Program Director.	
CS380	COMPUTER ORGANIZATION
CS384	DATA STRUCTURES
CS403	SOFTWARE TESTING & DEVELOPMENT
CS484	COMPUTER NETWORKS
CS486	ARTIFICIAL INTELLIGENCE
CS489	ADV IND STUDY COMPUTER SCI
CY300	PROGRAMMING FUNDAMENTALS
CY450	CYBER SECURITY ENGINEERING
EE301	FUNDAMENTALS OF ELEC ENGIN
EE302	INTRO ELECTRICAL ENGIN
EE350	BASIC ELECTRICAL ENGINEERING
EE360	DIGITAL LOGIC W/ EMBEDDED SYS
EE375	COMPUTER ARCHITECTURE W/MICRO
EE450	MILITARY ELECTRONIC SYSTEMS
EE477	DIGITAL COMMUNICATIONS SYSTEMS
EE482	WIRELESS COMM SYS ENGINEERING

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EE487	EMBEDDED SYSTEMS DEVELOPMENT
EE489	ADV IND STUDY IN ELECT ENGR
LW462	CYBER LAW
MA371	LINEAR ALGEBRA
MC300	FUND OF ENGR MECH AND DESIGN
MC306	DYNAMICS
ME370	COMPUTER AIDED DESIGN
ME389	INTRO TO ADV STUDY IN MECH ENG
ME489	ADV STUDY IN MECH ENGRNG
PY326	CYBER ETHICS
PY350	PHILOSOPHY OF SCIENCE
PY355	PHILOSOPHY OF MIND
XE492	DISRUPTIVE INNOVATIONS

## Department of English and Philosophy

### 2021 English Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
ENL1	English Major	English Major	English	2	11

### 2021 English Major Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
EN300	LITERARY METHODOLOGIES
<b>AND</b>	
<b>English Electives</b>	
Choose 8 of 18 English Electives while meeting the distribution requirements below.	
<b>English Electives - Distribution Requirements</b>	
Take at least one course in each of the following three categories.	
<b>Distribution Requirement - Early Period Survey</b>	Choose 1 of 3
EN311	ANCIENT TO EARLY MODERN LIT
EN321	AMERICAN LITERATURE I
EN331	BRITISH LITERATURE I
<b>AND</b>	
<b>Distribution Requirement - Late Period Survey</b>	Choose 1 of 3
EN322	AMERICAN LITERATURE II
EN332	BRITISH LITERATURE II
EN340	CONTEMPORARY LITERATURE
<b>AND</b>	
<b>Distribution Requirement - Genre Course</b>	Choose 1 of 4
EN361	POETRY
EN362	FILM AND FILM THEORY
EN363	THE NOVEL
EN364	DRAMA
<b>AND</b>	
<b>English Electives - Choice</b>	Choose 5 of 18
Fulfill the remaining English Elective requirement by choosing 5 additional courses from this list. One course from this list may not satisfy both the "Choice" requirement and the "Distribution" requirement.	
EN311	ANCIENT TO EARLY MODERN LIT
EN321	AMERICAN LITERATURE I
EN322	AMERICAN LITERATURE II
EN331	BRITISH LITERATURE I
EN332	BRITISH LITERATURE II
EN340	CONTEMPORARY LITERATURE
EN351	WORLD LITERATURE
EN352	POWER AND DIFFERENCE
EN353	WAR LITERATURE
EN354	SPECIAL TOPICS COLLOQUIUM

EN355	CRITICISM COLLOQUIUM
EN361	POETRY
EN362	FILM AND FILM THEORY
EN363	THE NOVEL
EN364	DRAMA
EN370	SHAKESPEARE
EN371	SINGLE-AUTHOR COLLOQUIUM
EN490	INDEPENDENT STUDY: LITERATURE

**AND****Complementary Support Courses**

In consultation with their DAC, Cadets will choose one track and three CSC courses from within that track. Working with their DAC, Cadets studying abroad can potentially get CSC credit for any coursework deemed appropriate by the English Program Director.

**Literature and History**

Choose 3 of 8

HI340	COLONIAL AMERICA
HI348	MODERN LATIN AMERICA
HI364	MODERN WESTERN EUROPE
HI368	MOD CENTRAL & E. EUR, 1896-1989
HI390	EARLY NATIONAL AMERICA
HI395	HIST OF CIVIL WAR AMERICA
HI398	SOCIETY & CULTURE IN AMER HIST
HI461	TOPICS IN GENDER HISTORY

**OR****Literature and the Natural World** Choose 3 of 11

If CH275 or CH375 is counted as one of the required science courses, it cannot count as a CSC.

CE380	HYDROLOGY/HYDRAULIC DESIGN
CH275	BIOLOGY
CH375	INTRODUCTION TO BIOLOGY
CH457	MICROBIOLOGY
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV387	METEOROLOGY
EV471	ECOLOGY
NE474	RADIOLOGICAL SAFETY
PH456	SCIENCE AND POLICY
PL250	NEUROCOG FNDTNS OF BEHAVIOR
PL390	BIOLOGICAL PSYCHOLOGY

**OR****Literature and Philosophy**

Choose 3 of 15

PY305	LOGICAL REASONING
PY310	REALITY AND KNOWLEDGE
PY320	ETHICS
PY326	CYBER ETHICS
PY330	POLITICAL PHILOSOPHY
PY345	PHILOSOPHY OF RELIGION
PY350	PHILOSOPHY OF SCIENCE
PY355	PHILOSOPHY OF MIND
PY360	ANCIENT PHILOSOPHY
PY369	EASTERN THOUGHT
PY370	17TH & 18TH CENTURY PHILOSOPHY
PY375	KANT & 19TH CENTURY PHILOSOPHY
PY380	20TH CENTURY PHILOSOPHY
PY390	INTER-DEPARTMENT SEMINAR
SS386	POLITICAL THOUGHT

**OR**

**Literature and Foreign Language**

Choose 3 of 6

Students adopting this track take a third semester of foreign language plus two subsequent courses in their language.

LA485	ARABIC LITERATURE I
LC485	CHINESE LITERATURE I
LF485	SURVEY OF FRENCH LIT I
LN380	NATURE OF MODERN LANGUAGES
LX300	3RD SEMESTER FOREIGN LANG
LX400	4TH SEMESTER FOREIGN LANG

**OR****Literature, Culture and Society**

Choose 3 of 24

EV365	GEOGRAPHY OF GLOBAL CULTURES
HI344	MODERN DIPLOMACY
HI391	WORLD RELIGIONS
HI461	TOPICS IN GENDER HISTORY
HI463	RACE, ETHNICITY, NATION
LW410	COMPARATIVE LEGAL SYSTEMS
LW461	CIVIL RIGHTS AND THE LAW
LW462	CYBER LAW
LW472	CRIMINAL LAW
PL371	INTRODUCTORY SOCIOLOGY
PL377	SOCIAL INEQUALITY
PL383	EXPERIMENTAL SOCIAL PSYCHOLOGY
PL384	SOCIOLOGICAL THEORY
PL393	CRIMINOLOGY-CRIM JUST SYSTM
PL482	ARMED FORCES AND SOCIETY
SS372	POLITICS AND GOV OF CHINA
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS392	POLITICS-RACE,GENDER,SEXUALITY
SS473	AMERICAN FOREIGN POLICY
SS475	DEMOCRATIZATION
SS476	CONFLICT AND NEGOTIATION
XH405	THE HOLOCAUST AND ITS LEGACY
XH415	GENOCIDE AND ETHNIC CLEANSING
XH467	WINNING THE PEACE

**AND****Integrative Experience for the Major**

Choose 1 of 1

EN400	SEMINAR IN ADV LITERARY STUDY
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**AND****Science Depth**

Cadets in this major may take any approved choice to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II

**STEM Depth**

Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**AND****Curriculum Requirements**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305

CYBER FOUNDATIONS

CY355

CYBER FOUNDATIONS - COMPUTING

### Core Engineering Sequence

Cadets in this major can choose any approved three-course Core Engineering Sequence.

### Writing-in-the-Major

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and several courses in the English major including EN300 and EN400.

EN300

LITERARY METHODOLOGIES

EN400

SEMINAR IN ADV LITERARY STUDY

## 2021 English Major w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
ENL1H	English w/ Honors	English Major w/ Honors	English w/ Honors	2	0

### 2021 English Major w/ Honors Tracks

Subject Area	Description
<b>Required Courses</b>	Choose 2 of 2
Cadets must achieve at least a B in EN401 in order to proceed into EN402. The thesis adviser will normally recommend the cadet for Honors consideration if the EN402 grade is A- or better.	
EN401	SENIOR THESIS I
EN402	SENIOR THESIS II
<b>AND</b>	
Complete the requirements of the major as shown above; attain a minimum APSC of 3.0 in the core curriculum and 3.5 in the major.	
<b>AND</b>	
<b>Approval of the Department Head</b>	
On the basis of recommendations by the cadet's DAC and senior-thesis adviser.	

## 2021 Philosophy Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
PYL1	Philosophy Major	Philosophy Major	Philosophy	4	9

### 2021 Philosophy Major Tracks

Subject Area	Description
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<b>Required Courses</b>	Choose 2 of 2
PY300	PHILOSOPHICAL METHODS
PY305	LOGICAL REASONING
<b>AND</b>	
<b>Philosophy Core Area Course</b>	Choose 1 of 2
PY310	REALITY AND KNOWLEDGE
PY320	ETHICS
<b>AND</b>	
<b>Philosophy Electives</b>	Choose 6 of 16
PY325	MILITARY ETHICS
PY326	CYBER ETHICS
PY329	TOPICS IN ETHICS
PY330	POLITICAL PHILOSOPHY
PY345	PHILOSOPHY OF RELIGION
PY350	PHILOSOPHY OF SCIENCE
PY355	PHILOSOPHY OF MIND
PY360	ANCIENT PHILOSOPHY
PY369	EASTERN THOUGHT
PY370	17TH & 18TH CENTURY PHILOSOPHY
PY375	KANT & 19TH CENTURY PHILOSOPHY
PY380	20TH CENTURY PHILOSOPHY
PY390	INTER-DEPARTMENT SEMINAR
PY395	SPECIAL TOPICS IN PHILOSOPHY
PY495	INDEPENDENT STUDY: PHILOSOPHY
XH400	INTERCOLLEGIATE SEMINAR
<b>AND</b>	
<b>Complementary Support Courses</b>	
Cadets chose a track and then pick three courses from the track. Cadets may pick outside of their chosen track with Program Director approval.	
<b>History Track</b>	Choose 3 of 7
HI337	CHINA-C. KINGDOM TO COMM RULE
HI339	THE MODERN MIDDLE EAST
HI345	MODERN AFRICA
HI346	MODERN SOUTH ASIA
HI347	ASIAN WARFARE AND POLITICS
HI364	MODERN WESTERN EUROPE
HI367	IMPERIAL AND SOVIET RUSSIA
<b>OR</b>	
<b>Law Track</b>	Choose 3 of 6
HI344	MODERN DIPLOMACY
HI385	WAR & ITS THEORISTS
LW410	COMPARATIVE LEGAL SYSTEMS
LW461	CIVIL RIGHTS AND THE LAW
LW462	CYBER LAW
LW472	CRIMINAL LAW
<b>OR</b>	
<b>Psychology Track</b>	Choose 3 of 6
HI461	TOPICS IN GENDER HISTORY
PL376	PERSONALITY & AB PSYCH
PL377	SOCIAL INEQUALITY
PL384	SOCIOLOGICAL THEORY
PL392	COGNITIVE PSYCHOLOGY
PL393	CRIMINOLOGY-CRIM JUST SYSTM
<b>OR</b>	
<b>Literature Track</b>	Choose 3 of 26

Cadets who select this track may also choose other courses from the English Major's catalogue.

EN300	LITERARY METHODOLOGIES
LG485	SURVEY OF GERMAN LIT I
LG486	SURVEY OF GERMAN LIT II
LG492	20TH & 21ST CENTURY GERMANY
LN380	NATURE OF MODERN LANGUAGES

**OR****Strategic Studies Track**

Choose 3 of 6

DS455	COMPARATIVE DEFENSE POLICY
DS460	INSURGENCY & COUNTERINSURGENCY
EV487	ENVIRONMENTAL SECURITY
HI351	ADV HISTORY OF MILITARY ART
SS465	TERRORISM: NEW CHALLENGES
XH467	WINNING THE PEACE

**OR****Politics Track**

Choose 3 of 6

HI347	ASIAN WARFARE AND POLITICS
SS366	COMPARATIVE POLITICS
SS386	POLITICAL THOUGHT
SS465	TERRORISM: NEW CHALLENGES
XH415	GENOCIDE AND ETHNIC CLEANSING
XH467	WINNING THE PEACE

**OR****Cultural Studies Track**

Choose 3 of 13

Cadets who select this track may also choose courses from D/GENE's list of regional geography courses.

EV371	GEOGRAPHY OF RUSSIA
HI391	WORLD RELIGIONS
HI463	RACE, ETHNICITY, NATION
LG483	GERMAN CIVILIZATION I
LG484	GERMAN CIVILIZATION II
SS381	CULTURAL/POLIT ANTHROPOLOGY
XH405	THE HOLOCAUST AND ITS LEGACY

**AND****Integrative Experience for the Major**

Choose 1 of 1

PY400	SENIOR SEMINAR IN PHILOSOPHY
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**AND****Science Depth**

Cadets in this major may take any approved choice to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II

**STEM Depth**

Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**AND****Curriculum Requirements**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirements**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305	CYBER FOUNDATIONS
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CY355 CYBER FOUNDATIONS - COMPUTING

### Core Engineering Sequence

Cadets in this major can choose any approved three-course Core Engineering Sequence.

### Writing-in-the-Major

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and several courses in the philosophy major including PY300 and PY400.

PY300 PHILOSOPHICAL METHODS

PY400 SENIOR SEMINAR IN PHILOSOPHY

## 2021 Philosophy Major w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
PYL1H	Philosophy w/ Honors	Philosophy Major w/ Honors	Philosophy w/ Honors	2	0

## 2021 Philosophy Major w/ Honors Tracks

Subject Area	Description
<b>Required Courses</b>	Choose 2 of 2
Cadets must achieve at least a B in PY490 in order to proceed into PY491. The thesis adviser will normally recommend the cadet for Honors consideration if the PY491 grade is A- or better.	
PY490	THESIS RESEARCH
PY491	SENIOR THESIS
<b>AND</b>	
Complete the requirements of the major as shown above; attain a minimum APSC of 3.0 in the core curriculum and 3.5 in the major.	
<b>AND</b>	
<b>Approval of the Department Head</b>	
On the basis of recommendations by the cadet's DAC and senior-thesis adviser.	

## Department of Foreign Languages

### 2021 Foreign Language Major: Arabic & Chinese Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FAC1	Foreign Language: Arabic & Chinese	Foreign Language Major: Arabic & Chinese	Foreign Language: Arabic & Chinese	2	13

### 2021 Foreign Language Major: Arabic & Chinese Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
LN380	NATURE OF MODERN LANGUAGES
<b>AND</b>	
<b>Electives</b>	Choose 6 of 20
LA371	INTENSIVE INTERMEDIATE ARABIC
LA372	ARABIC FOR ORAL & WRITTEN COMM
LA470	SPECIAL TOPIC IN ARABIC
LA472	COLLOQUIAL ARABIC
LA475	ARABIC RDG/WRTG THRU MEDIA
LA476	MILITARY SPKG/RDG - ARABIC
LA483	ARAB CIVILIZATION I
LA484	ARAB CIVILIZATION II
LA485	ARABIC LITERATURE I
LA486	ARABIC LITERATURE II
LA492	ARABIC LITERATURE III
LN440A	ARABIC IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
<b>AND</b>	
<b>Secondary Language Track</b>	Choose 4 of 13
LC203	CHINESE I (STANDARD)
LC204	CHINESE II (STANDARD)
LC371	INTENSIVE INTERMEDIATE CHINESE
LC372	CHINESE FOR ORAL & WRIT COMM
LC475	CHINESE RDG/WRTG THRU MEDIA
LC476	MILITARY SPKG/RDG - CHINESE
LC483	CHINESE CIVILIZATION I
LC484	CHINESE CIVILIZATION II
LC485	CHINESE LITERATURE I
LC486	CHINESE LITERATURE II
LC492	CHINESE LITERATURE III
LN487	ADV IND STUDY-FOREIGN LANGS

LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	
<b>Complementary Support Courses</b>	Choose 3 of 14
Choose 3 of 14, each from a different discipline.	
DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV376	GEOGRAPHY OF THE MIDDLE EAST
HI339	THE MODERN MIDDLE EAST
HI349	THE MIDDLE EAST TO 1798
HI391	WORLD RELIGIONS
LN482H	SPOKEN HEBREW
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS383	POLITICS & GOVT-MIDDLE EAST
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES
<b>AND</b>	
<b>Integrative Experience for the Major</b>	Choose 1 of 1
LN490	LANGUAGE & CULTURE CAP SEM
<b>AND</b>	
<b>Science Depth</b>	
Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.	
CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II
<b>STEM Depth</b>	
Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.	
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>AND</b>	
<b>Curriculum Requirement</b>	
This section describes how cadets in this major satisfy various curriculum requirements.	
<b>IT/CYBER Requirement</b>	
Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.	
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>Core Engineering Sequence</b>	
Cadets in this major may choose any approved three course engineering sequence.	
<b>Writing-in-the-Major</b>	
Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN380.	
LN380	NATURE OF MODERN LANGUAGES

## 2021 Foreign Language Major: Arabic & Chinese w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FAC1H	Foreign Language: Arabic & Chinese w/ Honors	Foreign Language Major: Arabic & Chinese w/ Honors	Foreign Language: Arabic & Chinese w/ Honors	1	0

### 2021 Foreign Language Major: Arabic & Chinese w/ Honors Tracks

Subject Area	Description
<b>Honors Thesis Course</b>	Choose 1 of 1
Write an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	

Complete the requirements of the major as shown above, AND attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

### 2021 Foreign Language Major: Arabic & French Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FAF1	Foreign Language: Arabic & French	Foreign Language Major: Arabic & French	Foreign Language: Arabic & French	2	13

### 2021 Foreign Language Major: Arabic & French Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
LN380	NATURE OF MODERN LANGUAGES
<b>AND</b>	
<b>Electives</b>	Choose 6 of 20
LA371	INTENSIVE INTERMEDIATE ARABIC
LA372	ARABIC FOR ORAL & WRITTEN COMM
LA470	SPECIAL TOPIC IN ARABIC
LA472	COLLOQUIAL ARABIC
LA475	ARABIC RDG/WRTG THRU MEDIA
LA476	MILITARY SPKG/RDG - ARABIC
LA483	ARAB CIVILIZATION I
LA484	ARAB CIVILIZATION II
LA485	ARABIC LITERATURE I
LA486	ARABIC LITERATURE II
LA492	ARABIC LITERATURE III
LN440A	ARABIC IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III

LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
<b>AND</b>	
<b>Secondary Language Track</b>	Choose 4 of 13
LF203	FRENCH I (STANDARD)
LF204	FRENCH II (STANDARD)
LF371	INTENSIVE INTERMEDIATE FRENCH
LF372	FRENCH FOR ORAL & WRITTEN COMM
LF475	FRENCH RDG/WRTG THRU MEDIA
LF476	MILITARY SPKG/RDG - FRENCH
LF483	FRENCH CIVILIZATION I
LF484	FRENCH CIVILIZATION II
LF485	SURVEY OF FRENCH LIT I
LF486	SURVEY OF FRENCH LIT II
LF492	MASTERWORKS OF FRENCH LIT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	
<b>Complementary Support Courses</b>	Choose 3 of 14
Choose 3 of 14, each from a different discipline.	
DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV376	GEOGRAPHY OF THE MIDDLE EAST
HI339	THE MODERN MIDDLE EAST
HI349	THE MIDDLE EAST TO 1798
HI391	WORLD RELIGIONS
LN482H	SPOKEN HEBREW
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS383	POLITICS & GOVT-MIDDLE EAST
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES
<b>AND</b>	
<b>Integrative Experience for the Major</b>	Choose 1 of 1
LN490	LANGUAGE & CULTURE CAP SEM
<b>AND</b>	
<b>Science Depth</b>	
Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.	
CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II
<b>STEM Depth</b>	
Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.	
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>AND</b>	
<b>Curriculum Requirement</b>	
This section describes how cadets in this major satisfy various curriculum requirements.	
<b>IT/CYBER Requirement</b>	
Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.	

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>Core Engineering Sequence</b>	
Cadets in this major may choose any approved three course engineering sequence.	
<b>Writing-in-the-Major</b>	
Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN380.	
LN380	NATURE OF MODERN LANGUAGES

### 2021 Foreign Language Major: Arabic & French w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FAF1H	Foreign Language: Arabic & French w/ Honors	Foreign Language Major: Arabic & French w/ Honors	Foreign Language: Arabic & French w/ Honors	1	0

### 2021 Foreign Language Major: Arabic & French w/ Honors Tracks

Subject Area	Description
<b>Honors Thesis Course</b>	Choose 1 of 1
Write an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	

Complete the requirements of the major as shown above, AND attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

### 2021 Foreign Language Major: Arabic & German Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FAG0	Foreign Language: Arabic & German	Foreign Language Major: Arabic & German	Foreign Language: Arabic & German	2	13

### 2021 Foreign Language Major: Arabic & German Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
LN380	NATURE OF MODERN LANGUAGES
<b>AND</b>	
<b>Electives</b>	Choose 6 of 20
LA371	INTENSIVE INTERMEDIATE ARABIC
LA372	ARABIC FOR ORAL & WRITTEN COMM

LA470	SPECIAL TOPIC IN ARABIC
LA472	COLLOQUIAL ARABIC
LA475	ARABIC RDG/WRTG THRU MEDIA
LA476	MILITARY SPKG/RDG - ARABIC
LA483	ARAB CIVILIZATION I
LA484	ARAB CIVILIZATION II
LA485	ARABIC LITERATURE I
LA486	ARABIC LITERATURE II
LA492	ARABIC LITERATURE III
LN440A	ARABIC IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V

**AND****Secondary Language Track**

Choose 4 of 13

LG203	GERMAN I (STANDARD)
LG204	GERMAN II (STANDARD)
LG371	INTENSIVE INTERMEDIATE GERMAN
LG372	GERMAN FOR ORAL & WRITTEN COMM
LG475	GERMAN RDG/WRTG THRU MEDIA
LG476	MILITARY SPKG/RDG - GERMAN
LG483	GERMAN CIVILIZATION I
LG484	GERMAN CIVILIZATION II
LG485	SURVEY OF GERMAN LIT I
LG486	SURVEY OF GERMAN LIT II
LG492	20TH & 21ST CENTURY GERMANY
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS

**AND****Complementary Support Courses**

Choose 3 of 14

Choose 3 of 14, each from a different discipline.

DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV376	GEOGRAPHY OF THE MIDDLE EAST
HI339	THE MODERN MIDDLE EAST
HI349	THE MIDDLE EAST TO 1798
HI391	WORLD RELIGIONS
LN482H	SPOKEN HEBREW
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS383	POLITICS & GOVT-MIDDLE EAST
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES

**AND****Integrative Experience for the Major**

Choose 1 of 1

LN490	LANGUAGE & CULTURE CAP SEM
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**AND****Science Depth**

Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II

#### STEM Depth

Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

#### AND

#### Curriculum Requirement

This section describes how cadets in this major satisfy various curriculum requirements.

#### IT/CYBER Requirement

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

#### Core Engineering Sequence

Cadets in this major may choose any approved three course engineering sequence.

#### Writing-in-the-Major

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN380.

LN380	NATURE OF MODERN LANGUAGES
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## 2021 Foreign Language Major: Arabic & German w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FAG0H	Foreign Language: Arabic & German w/ Honors	Foreign Language Major: Arabic & German w/ Honors	Foreign Language: Arabic & German w/ Honors	1	0

## 2021 Foreign Language Major: Arabic & German w/ Honors Tracks

Subject Area	Description
<b>Honors Thesis Course</b>	Choose 1 of 1
	Write an honors thesis under the direction of a senior faculty member.
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	

Complete the requirements of the major as shown above, AND attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

## 2021 Foreign Language Major: Arabic & Portuguese Curriculum



Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FAP1	Foreign Language: Arabic & Portuguese	Foreign Language Major: Arabic & Portuguese	Foreign Language: Arabic & Portuguese	2	13

### 2021 Foreign Language Major: Arabic & Portuguese Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
LN380	NATURE OF MODERN LANGUAGES
<b>AND</b>	
<b>Electives</b>	Choose 6 of 20
LA371	INTENSIVE INTERMEDIATE ARABIC
LA372	ARABIC FOR ORAL & WRITTEN COMM
LA470	SPECIAL TOPIC IN ARABIC
LA472	COLLOQUIAL ARABIC
LA475	ARABIC RDG/WRTG THRU MEDIA
LA476	MILITARY SPKG/RDG - ARABIC
LA483	ARAB CIVILIZATION I
LA484	ARAB CIVILIZATION II
LA485	ARABIC LITERATURE I
LA486	ARABIC LITERATURE II
LA492	ARABIC LITERATURE III
LN440A	ARABIC IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
<b>AND</b>	
<b>Secondary Language Track</b>	Choose 4 of 12
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LP203	PORTUGUESE I (STANDARD)
LP204	PORTUGUESE II (STANDARD)
LP371	INTENSIVE INTERMED. PORTUGUESE
LP372	PORTUGUESE FOR ORAL/WRIT COMM
LP475	PORTUGUESE RDG/WRTG THRU MEDIA
LP476	MILITARY SPKG/RDG - PORTUGUESE
LP483	PORTUGUESE CIVILIZATION I
LP484	PORTUGUESE CIVILIZATION II
LP485	SURVEY OF PORTUGUESE LIT I
LP492	LIT OF PORT-SPKG WORLD
<b>AND</b>	
<b>Complementary Support Courses</b>	Choose 3 of 14
Choose 3 of 14, each from a different discipline.	
DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV376	GEOGRAPHY OF THE MIDDLE EAST

HI339	THE MODERN MIDDLE EAST
HI349	THE MIDDLE EAST TO 1798
HI391	WORLD RELIGIONS
LN482H	SPOKEN HEBREW
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS383	POLITICS & GOVT-MIDDLE EAST
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES

**AND**


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**Integrative Experience for the Major** Choose 1 of 1

LN490	LANGUAGE & CULTURE CAP SEM
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**AND****Science Depth**

Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II

**STEM Depth**

Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**AND****Curriculum Requirement**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**Core Engineering Sequence**

Cadets in this major may choose any approved three course engineering sequence.

**Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN380.

LN380	NATURE OF MODERN LANGUAGES
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## 2021 Foreign Language Major: Arabic & Portuguese w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FAP1H	Foreign Lang: Arabic & Portuguese w/ Honors	Foreign Language Major: Arabic & Portuguese w/ Honors	Foreign Lang: Arabic & Portuguese w/ Honors	1	0

## 2021 Foreign Language Major: Arabic & Portuguese w/ Honors Tracks

Subject Area	Description
<b>Honors Thesis Course</b>	Choose 1 of 1
Write an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	
Complete the requirements of the major as shown above, AND attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.	

## 2021 Foreign Language Major: Arabic & Russian Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FAR1	Foreign Language: Arabic & Russian	Foreign Language Major: Arabic & Russian	Foreign Language: Arabic & Russian	2	13

## 2021 Foreign Language Major: Arabic & Russian Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
LN380	NATURE OF MODERN LANGUAGES
<b>AND</b>	
<b>Electives</b>	Choose 6 of 20
LA371	INTENSIVE INTERMEDIATE ARABIC
LA372	ARABIC FOR ORAL & WRITTEN COMM
LA470	SPECIAL TOPIC IN ARABIC
LA472	COLLOQUIAL ARABIC
LA475	ARABIC RDG/WRTG THRU MEDIA
LA476	MILITARY SPKG/RDG - ARABIC
LA483	ARAB CIVILIZATION I
LA484	ARAB CIVILIZATION II
LA485	ARABIC LITERATURE I
LA486	ARABIC LITERATURE II
LA492	ARABIC LITERATURE III
LN440A	ARABIC IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
<b>AND</b>	
<b>Secondary Language Track</b>	Choose 4 of 13
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LR203	RUSSIAN I (STANDARD)
LR204	RUSSIAN II (STANDARD)

LR371	INTENSIVE INTERMEDIATE RUSSIAN
LR372	RUSSIAN FOR ORAL & WRIT COMM
LR475	RUSSIAN RDG/WRTG THRU MEDIA
LR476	MILITARY SPKG/RDG - RUSSIAN
LR483	RUSSIAN CIV I
LR484	RUSSIAN CIV II
LR485	SURVEY OF RUSSIAN LITERATURE I
LR486	SURVEY OF RUSSIAN LIT. II
LR492	RUSSIAN LIFE IN FICTION

**AND****Complementary Support Courses**

Choose 3 of 14

Choose 3 of 14, each from a different discipline.

DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV376	GEOGRAPHY OF THE MIDDLE EAST
HI339	THE MODERN MIDDLE EAST
HI349	THE MIDDLE EAST TO 1798
HI391	WORLD RELIGIONS
LN482H	SPOKEN HEBREW
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS383	POLITICS & GOVT-MIDDLE EAST
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES

**AND****Integrative Experience for the Major**

Choose 1 of 1

LN490	LANGUAGE & CULTURE CAP SEM
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**AND****Science Depth**

Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II

**STEM Depth**

Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**AND****Curriculum Requirement**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**Core Engineering Sequence**

Cadets in this major may choose any approved three course engineering sequence.

**Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN380.

LN380	NATURE OF MODERN LANGUAGES
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## 2021 Foreign Language Major: Arabic & Russian w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FAR1H	Foreign Language: Arabic & Russian w/ Honors	Foreign Language Major: Arabic & Russian w/ Honors	Foreign Language: Arabic & Russian w/ Honors	1	0

## 2021 Foreign Language Major: Arabic & Russian w/ Honors Tracks

Subject Area	Description
<b>Honors Thesis Course</b>	Choose 1 of 1
	Write an honors thesis under the direction of a senior faculty member.
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	

Complete the requirements of the major as shown above, AND attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

## 2021 Foreign Language Major: Arabic & Spanish Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FAS1	Foreign Language: Arabic & Spanish	Foreign Language Major: Arabic & Spanish	Foreign Language: Arabic & Spanish	2	13

## 2021 Foreign Language Major: Arabic & Spanish Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
LN380	NATURE OF MODERN LANGUAGES
<b>AND</b>	
<b>Electives</b>	Choose 6 of 20
LA371	INTENSIVE INTERMEDIATE ARABIC
LA372	ARABIC FOR ORAL & WRITTEN COMM
LA470	SPECIAL TOPIC IN ARABIC
LA472	COLLOQUIAL ARABIC
LA475	ARABIC RDG/WRTG THRU MEDIA
LA476	MILITARY SPKG/RDG - ARABIC
LA483	ARAB CIVILIZATION I
LA484	ARAB CIVILIZATION II
LA485	ARABIC LITERATURE I
LA486	ARABIC LITERATURE II
LA492	ARABIC LITERATURE III

LN440A	ARABIC IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V

**AND****Secondary Language Track**

Choose 4 of 13

LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LS203	SPANISH I (STANDARD)
LS204	SPANISH II (STANDARD)
LS371	INTENSIVE INTERMEDIATE SPANISH
LS372	SPANISH FOR ORAL & WRIT COMM
LS475	SPANISH RDG/WRTG THRU MEDIA
LS476	MILITARY SPKG/RDG - SPANISH
LS483	SPANISH CIV AND CULTURE
LS484	SPANISH AMERICAN CIV AND CULT
LS485	SPANISH-AMERICAN LITERATURE
LS486	THE LITERATURE OF SPAIN
LS492	20TH/21ST CENTURY HISPANIC LIT

**AND****Complementary Support Courses**

Choose 3 of 14

Choose 3 of 14, each from a different discipline.

DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV376	GEOGRAPHY OF THE MIDDLE EAST
HI339	THE MODERN MIDDLE EAST
HI349	THE MIDDLE EAST TO 1798
HI391	WORLD RELIGIONS
LN482H	SPOKEN HEBREW
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS383	POLITICS & GOVT-MIDDLE EAST
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES

**AND****Integrative Experience for the Major**

Choose 1 of 1

LN490	LANGUAGE & CULTURE CAP SEM
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**AND****Science Depth**

Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II

**STEM Depth**

Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.

CY305	CYBER FOUNDATIONS
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CY355 CYBER FOUNDATIONS - COMPUTING

**AND**

**Curriculum Requirement**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305 CYBER FOUNDATIONS

CY355 CYBER FOUNDATIONS - COMPUTING

**Core Engineering Sequence**

Cadets in this major may choose any approved three course engineering sequence.

**Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN380.

LN380

NATURE OF MODERN LANGUAGES

## 2021 Foreign Language Major: Arabic & Spanish w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FAS1H	Foreign Language: Arabic & Spanish w/ Honors	Foreign Language Major: Arabic & Spanish w/ Honors	Foreign Language: Arabic & Spanish w/ Honors	1	0

### 2021 Foreign Language Major: Arabic & Spanish w/ Honors Tracks

Subject Area	Description
<b>Honors Thesis Course</b>	Choose 1 of 1
	Write an honors thesis under the direction of a senior faculty member.
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	

Complete the requirements of the major as shown above, AND attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

## 2021 Foreign Language Major: Arabic & Persian Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FAZ1	Foreign Language: Arabic & Persian	Foreign Language Major: Arabic & Persian	Foreign Language: Arabic & Persian	2	13

### 2021 Foreign Language Major: Arabic & Persian Tracks

Subject Area	Description
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<b>Required Course</b>	Choose 1 of 1
LN380	NATURE OF MODERN LANGUAGES
<b>AND</b>	
<b>Electives</b>	Choose 6 of 20
LA371	INTENSIVE INTERMEDIATE ARABIC
LA372	ARABIC FOR ORAL & WRITTEN COMM
LA470	SPECIAL TOPIC IN ARABIC
LA472	COLLOQUIAL ARABIC
LA475	ARABIC RDG/WRTG THRU MEDIA
LA476	MILITARY SPKG/RDG - ARABIC
LA483	ARAB CIVILIZATION I
LA484	ARAB CIVILIZATION II
LA485	ARABIC LITERATURE I
LA486	ARABIC LITERATURE II
LA492	ARABIC LITERATURE III
LN440A	ARABIC IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
<b>AND</b>	
<b>Secondary Language Track</b>	Choose 4 of 9
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LZ203	PERSIAN I (STANDARD)
LZ204	PERSIAN II (STANDARD)
LZ371	INTENSIVE INTERMEDIATE PERSIAN
LZ372	PERSIAN FOR ORAL & WRIT COMM
LZ470	SPECIAL TOPIC IN PERSIAN
LZ475	PERSIAN RDG/WRTG THRU MEDIA
LZ484	PERSIAN CIVILIZATION
<b>AND</b>	
<b>Complementary Support Courses</b>	Choose 3 of 14
Choose 3 of 14, each from a different discipline.	
DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV376	GEOGRAPHY OF THE MIDDLE EAST
HI339	THE MODERN MIDDLE EAST
HI349	THE MIDDLE EAST TO 1798
HI391	WORLD RELIGIONS
LN482H	SPOKEN HEBREW
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS383	POLITICS & GOVT-MIDDLE EAST
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES
<b>AND</b>	
<b>Integrative Experience for the Major</b>	Choose 1 of 1



LN490	LANGUAGE & CULTURE CAP SEM
<b>AND</b>	
<b>Science Depth</b>	
Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.	
CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II
<b>STEM Depth</b>	
Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.	
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>AND</b>	
<b>Curriculum Requirement</b>	
This section describes how cadets in this major satisfy various curriculum requirements.	
<b>IT/CYBER Requirement</b>	
Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.	
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>Core Engineering Sequence</b>	
Cadets in this major may choose any approved three course engineering sequence.	
<b>Writing-in-the-Major</b>	
Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN380.	
LN380	NATURE OF MODERN LANGUAGES

## 2021 Foreign Language Major: Arabic & Persian w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FAZ1H	Foreign Language: Arabic & Persian w/ Honors	Foreign Language Major: Arabic & Persian w/ Honors	Foreign Language: Arabic & Persian w/ Honors	1	0

## 2021 Foreign Language Major: Arabic & Persian w/ Honors Tracks

Subject Area	Description
<b>Honors Thesis Course</b>	Choose 1 of 1
Write an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	

Complete the requirements of the major as shown above, AND attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

## 2021 Foreign Language Major: Chinese & Arabic Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FCA0	Foreign Language: Chinese & Arabic	Foreign Language Major: Chinese & Arabic	Foreign Language: Chinese & Arabic	2	13

## 2021 Foreign Language Major: Chinese & Arabic Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
LN380	NATURE OF MODERN LANGUAGES
<b>AND</b>	
<b>Electives</b>	Choose 6 of 19
LC371	INTENSIVE INTERMEDIATE CHINESE
LC372	CHINESE FOR ORAL & WRIT COMM
LC470	SPECIAL TOPIC IN CHINESE
LC475	CHINESE RDG/WRTG THRU MEDIA
LC476	MILITARY SPKG/RDG - CHINESE
LC483	CHINESE CIVILIZATION I
LC484	CHINESE CIVILIZATION II
LC485	CHINESE LITERATURE I
LC486	CHINESE LITERATURE II
LC492	CHINESE LITERATURE III
LN440C	CHINESE IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
<b>AND</b>	
<b>Secondary Language Track</b>	Choose 4 of 14
LA203	ARABIC I (STANDARD)
LA204	ARABIC II (STANDARD)
LA371	INTENSIVE INTERMEDIATE ARABIC
LA372	ARABIC FOR ORAL & WRITTEN COMM
LA472	COLLOQUIAL ARABIC
LA475	ARABIC RDG/WRTG THRU MEDIA
LA476	MILITARY SPKG/RDG - ARABIC
LA483	ARAB CIVILIZATION I
LA484	ARAB CIVILIZATION II
LA485	ARABIC LITERATURE I
LA486	ARABIC LITERATURE II
LA492	ARABIC LITERATURE III
LN487	ADV IND STUDY-FOREIGN LANGS

LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	
<b>Complementary Support Courses</b>	Choose 3 of 15
Choose 3 of 15, each from a different discipline.	
DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV372	GEOGRAPHY OF ASIA
HI337	CHINA-C. KINGDOM TO COMM RULE
HI347	ASIAN WARFARE AND POLITICS
HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
PY369	EASTERN THOUGHT
SS366	COMPARATIVE POLITICS
SS372	POLITICS AND GOV OF CHINA
SS374	POL & GOV OF KOREAS & JAPAN
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES
<b>AND</b>	
<b>Integrative Experience for the Major</b>	Choose 1 of 1
LN490	LANGUAGE & CULTURE CAP SEM
<b>AND</b>	
<b>Science Depth</b>	
Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.	
CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II
<b>STEM Depth</b>	
Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.	
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>AND</b>	
<b>Curriculum Requirement</b>	
This section describes how cadets in this major satisfy various curriculum requirements.	
<b>IT/CYBER Requirement</b>	
Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.	
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>Core Engineering Sequence</b>	
Cadets in this major may choose any approved three course engineering sequence.	
<b>Writing-in-the-Major</b>	
Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN380.	
LN380	NATURE OF MODERN LANGUAGES

## 2021 Foreign Language Major: Chinese & Arabic w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FCA0H	Foreign Language: Chinese & Arabic w/ Honors	Foreign Language Major: Chinese & Arabic w/ Honors	Foreign Language: Chinese & Arabic w/ Honors	1	0

### 2021 Foreign Language Major: Chinese & Arabic w/ Honors Tracks

Subject Area	Description
<b>Honors Thesis Course</b>	Choose 1 of 1
	Write an honors thesis under the direction of a senior faculty member.
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	

Complete the requirements of the major as shown above, AND attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

## 2021 Foreign Language Major: Chinese & French Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FCF1	Foreign Language: Chinese & French	Foreign Language Major: Chinese & French	Foreign Language: Chinese & French	2	13

### 2021 Foreign Language Major: Chinese & French Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
LN380	NATURE OF MODERN LANGUAGES
<b>AND</b>	
<b>Electives</b>	Choose 6 of 19
LC371	INTENSIVE INTERMEDIATE CHINESE
LC372	CHINESE FOR ORAL & WRIT COMM
LC470	SPECIAL TOPIC IN CHINESE
LC475	CHINESE RDG/WRTG THRU MEDIA
LC476	MILITARY SPKG/RDG - CHINESE
LC483	CHINESE CIVILIZATION I
LC484	CHINESE CIVILIZATION II
LC485	CHINESE LITERATURE I
LC486	CHINESE LITERATURE II
LC492	CHINESE LITERATURE III
LN440C	CHINESE IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III

LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
<b>AND</b>	
<b>Secondary Language Track</b>	Choose 4 of 13
LF203	FRENCH I (STANDARD)
LF204	FRENCH II (STANDARD)
LF371	INTENSIVE INTERMEDIATE FRENCH
LF372	FRENCH FOR ORAL & WRITTEN COMM
LF475	FRENCH RDG/WRTG THRU MEDIA
LF476	MILITARY SPKG/RDG - FRENCH
LF483	FRENCH CIVILIZATION I
LF484	FRENCH CIVILIZATION II
LF485	SURVEY OF FRENCH LIT I
LF486	SURVEY OF FRENCH LIT II
LF492	MASTERWORKS OF FRENCH LIT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	
<b>Complementary Support Courses</b>	Choose 3 of 15
Choose 3 of 15, each from a different discipline.	
DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV372	GEOGRAPHY OF ASIA
HI337	CHINA-C. KINGDOM TO COMM RULE
HI347	ASIAN WARFARE AND POLITICS
HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
PY369	EASTERN THOUGHT
SS366	COMPARATIVE POLITICS
SS372	POLITICS AND GOV OF CHINA
SS374	POL & GOV OF KOREAS & JAPAN
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES
<b>AND</b>	
<b>Integrative Experience for the Major</b>	Choose 1 of 1
LN490	LANGUAGE & CULTURE CAP SEM
<b>AND</b>	
<b>Science Depth</b>	
Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.	
CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II
<b>STEM Depth</b>	
Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.	
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>AND</b>	
<b>Curriculum Requirement</b>	
This section describes how cadets in this major satisfy various curriculum requirements.	
<b>IT/CYBER Requirement</b>	

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305

CYBER FOUNDATIONS

CY355

CYBER FOUNDATIONS - COMPUTING

#### Core Engineering Sequence

Cadets in this major may choose any approved three course engineering sequence.

#### Writing-in-the-Major

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN380.

LN380

NATURE OF MODERN LANGUAGES

### 2021 Foreign Language Major: Chinese & French w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FCF1H	Foreign Language: Chinese & French w/ Honors	Foreign Language Major: Chinese & French w/ Honors	Foreign Language: Chinese & French w/ Honors	1	0

#### 2021 Foreign Language Major: Chinese & French w/ Honors Tracks

Subject Area	Description
<b>Honors Thesis Course</b>	Choose 1 of 1
	Write an honors thesis under the direction of a senior faculty member.
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	

Complete the requirements of the major as shown above, AND attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

### 2021 Foreign Language Major: Chinese & German Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FCG1	Foreign Language: Chinese & German	Foreign Language Major: Chinese & German	Foreign Language: Chinese & German	2	13

#### 2021 Foreign Language Major: Chinese & German Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
LN380	NATURE OF MODERN LANGUAGES
<b>AND</b>	
<b>Electives</b>	Choose 6 of 19
LC371	INTENSIVE INTERMEDIATE CHINESE

LC372	CHINESE FOR ORAL & WRIT COMM
LC470	SPECIAL TOPIC IN CHINESE
LC475	CHINESE RDG/WRTG THRU MEDIA
LC476	MILITARY SPKG/RDG - CHINESE
LC483	CHINESE CIVILIZATION I
LC484	CHINESE CIVILIZATION II
LC485	CHINESE LITERATURE I
LC486	CHINESE LITERATURE II
LC492	CHINESE LITERATURE III
LN440C	CHINESE IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V

**AND****Secondary Language Track**

Choose 4 of 13

LG203	GERMAN I (STANDARD)
LG204	GERMAN II (STANDARD)
LG371	INTENSIVE INTERMEDIATE GERMAN
LG372	GERMAN FOR ORAL & WRITTEN COMM
LG475	GERMAN RDG/WRTG THRU MEDIA
LG476	MILITARY SPKG/RDG - GERMAN
LG483	GERMAN CIVILIZATION I
LG484	GERMAN CIVILIZATION II
LG485	SURVEY OF GERMAN LIT I
LG486	SURVEY OF GERMAN LIT II
LG492	20TH & 21ST CENTURY GERMANY
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS

**AND****Complementary Support Courses**

Choose 3 of 15

Choose 3 of 15, each from a different discipline.

DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV372	GEOGRAPHY OF ASIA
HI337	CHINA-C. KINGDOM TO COMM RULE
HI347	ASIAN WARFARE AND POLITICS
HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
PY369	EASTERN THOUGHT
SS366	COMPARATIVE POLITICS
SS372	POLITICS AND GOV OF CHINA
SS374	POL & GOV OF KOREAS & JAPAN
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES

**AND****Integrative Experience for the Major**

Choose 1 of 1

LN490	LANGUAGE & CULTURE CAP SEM
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**AND****Science Depth**

Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II

**STEM Depth**

Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**AND****Curriculum Requirement**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**Core Engineering Sequence**

Cadets in this major may choose any approved three course engineering sequence.

**Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN380.

LN380	NATURE OF MODERN LANGUAGES
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## 2021 Foreign Language Major: Chinese & German w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FCG1H	Foreign Language: Chinese & German w/ Honors	Foreign Language Major: Chinese & German w/ Honors	Foreign Language: Chinese & German w/ Honors	1	0

## 2021 Foreign Language Major: Chinese & German w/ Honors Tracks

Subject Area	Description
<b>Honors Thesis Course</b>	Choose 1 of 1
	Write an honors thesis under the direction of a senior faculty member.
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	

Complete the requirements of the major as shown above, AND attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.



## 2021 Foreign Language Major: Chinese & Portuguese Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FCP1	Foreign Language: Chinese & Portuguese	Foreign Language Major: Chinese & Portuguese	Foreign Language: Chinese & Portuguese	2	13

### 2021 Foreign Language Major: Chinese & Portuguese Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
LN380	NATURE OF MODERN LANGUAGES
<b>AND</b>	
<b>Electives</b>	Choose 6 of 19
LC371	INTENSIVE INTERMEDIATE CHINESE
LC372	CHINESE FOR ORAL & WRIT COMM
LC470	SPECIAL TOPIC IN CHINESE
LC475	CHINESE RDG/WRTG THRU MEDIA
LC476	MILITARY SPKG/RDG - CHINESE
LC483	CHINESE CIVILIZATION I
LC484	CHINESE CIVILIZATION II
LC485	CHINESE LITERATURE I
LC486	CHINESE LITERATURE II
LC492	CHINESE LITERATURE III
LN440C	CHINESE IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
<b>AND</b>	
<b>Secondary Language Track</b>	Choose 4 of 12
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LP203	PORTUGUESE I (STANDARD)
LP204	PORTUGUESE II (STANDARD)
LP371	INTENSIVE INTERMED. PORTUGUESE
LP372	PORTUGUESE FOR ORAL/WRIT COMM
LP475	PORTUGUESE RDG/WRTG THRU MEDIA
LP476	MILITARY SPKG/RDG - PORTUGUESE
LP483	PORTUGUESE CIVILIZATION I
LP484	PORTUGUESE CIVILIZATION II
LP485	SURVEY OF PORTUGUESE LIT I
LP492	LIT OF PORT-SPKG WORLD
<b>AND</b>	
<b>Complementary Support Courses</b>	Choose 3 of 15
Choose 3 of 15, each from a different discipline.	
DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES

EV372	GEOGRAPHY OF ASIA
HI337	CHINA-C. KINGDOM TO COMM RULE
HI347	ASIAN WARFARE AND POLITICS
HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
PY369	EASTERN THOUGHT
SS366	COMPARATIVE POLITICS
SS372	POLITICS AND GOV OF CHINA
SS374	POL & GOV OF KOREAS & JAPAN
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES

**AND**


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**Integrative Experience for the Major** Choose 1 of 1

LN490	LANGUAGE & CULTURE CAP SEM
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**AND****Science Depth**

Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II

**STEM Depth**

Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**AND****Curriculum Requirement**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**Core Engineering Sequence**

Cadets in this major may choose any approved three course engineering sequence.

**Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN380.

LN380	NATURE OF MODERN LANGUAGES
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## 2021 Foreign Language Major: Chinese & Portuguese w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FCP1H	Foreign Lang: Chinese & Portuguese w/ Honors	Foreign Language Major: Chinese & Portuguese w/ Honors	Foreign Lang: Chinese & Portuguese w/ Honors	1	0

### 2021 Foreign Language Major: Chinese & Portuguese w/ Honors Tracks

Subject Area	Description
<b>Honors Thesis Course</b>	Choose 1 of 1
Write an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	

Complete the requirements of the major as shown above, AND attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

### 2021 Foreign Language Major: Chinese & Russian Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FCR1	Foreign Language: Chinese & Russian	Foreign Language Major: Chinese & Russian	Foreign Language: Chinese & Russian	2	13

### 2021 Foreign Language Major: Chinese & Russian Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
LN380	NATURE OF MODERN LANGUAGES
<b>AND</b>	
<b>Electives</b>	Choose 6 of 19
LC371	INTENSIVE INTERMEDIATE CHINESE
LC372	CHINESE FOR ORAL & WRIT COMM
LC470	SPECIAL TOPIC IN CHINESE
LC475	CHINESE RDG/WRTG THRU MEDIA
LC476	MILITARY SPKG/RDG - CHINESE
LC483	CHINESE CIVILIZATION I
LC484	CHINESE CIVILIZATION II
LC485	CHINESE LITERATURE I
LC486	CHINESE LITERATURE II
LC492	CHINESE LITERATURE III
LN440C	CHINESE IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
<b>AND</b>	
<b>Secondary Language Track</b>	Choose 4 of 13
LN487	ADV IND STUDY-FOREIGN LANGS

LN488	ADV IND STUDY-FOREIGN LANGS
LR203	RUSSIAN I (STANDARD)
LR204	RUSSIAN II (STANDARD)
LR371	INTENSIVE INTERMEDIATE RUSSIAN
LR372	RUSSIAN FOR ORAL & WRIT COMM
LR475	RUSSIAN RDG/WRTG THRU MEDIA
LR476	MILITARY SPKG/RDG - RUSSIAN
LR483	RUSSIAN CIV I
LR484	RUSSIAN CIV II
LR485	SURVEY OF RUSSIAN LITERATURE I
LR486	SURVEY OF RUSSIAN LIT. II
LR492	RUSSIAN LIFE IN FICTION

**AND****Complementary Support Courses**

Choose 3 of 15

Choose 3 of 15, each from a different discipline.

DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV372	GEOGRAPHY OF ASIA
HI337	CHINA-C. KINGDOM TO COMM RULE
HI347	ASIAN WARFARE AND POLITICS
HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
PY369	EASTERN THOUGHT
SS366	COMPARATIVE POLITICS
SS372	POLITICS AND GOV OF CHINA
SS374	POL & GOV OF KOREAS & JAPAN
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES

**AND****Integrative Experience for the Major**

Choose 1 of 1

LN490	LANGUAGE & CULTURE CAP SEM
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**AND****Science Depth**

Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II

**STEM Depth**

Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**AND****Curriculum Requirement**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**Core Engineering Sequence**

Cadets in this major may choose any approved three course engineering sequence.

**Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN380.

LN380

NATURE OF MODERN LANGUAGES

**2021 Foreign Language Major: Chinese & Russian w/ Honors Curriculum**

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FCR1H	Foreign Language: Chinese & Russian w/ Honors	Foreign Language Major: Chinese & Russian w/ Honors	Foreign Language: Chinese & Russian w/ Honors	1	0

**2021 Foreign Language Major: Chinese & Russian w/ Honors Tracks**

Subject Area	Description
<b>Honors Thesis Course</b>	Choose 1 of 1
Write an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	

Complete the requirements of the major as shown above, AND attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

**2021 Foreign Language Major: Chinese & Spanish Curriculum**

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FCS1	Foreign Language: Chinese & Spanish	Foreign Language Major: Chinese & Spanish	Foreign Language: Chinese & Spanish	2	13

**2021 Foreign Language Major: Chinese & Spanish Tracks**

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
LN380	NATURE OF MODERN LANGUAGES
<b>AND</b>	
<b>Electives</b>	Choose 6 of 19
LC371	INTENSIVE INTERMEDIATE CHINESE
LC372	CHINESE FOR ORAL & WRIT COMM
LC470	SPECIAL TOPIC IN CHINESE
LC475	CHINESE RDG/WRTG THRU MEDIA
LC476	MILITARY SPKG/RDG - CHINESE
LC483	CHINESE CIVILIZATION I

LC484	CHINESE CIVILIZATION II
LC485	CHINESE LITERATURE I
LC486	CHINESE LITERATURE II
LC492	CHINESE LITERATURE III
LN440C	CHINESE IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V

**AND****Secondary Language Track**

Choose 4 of 13

LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LS203	SPANISH I (STANDARD)
LS204	SPANISH II (STANDARD)
LS371	INTENSIVE INTERMEDIATE SPANISH
LS372	SPANISH FOR ORAL & WRIT COMM
LS475	SPANISH RDG/WRTG THRU MEDIA
LS476	MILITARY SPKG/RDG - SPANISH
LS483	SPANISH CIV AND CULTURE
LS484	SPANISH AMERICAN CIV AND CULT
LS485	SPANISH-AMERICAN LITERATURE
LS486	THE LITERATURE OF SPAIN
LS492	20TH/21ST CENTURY HISPANIC LIT

**AND****Complementary Support Courses**

Choose 3 of 15

Choose 3 of 15, each from a different discipline.

DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV372	GEOGRAPHY OF ASIA
HI337	CHINA-C. KINGDOM TO COMM RULE
HI347	ASIAN WARFARE AND POLITICS
HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
PY369	EASTERN THOUGHT
SS366	COMPARATIVE POLITICS
SS372	POLITICS AND GOV OF CHINA
SS374	POL & GOV OF KOREAS & JAPAN
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES

**AND****Integrative Experience for the Major**

Choose 1 of 1

LN490	LANGUAGE & CULTURE CAP SEM
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**AND****Science Depth**

Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY

PH206	PHYSICS II
PH256	ADVANCED PHYSICS II
<b>STEM Depth</b>	
Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.	
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>AND</b>	

**Curriculum Requirement**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**Core Engineering Sequence**

Cadets in this major may choose any approved three course engineering sequence.

**Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN380.

LN380	NATURE OF MODERN LANGUAGES
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## 2021 Foreign Language Major: Chinese & Spanish w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FCS1H	Foreign Language: Chinese & Spanish w/ Honors	Foreign Language Major: Chinese & Spanish w/ Honors	Foreign Language: Chinese & Spanish w/ Honors	1	0

## 2021 Foreign Language Major: Chinese & Spanish w/ Honors Tracks

Subject Area	Description
<b>Honors Thesis Course</b>	Choose 1 of 1
Write an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	

Complete the requirements of the major as shown above, AND attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

## 2021 Foreign Language Major: Chinese & Persian Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FCZ1	Foreign Language: Chinese & Persian	Foreign Language Major: Chinese & Persian	Foreign Language: Chinese & Persian	2	13

## 2021 Foreign Language Major: Chinese &amp; Persian Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
LN380	NATURE OF MODERN LANGUAGES
<b>AND</b>	
<b>Electives</b>	Choose 6 of 19
LC371	INTENSIVE INTERMEDIATE CHINESE
LC372	CHINESE FOR ORAL & WRIT COMM
LC470	SPECIAL TOPIC IN CHINESE
LC475	CHINESE RDG/WRTG THRU MEDIA
LC476	MILITARY SPKG/RDG - CHINESE
LC483	CHINESE CIVILIZATION I
LC484	CHINESE CIVILIZATION II
LC485	CHINESE LITERATURE I
LC486	CHINESE LITERATURE II
LC492	CHINESE LITERATURE III
LN440C	CHINESE IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
<b>AND</b>	
<b>Secondary Language Track</b>	Choose 4 of 9
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LZ203	PERSIAN I (STANDARD)
LZ204	PERSIAN II (STANDARD)
LZ371	INTENSIVE INTERMEDIATE PERSIAN
LZ372	PERSIAN FOR ORAL & WRIT COMM
LZ470	SPECIAL TOPIC IN PERSIAN
LZ475	PERSIAN RDG/WRTG THRU MEDIA
LZ484	PERSIAN CIVILIZATION
<b>AND</b>	
<b>Complementary Support Courses</b>	Choose 3 of 15
Choose 3 of 15, each from a different discipline.	
DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV372	GEOGRAPHY OF ASIA
HI337	CHINA-C. KINGDOM TO COMM RULE
HI347	ASIAN WARFARE AND POLITICS
HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
PY369	EASTERN THOUGHT
SS366	COMPARATIVE POLITICS
SS372	POLITICS AND GOV OF CHINA
SS374	POL & GOV OF KOREAS & JAPAN



SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES
<b>AND</b>	
<hr/>	
<b>Integrative Experience for the Major</b>	Choose 1 of 1
LN490	LANGUAGE & CULTURE CAP SEM
<b>AND</b>	
<hr/>	
<b>Science Depth</b>	
Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.	
CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II
<b>STEM Depth</b>	
Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.	
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>AND</b>	
<hr/>	
<b>Curriculum Requirement</b>	
This section describes how cadets in this major satisfy various curriculum requirements.	
<b>IT/CYBER Requirement</b>	
Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.	
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>Core Engineering Sequence</b>	
Cadets in this major may choose any approved three course engineering sequence.	
<b>Writing-in-the-Major</b>	
Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN380.	
LN380	NATURE OF MODERN LANGUAGES

## 2021 Foreign Language Major: Chinese & Persian w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FCZ1H	Foreign Language: Chinese & Persian w/ Honors	Foreign Language Major: Chinese & Persian w/ Honors	Foreign Language: Chinese & Persian w/ Honors	1	0

## 2021 Foreign Language Major: Chinese & Persian w/ Honors Tracks

Subject Area	Description
<b>Honors Thesis Course</b>	Choose 1 of 1
Write an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	

Complete the requirements of the major as shown above, AND attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

## 2021 Foreign Language Major: French & Arabic Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FFA0	Foreign Language: French & Arabic	Foreign Language Major: French & Arabic	Foreign Language: French & Arabic	2	13

## 2021 Foreign Language Major: French & Arabic Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
LN380	NATURE OF MODERN LANGUAGES
<b>AND</b>	
<b>Electives</b>	Choose 6 of 19
LF371	INTENSIVE INTERMEDIATE FRENCH
LF372	FRENCH FOR ORAL & WRITTEN COMM
LF470	SPECIAL TOPIC IN FRENCH
LF475	FRENCH RDG/WRTG THRU MEDIA
LF476	MILITARY SPKG/RDG - FRENCH
LF483	FRENCH CIVILIZATION I
LF484	FRENCH CIVILIZATION II
LF485	SURVEY OF FRENCH LIT I
LF486	SURVEY OF FRENCH LIT II
LF492	MASTERWORKS OF FRENCH LIT
LN440F	FRENCH IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
<b>AND</b>	
<b>Secondary Language Track</b>	Choose 4 of 14
LA203	ARABIC I (STANDARD)
LA204	ARABIC II (STANDARD)
LA371	INTENSIVE INTERMEDIATE ARABIC
LA372	ARABIC FOR ORAL & WRITTEN COMM
LA472	COLLOQUIAL ARABIC
LA475	ARABIC RDG/WRTG THRU MEDIA
LA476	MILITARY SPKG/RDG - ARABIC
LA483	ARAB CIVILIZATION I
LA484	ARAB CIVILIZATION II
LA485	ARABIC LITERATURE I
LA486	ARABIC LITERATURE II
LA492	ARABIC LITERATURE III
LN487	ADV IND STUDY-FOREIGN LANGS

LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	
<b>Complementary Support Courses</b>	Choose 3 of 17
Choose 3 of 17, each from a different discipline.	
DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV375	GEOGRAPHY OF AFRICA
EV386	GEOGRAPHY OF EUROPE
HI338	WARFARE IN AGE OF REVOLUTIONS
HI344	MODERN DIPLOMACY
HI345	MODERN AFRICA
HI361	MEDIEVAL EUROPE
HI364	MODERN WESTERN EUROPE
HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS377	POLITICS & GOV OF EUROPE
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES
<b>AND</b>	
<b>Integrative Experience for the Major</b>	Choose 1 of 1
LN490	LANGUAGE & CULTURE CAP SEM
<b>AND</b>	
<b>Science Depth</b>	
Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.	
CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II
<b>STEM Depth</b>	
Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.	
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>AND</b>	
<b>Curriculum Requirement</b>	
This section describes how cadets in this major satisfy various curriculum requirements.	
<b>IT/CYBER Requirement</b>	
Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.	
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>Core Engineering Sequence</b>	
Cadets in this major may choose any approved three course engineering sequence.	
<b>Writing-in-the-Major</b>	
Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN380.	
LN380	NATURE OF MODERN LANGUAGES

### 2021 Foreign Language Major: French & Arabic w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FFA0H	Foreign Language: French & Arabic w/ Honors	Foreign Language Major: French & Arabic w/ Honors	Foreign Language: French & Arabic w/ Honors	1	0

### 2021 Foreign Language Major: French & Arabic w/ Honors Tracks

Subject Area	Description
<b>Honors Thesis Course</b>	Choose 1 of 1
	Write an honors thesis under the direction of a senior faculty member.
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	

Complete the requirements of the major as shown above, AND attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

### 2021 Foreign Language Major: French & Chinese Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FFC0	Foreign Language: French & Chinese	Foreign Language Major: French & Chinese	Foreign Language: French & Chinese	2	13

### 2021 Foreign Language Major: French & Chinese Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
LN380	NATURE OF MODERN LANGUAGES
<b>AND</b>	
<b>Electives</b>	Choose 6 of 19
LF371	INTENSIVE INTERMEDIATE FRENCH
LF372	FRENCH FOR ORAL & WRITTEN COMM
LF470	SPECIAL TOPIC IN FRENCH
LF475	FRENCH RDG/WRTG THRU MEDIA
LF476	MILITARY SPKG/RDG - FRENCH
LF483	FRENCH CIVILIZATION I
LF484	FRENCH CIVILIZATION II
LF485	SURVEY OF FRENCH LIT I
LF486	SURVEY OF FRENCH LIT II
LF492	MASTERWORKS OF FRENCH LIT
LN440F	FRENCH IN CULTURAL CONTEXT

LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V

**AND****Secondary Language Track**

Choose 4 of 13

LC203	CHINESE I (STANDARD)
LC204	CHINESE II (STANDARD)
LC371	INTENSIVE INTERMEDIATE CHINESE
LC372	CHINESE FOR ORAL & WRIT COMM
LC475	CHINESE RDG/WRTG THRU MEDIA
LC476	MILITARY SPKG/RDG - CHINESE
LC483	CHINESE CIVILIZATION I
LC484	CHINESE CIVILIZATION II
LC485	CHINESE LITERATURE I
LC486	CHINESE LITERATURE II
LC492	CHINESE LITERATURE III
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS

**AND****Complementary Support Courses**

Choose 3 of 17

Choose 3 of 17, each from a different discipline.

DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV375	GEOGRAPHY OF AFRICA
EV386	GEOGRAPHY OF EUROPE
HI338	WARFARE IN AGE OF REVOLUTIONS
HI344	MODERN DIPLOMACY
HI345	MODERN AFRICA
HI361	MEDIEVAL EUROPE
HI364	MODERN WESTERN EUROPE
HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS377	POLITICS & GOV OF EUROPE
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES

**AND****Integrative Experience for the Major**

Choose 1 of 1

LN490	LANGUAGE & CULTURE CAP SEM
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**AND****Science Depth**

Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II

**STEM Depth**

Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.

CY305

CYBER FOUNDATIONS

CY355

CYBER FOUNDATIONS - COMPUTING

**AND**

### Curriculum Requirement

This section describes how cadets in this major satisfy various curriculum requirements.

### IT/CYBER Requirement

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305

CYBER FOUNDATIONS

CY355

CYBER FOUNDATIONS - COMPUTING

### Core Engineering Sequence

Cadets in this major may choose any approved three course engineering sequence.

### Writing-in-the-Major

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN380.

LN380

NATURE OF MODERN LANGUAGES

## 2021 Foreign Language Major: French & Chinese w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FFC0H	Foreign Language: French & Chinese w/ Honors	Foreign Language Major: French & Chinese w/ Honors	Foreign Language: French & Chinese w/ Honors	1	0

## 2021 Foreign Language Major: French & Chinese w/ Honors Tracks

Subject Area	Description
<b>Honors Thesis Course</b>	Choose 1 of 1
	Write an honors thesis under the direction of a senior faculty member.
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	

Complete the requirements of the major as shown above, AND attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

## 2021 Foreign Language Major: French & German Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FFG1	Foreign Language: French & German	Foreign Language Major: French & German	Foreign Language: French & German	2	13

### 2021 Foreign Language Major: French & German Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
LN380	NATURE OF MODERN LANGUAGES
<b>AND</b>	
<b>Electives</b>	Choose 6 of 19
LF371	INTENSIVE INTERMEDIATE FRENCH
LF372	FRENCH FOR ORAL & WRITTEN COMM
LF470	SPECIAL TOPIC IN FRENCH
LF475	FRENCH RDG/WRTG THRU MEDIA
LF476	MILITARY SPKG/RDG - FRENCH
LF483	FRENCH CIVILIZATION I
LF484	FRENCH CIVILIZATION II
LF485	SURVEY OF FRENCH LIT I
LF486	SURVEY OF FRENCH LIT II
LF492	MASTERWORKS OF FRENCH LIT
LN440F	FRENCH IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
<b>AND</b>	
<b>Secondary Language Track</b>	Choose 4 of 13
LG203	GERMAN I (STANDARD)
LG204	GERMAN II (STANDARD)
LG371	INTENSIVE INTERMEDIATE GERMAN
LG372	GERMAN FOR ORAL & WRITTEN COMM
LG475	GERMAN RDG/WRTG THRU MEDIA
LG476	MILITARY SPKG/RDG - GERMAN
LG483	GERMAN CIVILIZATION I
LG484	GERMAN CIVILIZATION II
LG485	SURVEY OF GERMAN LIT I
LG486	SURVEY OF GERMAN LIT II
LG492	20TH & 21ST CENTURY GERMANY
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	
<b>Complementary Support Courses</b>	Choose 3 of 17
Choose 3 of 17, each from a different discipline.	
DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV375	GEOGRAPHY OF AFRICA
EV386	GEOGRAPHY OF EUROPE
HI338	WARFARE IN AGE OF REVOLUTIONS
HI344	MODERN DIPLOMACY
HI345	MODERN AFRICA

HI361	MEDIEVAL EUROPE
HI364	MODERN WESTERN EUROPE
HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS377	POLITICS & GOV OF EUROPE
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES

**AND****Integrative Experience for the Major**

Choose 1 of 1

LN490

LANGUAGE &amp; CULTURE CAP SEM

**AND****Science Depth**

Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II

**STEM Depth**

Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**AND****Curriculum Requirement**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**Core Engineering Sequence**

Cadets in this major may choose any approved three course engineering sequence.

**Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN380.

LN380	NATURE OF MODERN LANGUAGES
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## 2021 Foreign Language Major: French & German w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FFG1H	Foreign Language: French & German w/ Honors	Foreign Language Major: French & German w/ Honors	Foreign Language: French & German w/ Honors	1	0

## 2021 Foreign Language Major: French & German w/ Honors Tracks

Subject Area	Description
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**Honors Thesis Course**

Choose 1 of 1

Write an honors thesis under the direction of a senior faculty member.

LN488

ADV IND STUDY-FOREIGN LANGS

**AND**

Complete the requirements of the major as shown above, AND attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

**2021 Foreign Language Major: French & Portuguese Curriculum**

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FFP1	Foreign Language: French & Portuguese	Foreign Language Major: French & Portuguese	Foreign Language: French & Portuguese	2	13

**2021 Foreign Language Major: French & Portuguese Tracks**

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
LN380	NATURE OF MODERN LANGUAGES
<b>AND</b>	
<b>Electives</b>	Choose 6 of 19
LF371	INTENSIVE INTERMEDIATE FRENCH
LF372	FRENCH FOR ORAL & WRITTEN COMM
LF470	SPECIAL TOPIC IN FRENCH
LF475	FRENCH RDG/WRTG THRU MEDIA
LF476	MILITARY SPKG/RDG - FRENCH
LF483	FRENCH CIVILIZATION I
LF484	FRENCH CIVILIZATION II
LF485	SURVEY OF FRENCH LIT I
LF486	SURVEY OF FRENCH LIT II
LF492	MASTERWORKS OF FRENCH LIT
LN440F	FRENCH IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
<b>AND</b>	
<b>Secondary Language Track</b>	Choose 4 of 12
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LP203	PORTUGUESE I (STANDARD)
LP204	PORTUGUESE II (STANDARD)
LP371	INTENSIVE INTERMED. PORTUGUESE
LP372	PORTUGUESE FOR ORAL/WRIT COMM

LP475	PORTUGUESE RDG/WRTG THRU MEDIA
LP476	MILITARY SPKG/RDG - PORTUGUESE
LP483	PORTUGUESE CIVILIZATION I
LP484	PORTUGUESE CIVILIZATION II
LP485	SURVEY OF PORTUGUESE LIT I
LP492	LIT OF PORT-SPKG WORLD

**AND****Complementary Support Courses**

Choose 3 of 17

Choose 3 of 17, each from a different discipline.

DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV375	GEOGRAPHY OF AFRICA
EV386	GEOGRAPHY OF EUROPE
HI338	WARFARE IN AGE OF REVOLUTIONS
HI344	MODERN DIPLOMACY
HI345	MODERN AFRICA
HI361	MEDIEVAL EUROPE
HI364	MODERN WESTERN EUROPE
HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS377	POLITICS & GOV OF EUROPE
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES

**AND****Integrative Experience for the Major**

Choose 1 of 1

LN490	LANGUAGE & CULTURE CAP SEM
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**AND****Science Depth**

Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II

**STEM Depth**

Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**AND****Curriculum Requirement**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**Core Engineering Sequence**

Cadets in this major may choose any approved three course engineering sequence.

**Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN380.

LN380

NATURE OF MODERN LANGUAGES

### 2021 Foreign Language Major: French & Portuguese w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FFP1H	Foreign Lang: French & Portuguese w/ Honors	Foreign Language Major: French & Portuguese w/ Honors	Foreign Lang: French & Portuguese w/ Honors	1	0

### 2021 Foreign Language Major: French & Portuguese w/ Honors Tracks

Subject Area	Description
<b>Honors Thesis Course</b>	Choose 1 of 1
	Write an honors thesis under the direction of a senior faculty member.
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	

Complete the requirements of the major as shown above, AND attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

### 2021 Foreign Language Major: French & Russian Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FFR1	Foreign Language: French & Russian	Foreign Language Major: French & Russian	Foreign Language: French & Russian	2	13

### 2021 Foreign Language Major: French & Russian Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
LN380	NATURE OF MODERN LANGUAGES
<b>AND</b>	
<b>Electives</b>	Choose 6 of 19
LF371	INTENSIVE INTERMEDIATE FRENCH
LF372	FRENCH FOR ORAL & WRITTEN COMM
LF470	SPECIAL TOPIC IN FRENCH
LF475	FRENCH RDG/WRTG THRU MEDIA
LF476	MILITARY SPKG/RDG - FRENCH
LF483	FRENCH CIVILIZATION I
LF484	FRENCH CIVILIZATION II
LF485	SURVEY OF FRENCH LIT I
LF486	SURVEY OF FRENCH LIT II
LF492	MASTERWORKS OF FRENCH LIT

LN440F	FRENCH IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V

**AND****Secondary Language Track**

Choose 4 of 13

LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LR203	RUSSIAN I (STANDARD)
LR204	RUSSIAN II (STANDARD)
LR371	INTENSIVE INTERMEDIATE RUSSIAN
LR372	RUSSIAN FOR ORAL & WRIT COMM
LR475	RUSSIAN RDG/WRTG THRU MEDIA
LR476	MILITARY SPKG/RDG - RUSSIAN
LR483	RUSSIAN CIV I
LR484	RUSSIAN CIV II
LR485	SURVEY OF RUSSIAN LITERATURE I
LR486	SURVEY OF RUSSIAN LIT. II
LR492	RUSSIAN LIFE IN FICTION

**AND****Complementary Support Courses**

Choose 3 of 17

Choose 3 of 17, each from a different discipline.

DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV375	GEOGRAPHY OF AFRICA
EV386	GEOGRAPHY OF EUROPE
HI338	WARFARE IN AGE OF REVOLUTIONS
HI344	MODERN DIPLOMACY
HI345	MODERN AFRICA
HI361	MEDIEVAL EUROPE
HI364	MODERN WESTERN EUROPE
HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS377	POLITICS & GOV OF EUROPE
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES

**AND****Integrative Experience for the Major**

Choose 1 of 1

LN490	LANGUAGE & CULTURE CAP SEM
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**AND****Science Depth**

Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II

**STEM Depth**

Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.

CY305

CYBER FOUNDATIONS

CY355

CYBER FOUNDATIONS - COMPUTING

**AND****Curriculum Requirement**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305

CYBER FOUNDATIONS

CY355

CYBER FOUNDATIONS - COMPUTING

**Core Engineering Sequence**

Cadets in this major may choose any approved three course engineering sequence.

**Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN380.

LN380

NATURE OF MODERN LANGUAGES

**2021 Foreign Language Major: French & Russian w/ Honors Curriculum**

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FFR1H	Foreign Language: French & Russian w/ Honors	Foreign Language Major: French & Russian w/ Honors	Foreign Language: French & Russian w/ Honors	1	0

**2021 Foreign Language Major: French & Russian w/ Honors Tracks**

Subject Area	Description
<b>Honors Thesis Course</b>	Choose 1 of 1
	Write an honors thesis under the direction of a senior faculty member.
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	

Complete the requirements of the major as shown above, AND attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

**2021 Foreign Language Major: French & Spanish Curriculum**

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FFS1	Foreign Language: French & Spanish	Foreign Language Major: French & Spanish	Foreign Language: French & Spanish	2	13

## 2021 Foreign Language Major: French &amp; Spanish Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
LN380	NATURE OF MODERN LANGUAGES
<b>AND</b>	
<b>Electives</b>	Choose 6 of 19
LF371	INTENSIVE INTERMEDIATE FRENCH
LF372	FRENCH FOR ORAL & WRITTEN COMM
LF470	SPECIAL TOPIC IN FRENCH
LF475	FRENCH RDG/WRTG THRU MEDIA
LF476	MILITARY SPKG/RDG - FRENCH
LF483	FRENCH CIVILIZATION I
LF484	FRENCH CIVILIZATION II
LF485	SURVEY OF FRENCH LIT I
LF486	SURVEY OF FRENCH LIT II
LF492	MASTERWORKS OF FRENCH LIT
LN440F	FRENCH IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
<b>AND</b>	
<b>Secondary Language Track</b>	Choose 4 of 13
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LS203	SPANISH I (STANDARD)
LS204	SPANISH II (STANDARD)
LS371	INTENSIVE INTERMEDIATE SPANISH
LS372	SPANISH FOR ORAL & WRIT COMM
LS475	SPANISH RDG/WRTG THRU MEDIA
LS476	MILITARY SPKG/RDG - SPANISH
LS483	SPANISH CIV AND CULTURE
LS484	SPANISH AMERICAN CIV AND CULT
LS485	SPANISH-AMERICAN LITERATURE
LS486	THE LITERATURE OF SPAIN
LS492	20TH/21ST CENTURY HISPANIC LIT
<b>AND</b>	
<b>Complementary Support Courses</b>	Choose 3 of 17
Choose 3 of 17, each from a different discipline.	
DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV375	GEOGRAPHY OF AFRICA
EV386	GEOGRAPHY OF EUROPE
HI338	WARFARE IN AGE OF REVOLUTIONS
HI344	MODERN DIPLOMACY
HI345	MODERN AFRICA

HI361	MEDIEVAL EUROPE
HI364	MODERN WESTERN EUROPE
HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS377	POLITICS & GOV OF EUROPE
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES

**AND**


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**Integrative Experience for the Major** Choose 1 of 1

LN490	LANGUAGE & CULTURE CAP SEM
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**AND****Science Depth**

Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II

**STEM Depth**

Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**AND****Curriculum Requirement**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**Core Engineering Sequence**

Cadets in this major may choose any approved three course engineering sequence.

**Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN380.

LN380	NATURE OF MODERN LANGUAGES
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## 2021 Foreign Language Major: French & Spanish w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FFS1H	Foreign Language: French & Spanish w/ Honors	Foreign Language Major: French & Spanish w/ Honors	Foreign Language: French & Spanish w/ Honors	1	0

## 2021 Foreign Language Major: French & Spanish w/ Honors Tracks

Subject Area	Description
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**Honors Thesis Course**

Choose 1 of 1

Write an honors thesis under the direction of a senior faculty member.

LN488

ADV IND STUDY-FOREIGN LANGS

**AND**

Complete the requirements of the major as shown above, AND attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

**2021 Foreign Language Major: French & Persian Curriculum**

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FFZ1	Foreign Language: French & Persian	Foreign Language Major: French & Persian	Foreign Language: French & Persian	2	13

**2021 Foreign Language Major: French & Persian Tracks**

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
LN380	NATURE OF MODERN LANGUAGES
<b>AND</b>	
<b>Electives</b>	Choose 6 of 19
LF371	INTENSIVE INTERMEDIATE FRENCH
LF372	FRENCH FOR ORAL & WRITTEN COMM
LF470	SPECIAL TOPIC IN FRENCH
LF475	FRENCH RDG/WRTG THRU MEDIA
LF476	MILITARY SPKG/RDG - FRENCH
LF483	FRENCH CIVILIZATION I
LF484	FRENCH CIVILIZATION II
LF485	SURVEY OF FRENCH LIT I
LF486	SURVEY OF FRENCH LIT II
LF492	MASTERWORKS OF FRENCH LIT
LN440F	FRENCH IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
<b>AND</b>	
<b>Secondary Language Track</b>	Choose 4 of 9
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LZ203	PERSIAN I (STANDARD)
LZ204	PERSIAN II (STANDARD)
LZ371	INTENSIVE INTERMEDIATE PERSIAN
LZ372	PERSIAN FOR ORAL & WRIT COMM



LZ470	SPECIAL TOPIC IN PERSIAN
LZ475	PERSIAN RDG/WRTG THRU MEDIA
LZ484	PERSIAN CIVILIZATION
<b>AND</b>	
<hr/>	
<b>Complementary Support Courses</b>	Choose 3 of 17
Choose 3 of 17, each from a different discipline.	
DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV375	GEOGRAPHY OF AFRICA
EV386	GEOGRAPHY OF EUROPE
HI338	WARFARE IN AGE OF REVOLUTIONS
HI344	MODERN DIPLOMACY
HI345	MODERN AFRICA
HI361	MEDIEVAL EUROPE
HI364	MODERN WESTERN EUROPE
HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS377	POLITICS & GOV OF EUROPE
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES
<b>AND</b>	
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<b>Integrative Experience for the Major</b>	Choose 1 of 1
LN490	LANGUAGE & CULTURE CAP SEM
<b>AND</b>	
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<b>Science Depth</b>	
Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.	
CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II
<b>STEM Depth</b>	
Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.	
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>AND</b>	
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<b>Curriculum Requirement</b>	
This section describes how cadets in this major satisfy various curriculum requirements.	
<b>IT/CYBER Requirement</b>	
Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.	
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>Core Engineering Sequence</b>	
Cadets in this major may choose any approved three course engineering sequence.	
<b>Writing-in-the-Major</b>	
Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN380.	
LN380	NATURE OF MODERN LANGUAGES

### 2021 Foreign Language Major: French & Persian w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FFZ1H	Foreign Language: French & Persian w/ Honors	Foreign Language Major: French & Persian w/ Honors	Foreign Language: French & Persian w/ Honors	1	0

### 2021 Foreign Language Major: French & Persian w/ Honors Tracks

Subject Area	Description
<b>Honors Thesis Course</b>	Choose 1 of 1
	Write an honors thesis under the direction of a senior faculty member.
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	

Complete the requirements of the major as shown above, AND attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

### 2021 Foreign Language Major: German & Arabic Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FGA1	Foreign Language: German & Arabic	Foreign Language Major: German & Arabic	Foreign Language: German & Arabic	2	13

### 2021 Foreign Language Major: German & Arabic Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
LN380	NATURE OF MODERN LANGUAGES
<b>AND</b>	
<b>Electives</b>	Choose 6 of 19
LG371	INTENSIVE INTERMEDIATE GERMAN
LG372	GERMAN FOR ORAL & WRITTEN COMM
LG470	SPECIAL TOPIC IN GERMAN
LG475	GERMAN RDG/WRTG THRU MEDIA
LG476	MILITARY SPKG/RDG - GERMAN
LG483	GERMAN CIVILIZATION I
LG484	GERMAN CIVILIZATION II
LG485	SURVEY OF GERMAN LIT I
LG486	SURVEY OF GERMAN LIT II
LG492	20TH & 21ST CENTURY GERMANY
LN440G	GERMAN IN CULTURAL CONTEXT

LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V

**AND****Secondary Language Track**

Choose 4 of 14

LA203	ARABIC I (STANDARD)
LA204	ARABIC II (STANDARD)
LA371	INTENSIVE INTERMEDIATE ARABIC
LA372	ARABIC FOR ORAL & WRITTEN COMM
LA472	COLLOQUIAL ARABIC
LA475	ARABIC RDG/WRTG THRU MEDIA
LA476	MILITARY SPKG/RDG - ARABIC
LA483	ARAB CIVILIZATION I
LA484	ARAB CIVILIZATION II
LA485	ARABIC LITERATURE I
LA486	ARABIC LITERATURE II
LA492	ARABIC LITERATURE III
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS

**AND****Complementary Support Courses**

Choose 3 of 14

Choose 3 of 14, each from a different discipline.

DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV386	GEOGRAPHY OF EUROPE
HI343	MODERN GERMANY
HI364	MODERN WESTERN EUROPE
HI391	WORLD RELIGIONS
LN482H	SPOKEN HEBREW
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS377	POLITICS & GOV OF EUROPE
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES

**AND****Integrative Experience for the Major**

Choose 1 of 1

LN490	LANGUAGE & CULTURE CAP SEM
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**AND****Science Depth**

Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II

**STEM Depth**

Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.

CY305	CYBER FOUNDATIONS
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CY355	CYBER FOUNDATIONS - COMPUTING
<b>AND</b>	
<b>Curriculum Requirement</b>	
This section describes how cadets in this major satisfy various curriculum requirements.	
<b>IT/CYBER Requirement</b>	
Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.	
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>Core Engineering Sequence</b>	
Cadets in this major may choose any approved three course engineering sequence.	
<b>Writing-in-the-Major</b>	
Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN380.	
LN380	NATURE OF MODERN LANGUAGES

### 2021 Foreign Language Major: German & Arabic w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FGA1H	Foreign Language: German & Arabic w/ Honors	Foreign Language Major: German & Arabic w/ Honors	Foreign Language: German & Arabic w/ Honors	1	0

### 2021 Foreign Language Major: German & Arabic w/ Honors Tracks

Subject Area	Description
<b>Honors Thesis Course</b>	Choose 1 of 1
	Write an honors thesis under the direction of a senior faculty member.
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	

Complete the requirements of the major as shown above, AND attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

### 2021 Foreign Language Major: German & Chinese Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FGC0	Foreign Language: German & Chinese	Foreign Language Major: German & Chinese	Foreign Language: German & Chinese	2	13

### 2021 Foreign Language Major: German & Chinese Tracks

Subject Area	Description
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<b>Required Course</b>	Choose 1 of 1
LN380	NATURE OF MODERN LANGUAGES
<b>AND</b>	
<b>Electives</b>	Choose 6 of 19
LG371	INTENSIVE INTERMEDIATE GERMAN
LG372	GERMAN FOR ORAL & WRITTEN COMM
LG470	SPECIAL TOPIC IN GERMAN
LG475	GERMAN RDG/WRTG THRU MEDIA
LG476	MILITARY SPKG/RDG - GERMAN
LG483	GERMAN CIVILIZATION I
LG484	GERMAN CIVILIZATION II
LG485	SURVEY OF GERMAN LIT I
LG486	SURVEY OF GERMAN LIT II
LG492	20TH & 21ST CENTURY GERMANY
LN440G	GERMAN IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
<b>AND</b>	
<b>Secondary Language Track</b>	Choose 4 of 13
LC203	CHINESE I (STANDARD)
LC204	CHINESE II (STANDARD)
LC371	INTENSIVE INTERMEDIATE CHINESE
LC372	CHINESE FOR ORAL & WRIT COMM
LC475	CHINESE RDG/WRTG THRU MEDIA
LC476	MILITARY SPKG/RDG - CHINESE
LC483	CHINESE CIVILIZATION I
LC484	CHINESE CIVILIZATION II
LC485	CHINESE LITERATURE I
LC486	CHINESE LITERATURE II
LC492	CHINESE LITERATURE III
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	
<b>Complementary Support Courses</b>	Choose 3 of 14
Choose 3 of 14, each from a different discipline.	
DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV386	GEOGRAPHY OF EUROPE
HI343	MODERN GERMANY
HI364	MODERN WESTERN EUROPE
HI391	WORLD RELIGIONS
LN482H	SPOKEN HEBREW
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS377	POLITICS & GOV OF EUROPE
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	HISTORY OF ECONOMICS

SS465	TERRORISM: NEW CHALLENGES
<b>AND</b>	
<hr/>	
<b>Integrative Experience for the Major</b>	Choose 1 of 1
LN490	LANGUAGE & CULTURE CAP SEM
<b>AND</b>	
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<b>Science Depth</b>	
Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.	
CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II
<b>STEM Depth</b>	
Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.	
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>AND</b>	
<hr/>	
<b>Curriculum Requirement</b>	
This section describes how cadets in this major satisfy various curriculum requirements.	
<b>IT/CYBER Requirement</b>	
Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.	
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>Core Engineering Sequence</b>	
Cadets in this major may choose any approved three course engineering sequence.	
<b>Writing-in-the-Major</b>	
Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN380.	
LN380	NATURE OF MODERN LANGUAGES

## 2021 Foreign Language Major: German & Chinese w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FGC0H	Foreign Language: German & Chinese w/ Honors	Foreign Language Major: German & Chinese w/ Honors	Foreign Language: German & Chinese w/ Honors	1	0

## 2021 Foreign Language Major: German & Chinese w/ Honors Tracks

Subject Area	Description
<b>Honors Thesis Course</b>	Choose 1 of 1
Write an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	

Complete the requirements of the major as shown above, AND attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

## 2021 Foreign Language Major: German & French Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FGF0	Foreign Language: German & French	Foreign Language Major: German & French	Foreign Language: German & French	2	13

## 2021 Foreign Language Major: German & French Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
LN380	NATURE OF MODERN LANGUAGES
<b>AND</b>	
<b>Electives</b>	Choose 6 of 19
LG371	INTENSIVE INTERMEDIATE GERMAN
LG372	GERMAN FOR ORAL & WRITTEN COMM
LG470	SPECIAL TOPIC IN GERMAN
LG475	GERMAN RDG/WRTG THRU MEDIA
LG476	MILITARY SPKG/RDG - GERMAN
LG483	GERMAN CIVILIZATION I
LG484	GERMAN CIVILIZATION II
LG485	SURVEY OF GERMAN LIT I
LG486	SURVEY OF GERMAN LIT II
LG492	20TH & 21ST CENTURY GERMANY
LN440G	GERMAN IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
<b>AND</b>	
<b>Secondary Language Track</b>	Choose 4 of 13
LF203	FRENCH I (STANDARD)
LF204	FRENCH II (STANDARD)
LF371	INTENSIVE INTERMEDIATE FRENCH
LF372	FRENCH FOR ORAL & WRITTEN COMM
LF475	FRENCH RDG/WRTG THRU MEDIA
LF476	MILITARY SPKG/RDG - FRENCH
LF483	FRENCH CIVILIZATION I
LF484	FRENCH CIVILIZATION II
LF485	SURVEY OF FRENCH LIT I
LF486	SURVEY OF FRENCH LIT II
LF492	MASTERWORKS OF FRENCH LIT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS

**AND****Complementary Support Courses**

Choose 3 of 14

Choose 3 of 14, each from a different discipline.

DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV386	GEOGRAPHY OF EUROPE
HI343	MODERN GERMANY
HI364	MODERN WESTERN EUROPE
HI391	WORLD RELIGIONS
LN482H	SPOKEN HEBREW
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS377	POLITICS & GOV OF EUROPE
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES

**AND****Integrative Experience for the Major**

Choose 1 of 1

LN490	LANGUAGE & CULTURE CAP SEM
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**AND****Science Depth**

Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II

**STEM Depth**

Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**AND****Curriculum Requirement**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**Core Engineering Sequence**

Cadets in this major may choose any approved three course engineering sequence.

**Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN380.

LN380	NATURE OF MODERN LANGUAGES
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Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FGF0H	Foreign Language: German & French w/ Honors	Foreign Language Major: German & French w/ Honors	Foreign Language: German & French w/ Honors	1	0

### 2021 Foreign Language Major: German & French w/ Honors Tracks

Subject Area	Description
<b>Honors Thesis Course</b>	Choose 1 of 1
	Write an honors thesis under the direction of a senior faculty member.
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	

Complete the requirements of the major as shown above, AND attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

### 2021 Foreign Language Major: German & Portuguese Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FGP1	Foreign Language: German & Portuguese	Foreign Language Major: German & Portuguese	Foreign Language: German & Portuguese	2	13

### 2021 Foreign Language Major: German & Portuguese Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
LN380	NATURE OF MODERN LANGUAGES
<b>AND</b>	
<b>Electives</b>	Choose 6 of 19
LG371	INTENSIVE INTERMEDIATE GERMAN
LG372	GERMAN FOR ORAL & WRITTEN COMM
LG470	SPECIAL TOPIC IN GERMAN
LG475	GERMAN RDG/WRTG THRU MEDIA
LG476	MILITARY SPKG/RDG - GERMAN
LG483	GERMAN CIVILIZATION I
LG484	GERMAN CIVILIZATION II
LG485	SURVEY OF GERMAN LIT I
LG486	SURVEY OF GERMAN LIT II
LG492	20TH & 21ST CENTURY GERMANY
LN440G	GERMAN IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
<b>AND</b>	

<b>Secondary Language Track</b>	Choose 4 of 12
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LP203	PORTUGUESE I (STANDARD)
LP204	PORTUGUESE II (STANDARD)
LP371	INTENSIVE INTERMED. PORTUGUESE
LP372	PORTUGUESE FOR ORAL/WRIT COMM
LP475	PORTUGUESE RDG/WRITG THRU MEDIA
LP476	MILITARY SPKG/RDG - PORTUGUESE
LP483	PORTUGUESE CIVILIZATION I
LP484	PORTUGUESE CIVILIZATION II
LP485	SURVEY OF PORTUGUESE LIT I
LP492	LIT OF PORT-SPKG WORLD
<b>AND</b>	
<b>Complementary Support Courses</b>	Choose 3 of 14
Choose 3 of 14, each from a different discipline.	
DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV386	GEOGRAPHY OF EUROPE
HI343	MODERN GERMANY
HI364	MODERN WESTERN EUROPE
HI391	WORLD RELIGIONS
LN482H	SPOKEN HEBREW
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS377	POLITICS & GOV OF EUROPE
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES
<b>AND</b>	
<b>Integrative Experience for the Major</b>	Choose 1 of 1
LN490	LANGUAGE & CULTURE CAP SEM
<b>AND</b>	
<b>Science Depth</b>	
Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.	
CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II
<b>STEM Depth</b>	
Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.	
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>AND</b>	
<b>Curriculum Requirement</b>	
This section describes how cadets in this major satisfy various curriculum requirements.	
<b>IT/CYBER Requirement</b>	
Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.	
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>Core Engineering Sequence</b>	

Cadets in this major may choose any approved three course engineering sequence.

### Writing-in-the-Major

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN380.

LN380

NATURE OF MODERN LANGUAGES

## 2021 Foreign Language Major: German & Portuguese w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FGP1H	Foreign Lang: German & Portuguese w/ Honors	Foreign Language Major: German & Portuguese w/ Honors	Foreign Lang: German & Portuguese w/ Honors	1	0

### 2021 Foreign Language Major: German & Portuguese w/ Honors Tracks

Subject Area	Description
<b>Honors Thesis Course</b>	Choose 1 of 1
Write an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	

Complete the requirements of the major as shown above, AND attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

## 2021 Foreign Language Major: German & Russian Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FGR1	Foreign Language: German & Russian	Foreign Language Major: German & Russian	Foreign Language: German & Russian	2	13

### 2021 Foreign Language Major: German & Russian Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
LN380	NATURE OF MODERN LANGUAGES
<b>AND</b>	
<b>Electives</b>	Choose 6 of 19
LG371	INTENSIVE INTERMEDIATE GERMAN
LG372	GERMAN FOR ORAL & WRITTEN COMM
LG470	SPECIAL TOPIC IN GERMAN
LG475	GERMAN RDG/WRTG THRU MEDIA
LG476	MILITARY SPKG/RDG - GERMAN

LG483	GERMAN CIVILIZATION I
LG484	GERMAN CIVILIZATION II
LG485	SURVEY OF GERMAN LIT I
LG486	SURVEY OF GERMAN LIT II
LG492	20TH & 21ST CENTURY GERMANY
LN440G	GERMAN IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V

**AND****Secondary Language Track**

Choose 4 of 13

LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LR203	RUSSIAN I (STANDARD)
LR204	RUSSIAN II (STANDARD)
LR371	INTENSIVE INTERMEDIATE RUSSIAN
LR372	RUSSIAN FOR ORAL & WRIT COMM
LR475	RUSSIAN RDG/WRTG THRU MEDIA
LR476	MILITARY SPKG/RDG - RUSSIAN
LR483	RUSSIAN CIV I
LR484	RUSSIAN CIV II
LR485	SURVEY OF RUSSIAN LITERATURE I
LR486	SURVEY OF RUSSIAN LIT. II
LR492	RUSSIAN LIFE IN FICTION

**AND****Complementary Support Courses**

Choose 3 of 14

Choose 3 of 14, each from a different discipline.

DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV386	GEOGRAPHY OF EUROPE
HI343	MODERN GERMANY
HI364	MODERN WESTERN EUROPE
HI391	WORLD RELIGIONS
LN482H	SPOKEN HEBREW
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS377	POLITICS & GOV OF EUROPE
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES

**AND****Integrative Experience for the Major**

Choose 1 of 1

LN490	LANGUAGE & CULTURE CAP SEM
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**AND****Science Depth**

Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY

PH206	PHYSICS II
PH256	ADVANCED PHYSICS II
<b>STEM Depth</b>	
Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.	
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>AND</b>	

**Curriculum Requirement**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**Core Engineering Sequence**

Cadets in this major may choose any approved three course engineering sequence.

**Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN380.

LN380	NATURE OF MODERN LANGUAGES
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## 2021 Foreign Language Major: German & Russian w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FGR1H	Foreign Language: German & Russian w/ Honors	Foreign Language Major: German & Russian w/ Honors	Foreign Language: German & Russian w/ Honors	1	0

## 2021 Foreign Language Major: German & Russian w/ Honors Tracks

Subject Area	Description
<b>Honors Thesis Course</b>	Choose 1 of 1
Write an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	

Complete the requirements of the major as shown above, AND attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

## 2021 Foreign Language Major: German & Spanish Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FGS1	Foreign Language: German & Spanish	Foreign Language Major: German & Spanish	Foreign Language: German & Spanish	2	13

## 2021 Foreign Language Major: German &amp; Spanish Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
LN380	NATURE OF MODERN LANGUAGES
<b>AND</b>	
<b>Electives</b>	Choose 6 of 19
LG371	INTENSIVE INTERMEDIATE GERMAN
LG372	GERMAN FOR ORAL & WRITTEN COMM
LG470	SPECIAL TOPIC IN GERMAN
LG475	GERMAN RDG/WRTG THRU MEDIA
LG476	MILITARY SPKG/RDG - GERMAN
LG483	GERMAN CIVILIZATION I
LG484	GERMAN CIVILIZATION II
LG485	SURVEY OF GERMAN LIT I
LG486	SURVEY OF GERMAN LIT II
LG492	20TH & 21ST CENTURY GERMANY
LN440G	GERMAN IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
<b>AND</b>	
<b>Secondary Language Track</b>	Choose 4 of 13
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LS203	SPANISH I (STANDARD)
LS204	SPANISH II (STANDARD)
LS371	INTENSIVE INTERMEDIATE SPANISH
LS372	SPANISH FOR ORAL & WRIT COMM
LS475	SPANISH RDG/WRTG THRU MEDIA
LS476	MILITARY SPKG/RDG - SPANISH
LS483	SPANISH CIV AND CULTURE
LS484	SPANISH AMERICAN CIV AND CULT
LS485	SPANISH-AMERICAN LITERATURE
LS486	THE LITERATURE OF SPAIN
LS492	20TH/21ST CENTURY HISPANIC LIT
<b>AND</b>	
<b>Complementary Support Courses</b>	Choose 3 of 14
Choose 3 of 14, each from a different discipline.	
DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV386	GEOGRAPHY OF EUROPE
HI343	MODERN GERMANY
HI364	MODERN WESTERN EUROPE
HI391	WORLD RELIGIONS
LN482H	SPOKEN HEBREW

LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS377	POLITICS & GOV OF EUROPE
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES

**AND**


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**Integrative Experience for the Major** Choose 1 of 1

LN490	LANGUAGE & CULTURE CAP SEM
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**AND****Science Depth**

Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II

**STEM Depth**

Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**AND****Curriculum Requirement**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**Core Engineering Sequence**

Cadets in this major may choose any approved three course engineering sequence.

**Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN380.

LN380	NATURE OF MODERN LANGUAGES
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## 2021 Foreign Language Major: German & Spanish w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FGS1H	Foreign Language: German & Spanish w/ Honors	Foreign Language Major: German & Spanish w/ Honors	Foreign Language: German & Spanish w/ Honors	1	0

## 2021 Foreign Language Major: German & Spanish w/ Honors Tracks

Subject Area	Description
<b>Honors Thesis Course</b>	Choose 1 of 1
	Write an honors thesis under the direction of a senior faculty member.
LN488	ADV IND STUDY-FOREIGN LANGS

**AND**

Complete the requirements of the major as shown above, AND attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

## 2021 Foreign Language Major: German & Persian Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FGZ1	Foreign Language: German & Persian	Foreign Language Major: German & Persian	Foreign Language: German & Persian	2	13

## 2021 Foreign Language Major: German & Persian Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
LN380	NATURE OF MODERN LANGUAGES
<b>AND</b>	
<b>Electives</b>	Choose 6 of 19
LG371	INTENSIVE INTERMEDIATE GERMAN
LG372	GERMAN FOR ORAL & WRITTEN COMM
LG470	SPECIAL TOPIC IN GERMAN
LG475	GERMAN RDG/WRTG THRU MEDIA
LG476	MILITARY SPKG/RDG - GERMAN
LG483	GERMAN CIVILIZATION I
LG484	GERMAN CIVILIZATION II
LG485	SURVEY OF GERMAN LIT I
LG486	SURVEY OF GERMAN LIT II
LG492	20TH & 21ST CENTURY GERMANY
LN440G	GERMAN IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
<b>AND</b>	
<b>Secondary Language Track</b>	Choose 4 of 9
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LZ203	PERSIAN I (STANDARD)
LZ204	PERSIAN II (STANDARD)
LZ371	INTENSIVE INTERMEDIATE PERSIAN
LZ372	PERSIAN FOR ORAL & WRIT COMM
LZ470	SPECIAL TOPIC IN PERSIAN
LZ475	PERSIAN RDG/WRTG THRU MEDIA
LZ484	PERSIAN CIVILIZATION



**AND****Complementary Support Courses**

Choose 3 of 14

Choose 3 of 14, each from a different discipline.

DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV386	GEOGRAPHY OF EUROPE
HI343	MODERN GERMANY
HI364	MODERN WESTERN EUROPE
HI391	WORLD RELIGIONS
LN482H	SPOKEN HEBREW
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS377	POLITICS & GOV OF EUROPE
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES

**AND****Integrative Experience for the Major**

Choose 1 of 1

LN490	LANGUAGE & CULTURE CAP SEM
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**AND****Science Depth**

Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II

**STEM Depth**

Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**AND****Curriculum Requirement**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**Core Engineering Sequence**

Cadets in this major may choose any approved three course engineering sequence.

**Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN380.

LN380	NATURE OF MODERN LANGUAGES
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**2021 Foreign Language Major: German & Persian w/ Honors Curriculum**

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FGZ1H	Foreign Language: German & Persian w/ Honors	Foreign Language Major: German & Persian w/ Honors	Foreign Language: German & Persian w/ Honors	1	0

### 2021 Foreign Language Major: German & Persian w/ Honors Tracks

Subject Area	Description
<b>Honors Thesis Course</b>	Choose 1 of 1
	Write an honors thesis under the direction of a senior faculty member.
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	

Complete the requirements of the major as shown above, AND attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

### 2021 Foreign Language Major: Arabic Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FLA1	Foreign Language: Arabic	Foreign Language Major: Arabic	Foreign Language: Arabic	2	11

### 2021 Foreign Language Major: Arabic Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
LN380	NATURE OF MODERN LANGUAGES
<b>AND</b>	
<b>Electives</b>	Choose 8 of 20
LA371	INTENSIVE INTERMEDIATE ARABIC
LA372	ARABIC FOR ORAL & WRITTEN COMM
LA470	SPECIAL TOPIC IN ARABIC
LA472	COLLOQUIAL ARABIC
LA475	ARABIC RDG/WRTG THRU MEDIA
LA476	MILITARY SPKG/RDG - ARABIC
LA483	ARAB CIVILIZATION I
LA484	ARAB CIVILIZATION II
LA485	ARABIC LITERATURE I
LA486	ARABIC LITERATURE II
LA492	ARABIC LITERATURE III
LN440A	ARABIC IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
<b>AND</b>	

<b>Complementary Support Courses</b>	Choose 3 of 13
Choose one each from a different discipline.	
DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV376	GEOGRAPHY OF THE MIDDLE EAST
HI339	THE MODERN MIDDLE EAST
HI391	WORLD RELIGIONS
LN482H	SPOKEN HEBREW
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS383	POLITICS & GOVT-MIDDLE EAST
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES

**AND**

<b>Integrative Experience for the Major</b>	Choose 1 of 1
LN490	LANGUAGE & CULTURE CAP SEM

**AND****Science Depth**

Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II

**STEM Depth**

Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**AND****Curriculum Requirements**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**Core Engineering Sequence**

Cadets in this major may choose any approved three course engineering sequence.

**Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN380.

LN380	NATURE OF MODERN LANGUAGES
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## 2021 Foreign Language Major: Arabic w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
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FLA1H Foreign Language: Arabic w/ Honors	Foreign Language Major: Arabic w/ Honors	Foreign Language: Arabic w/ Honors	1	1
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### 2021 Foreign Language Major: Arabic w/ Honors Tracks

Subject Area	Description
<b>Additional Elective</b>	Choose 1 of 15
Take an additional advanced-level elective, not already taken, from this list.	
LA470	SPECIAL TOPIC IN ARABIC
LA476	MILITARY SPKG/RDG - ARABIC
LA483	ARAB CIVILIZATION I
LA484	ARAB CIVILIZATION II
LA485	ARABIC LITERATURE I
LA486	ARABIC LITERATURE II
LA492	ARABIC LITERATURE III
LN440A	ARABIC IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
<b>AND</b>	
<b>Honors Thesis</b>	Choose 1 of 1
Write an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	

Complete the requirements of the major as shown above, AND attain a minimum APSC of 3.0 in the core curriculum and 3.5 in the major.

### 2021 Foreign Language Major: Chinese Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FLC1	Foreign Language: Chinese	Foreign Language Major: Chinese	Foreign Language: Chinese	2	11

### 2021 Foreign Language Major: Chinese Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
LN380	NATURE OF MODERN LANGUAGES
<b>AND</b>	
<b>Electives</b>	Choose 8 of 19
LC371	INTENSIVE INTERMEDIATE CHINESE
LC372	CHINESE FOR ORAL & WRIT COMM
LC470	SPECIAL TOPIC IN CHINESE
LC475	CHINESE RDG/WRTG THRU MEDIA
LC476	MILITARY SPKG/RDG - CHINESE

LC483	CHINESE CIVILIZATION I
LC484	CHINESE CIVILIZATION II
LC485	CHINESE LITERATURE I
LC486	CHINESE LITERATURE II
LC492	CHINESE LITERATURE III
LN440C	CHINESE IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V

**AND****Complementary Support Courses**

Choose 3 of 15

Choose one each from a different discipline.

DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV372	GEOGRAPHY OF ASIA
HI337	CHINA-C. KINGDOM TO COMM RULE
HI347	ASIAN WARFARE AND POLITICS
HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
PY369	EASTERN THOUGHT
SS366	COMPARATIVE POLITICS
SS372	POLITICS AND GOV OF CHINA
SS374	POL & GOV OF KOREAS & JAPAN
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES

**AND****Integrative Experience for the Major**

Choose 1 of 1

LN490	LANGUAGE & CULTURE CAP SEM
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**AND****Science Depth**

Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II

**STEM Depth**

Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**AND****Curriculum Requirements**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**Core Engineering Sequence**

Cadets in this major may choose any approved three course engineering sequence.

**Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN380.

LN380

NATURE OF MODERN LANGUAGES

**2021 Foreign Language Major: Chinese w/ Honors Curriculum**

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FLC1H	Foreign Language: Chinese w/ Honors	Foreign Language Major: Chinese w/ Honors	Foreign Language: Chinese w/ Honors	1	1

**2021 Foreign Language Major: Chinese w/ Honors Tracks**

Subject Area	Description
<b>Additional Elective</b>	Choose 1 of 16
Take an additional advanced-level elective, not already taken, from this list.	
LC470	SPECIAL TOPIC IN CHINESE
LC475	CHINESE RDG/WRTG THRU MEDIA
LC476	MILITARY SPKG/RDG - CHINESE
LC483	CHINESE CIVILIZATION I
LC484	CHINESE CIVILIZATION II
LC485	CHINESE LITERATURE I
LC486	CHINESE LITERATURE II
LC492	CHINESE LITERATURE III
LN440C	CHINESE IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
<b>AND</b>	
<b>Honors Thesis</b>	Choose 1 of 1
Write an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	

Complete the requirements of the major as shown above, AND attain a minimum APSC of 3.0 in the core curriculum and 3.5 in the major.

**2021 Foreign Language Major: French Curriculum**

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FLF1	Foreign Language: French	Foreign Language Major: French	Foreign Language: French	2	11

### 2021 Foreign Language Major: French Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
LN380	NATURE OF MODERN LANGUAGES
<b>AND</b>	
<b>Electives</b>	Choose 8 of 19
LF371	INTENSIVE INTERMEDIATE FRENCH
LF372	FRENCH FOR ORAL & WRITTEN COMM
LF470	SPECIAL TOPIC IN FRENCH
LF475	FRENCH RDG/WRTG THRU MEDIA
LF476	MILITARY SPKG/RDG - FRENCH
LF483	FRENCH CIVILIZATION I
LF484	FRENCH CIVILIZATION II
LF485	SURVEY OF FRENCH LIT I
LF486	SURVEY OF FRENCH LIT II
LF492	MASTERWORKS OF FRENCH LIT
LN440F	FRENCH IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
<b>AND</b>	
<b>Complementary Support Courses</b>	Choose 3 of 17
Choose one each from a different discipline.	
DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV375	GEOGRAPHY OF AFRICA
EV386	GEOGRAPHY OF EUROPE
HI338	WARFARE IN AGE OF REVOLUTIONS
HI344	MODERN DIPLOMACY
HI345	MODERN AFRICA
HI361	MEDIEVAL EUROPE
HI364	MODERN WESTERN EUROPE
HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS377	POLITICS & GOV OF EUROPE
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES
<b>AND</b>	
<b>Integrative Experience for the Major</b>	Choose 1 of 1
LN490	LANGUAGE & CULTURE CAP SEM

**AND****Science Depth**

Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II

**STEM Depth**

Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**AND****Curriculum Requirements**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**Core Engineering Sequence**

Cadets in this major may choose any approved three course engineering sequence.

**Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN380.

LN380	NATURE OF MODERN LANGUAGES
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## 2021 Foreign Language Major: French w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FLF1H	Foreign Language: French w/ Honors	Foreign Language Major: French w/ Honors	Foreign Language: French w/ Honors	1	1

## 2021 Foreign Language Major: French w/ Honors Tracks

Subject Area	Description
<b>Additional Elective</b>	Choose 1 of 16
Take an additional advanced-level elective, not already taken, from this list.	
LF470	SPECIAL TOPIC IN FRENCH
LF475	FRENCH RDG/WRTG THRU MEDIA
LF476	MILITARY SPKG/RDG - FRENCH
LF483	FRENCH CIVILIZATION I
LF484	FRENCH CIVILIZATION II
LF485	SURVEY OF FRENCH LIT I
LF486	SURVEY OF FRENCH LIT II
LF492	MASTERWORKS OF FRENCH LIT
LN440F	FRENCH IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS



LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V

**AND****Honors Thesis**

Choose 1 of 1

Write an honors thesis under the direction of a senior faculty member.

LN488	ADV IND STUDY-FOREIGN LANGS
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**AND**

Complete the requirements of the major as shown above, AND attain a minimum APSC of 3.0 in the core curriculum and 3.5 in the major.

## 2021 Foreign Language Major: German Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FLG1	Foreign Language: German	Foreign Language Major: German	Foreign Language: German	2	11

### 2021 Foreign Language Major: German Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
LN380	NATURE OF MODERN LANGUAGES
<b>AND</b>	
<b>Electives</b>	Choose 8 of 19
LG371	INTENSIVE INTERMEDIATE GERMAN
LG372	GERMAN FOR ORAL & WRITTEN COMM
LG470	SPECIAL TOPIC IN GERMAN
LG475	GERMAN RDG/WRTG THRU MEDIA
LG476	MILITARY SPKG/RDG - GERMAN
LG483	GERMAN CIVILIZATION I
LG484	GERMAN CIVILIZATION II
LG485	SURVEY OF GERMAN LIT I
LG486	SURVEY OF GERMAN LIT II
LG492	20TH & 21ST CENTURY GERMANY
LN440G	GERMAN IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
<b>AND</b>	
<b>Complementary Support Courses</b>	Choose 3 of 14
Choose one each from a different discipline.	
DS455	COMPARATIVE DEFENSE POLICY

EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV386	GEOGRAPHY OF EUROPE
HI343	MODERN GERMANY
HI364	MODERN WESTERN EUROPE
HI391	WORLD RELIGIONS
LN482H	SPOKEN HEBREW
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS377	POLITICS & GOV OF EUROPE
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES

**AND****Integrative Experience for the Major**

Choose 1 of 1

LN490

LANGUAGE &amp; CULTURE CAP SEM

**AND****Science Depth**

Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.

CH102

GENERAL CHEMISTRY II

CH275

BIOLOGY

PH206

PHYSICS II

PH256

ADVANCED PHYSICS II

**STEM Depth**

Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.

CY305

CYBER FOUNDATIONS

CY355

CYBER FOUNDATIONS - COMPUTING

**AND****Curriculum Requirements**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305

CYBER FOUNDATIONS

CY355

CYBER FOUNDATIONS - COMPUTING

**Core Engineering Sequence**

Cadets in this major may choose any approved three course engineering sequence.

**Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN380.

LN380

NATURE OF MODERN LANGUAGES

## 2021 Foreign Language Major: German w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FLG1H	Foreign Language: German w/ Honors	Foreign Language Major: German w/ Honors	Foreign Language: German w/ Honors	1	1

### 2021 Foreign Language Major: German w/ Honors Tracks

Subject Area	Description
<b>Additional Elective</b>	Choose 1 of 16
Take an additional advanced-level elective, not already taken, from this list.	
LG470	SPECIAL TOPIC IN GERMAN
LG475	GERMAN RDG/WRTG THRU MEDIA
LG476	MILITARY SPKG/RDG - GERMAN
LG483	GERMAN CIVILIZATION I
LG484	GERMAN CIVILIZATION II
LG485	SURVEY OF GERMAN LIT I
LG486	SURVEY OF GERMAN LIT II
LG492	20TH & 21ST CENTURY GERMANY
LN440G	GERMAN IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
<b>AND</b>	
<b>Honors Thesis</b>	Choose 1 of 1
Write an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	

Complete the requirements of the major as shown above, AND attain a minimum APSC of 3.0 in the core curriculum and 3.5 in the major.

### 2021 Foreign Language Major: Portuguese Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FLP1	Foreign Language: Portuguese	Foreign Language Major: Portuguese	Foreign Language: Portuguese	2	11

### 2021 Foreign Language Major: Portuguese Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
LN380	NATURE OF MODERN LANGUAGES
<b>AND</b>	
<b>Electives</b>	Choose 8 of 18
LN440P	PORTUGUESE IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS

LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
LP371	INTENSIVE INTERMED. PORTUGUESE
LP372	PORTUGUESE FOR ORAL/WRIT COMM
LP470	SPECIAL TOPIC IN PORTUGUESE
LP475	PORTUGUESE RDG/WRITG THRU MEDIA
LP476	MILITARY SPKG/RDG - PORTUGUESE
LP483	PORTUGUESE CIVILIZATION I
LP484	PORTUGUESE CIVILIZATION II
LP485	SURVEY OF PORTUGUESE LIT I
LP492	LIT OF PORT-SPKG WORLD

**AND****Complementary Support Courses**

Choose 3 of 19

Choose one each from a different discipline.

DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV373	GEOGRAPHY OF LATIN AMERICA
EV375	GEOGRAPHY OF AFRICA
EV386	GEOGRAPHY OF EUROPE
HI345	MODERN AFRICA
HI348	MODERN LATIN AMERICA
HI364	MODERN WESTERN EUROPE
HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS377	POLITICS & GOV OF EUROPE
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS384	POLITICS & GOVT-LATIN AMER
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES
SS485	GOV & POLITICS SUB-SAHARAN AFR

**AND****Integrative Experience for the Major**

Choose 1 of 1

LN490	LANGUAGE & CULTURE CAP SEM
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**AND****Science Depth**

Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II

**STEM Depth**

Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**AND****Curriculum Requirements**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305

CYBER FOUNDATIONS

CY355

CYBER FOUNDATIONS - COMPUTING

**Core Engineering Sequence**

Cadets in this major may choose any approved three course engineering sequence.

**Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN380.

LN380

NATURE OF MODERN LANGUAGES

**2021 Foreign Language Major: Portuguese w/ Honors Curriculum**

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FLP1H	Foreign Language: Portuguese w/ Honors	Foreign Language Major: Portuguese w/ Honors	Foreign Language: Portuguese w/ Honors	1	1

**2021 Foreign Language Major: Portuguese w/ Honors Tracks**

Subject Area	Description
<b>Additional Elective</b>	Choose 1 of 15
Take an additional advanced-level elective, not already taken, from this list.	
LN440P	PORTUGUESE IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
LP470	SPECIAL TOPIC IN PORTUGUESE
LP475	PORTUGUESE RDG/WRTG THRU MEDIA
LP476	MILITARY SPKG/RDG - PORTUGUESE
LP483	PORTUGUESE CIVILIZATION I
LP484	PORTUGUESE CIVILIZATION II
LP485	SURVEY OF PORTUGUESE LIT I
LP492	LIT OF PORT-SPKG WORLD

**AND****Honors Thesis**

Choose 1 of 1

Write an honors thesis under the direction of a senior faculty member.

LN488

ADV IND STUDY-FOREIGN LANGS

**AND**

Complete the requirements of the major as shown above, AND attain a minimum APSC of 3.0 in the core curriculum and a minimum APSC of 3.5 in the major.

## 2021 Foreign Language Major: Russian Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FLR1	Foreign Language: Russian	Foreign Language Major: Russian	Foreign Language: Russian	2	11

## 2021 Foreign Language Major: Russian Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
LN380	NATURE OF MODERN LANGUAGES
<b>AND</b>	
<b>Electives</b>	Choose 8 of 19
LN440R	RUSSIAN IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
LR371	INTENSIVE INTERMEDIATE RUSSIAN
LR372	RUSSIAN FOR ORAL & WRIT COMM
LR470	SPECIAL TOPIC IN RUSSIAN
LR475	RUSSIAN RDG/WRITG THRU MEDIA
LR476	MILITARY SPKG/RDG - RUSSIAN
LR483	RUSSIAN CIV I
LR484	RUSSIAN CIV II
LR485	SURVEY OF RUSSIAN LITERATURE I
LR486	SURVEY OF RUSSIAN LIT. II
LR492	RUSSIAN LIFE IN FICTION
<b>AND</b>	
<b>Complementary Support Courses</b>	Choose 3 of 15
Choose one each from a different discipline.	
DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV371	GEOGRAPHY OF RUSSIA
HI344	MODERN DIPLOMACY
HI358	STRATEGY, POLICY & GENERALSHIP
HI367	IMPERIAL AND SOVIET RUSSIA
HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS375	GOV & POL RUSSIA & NEIGHBORS
SS381	CULTURAL/POLIT ANTHROPOLOGY

SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES
<b>AND</b>	
<b>Integrative Experience for the Major</b>	Choose 1 of 1
LN490	LANGUAGE & CULTURE CAP SEM
<b>AND</b>	
<b>Science Depth</b>	
Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.	
CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II
<b>STEM Depth</b>	
Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.	
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>AND</b>	
<b>Curriculum Requirements</b>	
This section describes how cadets in this major satisfy various curriculum requirements.	
<b>IT/CYBER Requirement</b>	
Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.	
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>Core Engineering Sequence</b>	
Cadets in this major may choose any approved three course engineering sequence.	
<b>Writing-in-the-Major</b>	
Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN380.	
LN380	NATURE OF MODERN LANGUAGES

## 2021 Foreign Language Major: Russian w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FLR1H	Foreign Language: Russian w/ Honors	Foreign Language Major: Russian w/ Honors	Foreign Language: Russian w/ Honors	1	1

## 2021 Foreign Language Major: Russian w/ Honors Tracks

Subject Area	Description
<b>Additional Elective</b>	Choose 1 of 16
Take an additional advanced-level elective, not already taken, from this list.	
LN440R	RUSSIAN IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II

LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
LR470	SPECIAL TOPIC IN RUSSIAN
LR475	RUSSIAN RDG/WRTG THRU MEDIA
LR476	MILITARY SPKG/RDG - RUSSIAN
LR483	RUSSIAN CIV I
LR484	RUSSIAN CIV II
LR485	SURVEY OF RUSSIAN LITERATURE I
LR486	SURVEY OF RUSSIAN LIT. II
LR492	RUSSIAN LIFE IN FICTION

**AND****Honors Thesis**

Choose 1 of 1

Write an honors thesis under the direction of a senior faculty member.

LN488	ADV IND STUDY-FOREIGN LANGS
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**AND**

Complete the requirements of the major as shown above, AND attain a minimum APSC of 3.0 in the core curriculum and a minimum APSC of 3.5 in the major.

## 2021 Foreign Language Major: Spanish Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FLS1	Foreign Language: Spanish	Foreign Language Major: Spanish	Foreign Language: Spanish	2	11

## 2021 Foreign Language Major: Spanish Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
LN380	NATURE OF MODERN LANGUAGES
<b>AND</b>	
<b>Electives</b>	Choose 8 of 19
LN440S	SPANISH IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
LS371	INTENSIVE INTERMEDIATE SPANISH
LS372	SPANISH FOR ORAL & WRIT COMM
LS470	SPECIAL TOPIC IN SPANISH
LS475	SPANISH RDG/WRTG THRU MEDIA
LS476	MILITARY SPKG/RDG - SPANISH
LS483	SPANISH CIV AND CULTURE
LS484	SPANISH AMERICAN CIV AND CULT
LS485	SPANISH-AMERICAN LITERATURE



LS486	THE LITERATURE OF SPAIN
LS492	20TH/21ST CENTURY HISPANIC LIT
<b>AND</b>	
<hr/>	
<b>Complementary Support Courses</b>	Choose 3 of 16
Choose one each from a different discipline.	
DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV373	GEOGRAPHY OF LATIN AMERICA
EV386	GEOGRAPHY OF EUROPE
HI348	MODERN LATIN AMERICA
HI364	MODERN WESTERN EUROPE
HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS377	POLITICS & GOV OF EUROPE
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS384	POLITICS & GOVT-LATIN AMER
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES
<b>AND</b>	
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<b>Integrative Experience for the Major</b>	Choose 1 of 1
LN490	LANGUAGE & CULTURE CAP SEM
<b>AND</b>	
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<b>Science Depth</b>	
Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.	
CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II
<b>STEM Depth</b>	
Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.	
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>AND</b>	
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<b>Curriculum Requirements</b>	
This section describes how cadets in this major satisfy various curriculum requirements.	
<b>IT/CYBER Requirement</b>	
Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.	
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>Core Engineering Sequence</b>	
Cadets in this major may choose any approved three course engineering sequence.	
<b>Writing-in-the-Major</b>	
Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN380.	
LN380	NATURE OF MODERN LANGUAGES

### 2021 Foreign Language Major: Spanish w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FLS1H	Foreign Language: Spanish w/ Honors	Foreign Language Major: Spanish w/ Honors	Foreign Language: Spanish w/ Honors	1	1

### 2021 Foreign Language Major: Spanish w/ Honors Tracks

Subject Area	Description
<b>Additional Elective</b>	Choose 1 of 16
Take an additional advanced-level elective, not already taken, from this list.	
LN440S	SPANISH IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
LS470	SPECIAL TOPIC IN SPANISH
LS475	SPANISH RDG/WRTG THRU MEDIA
LS476	MILITARY SPKG/RDG - SPANISH
LS483	SPANISH CIV AND CULTURE
LS484	SPANISH AMERICAN CIV AND CULT
LS485	SPANISH-AMERICAN LITERATURE
LS486	THE LITERATURE OF SPAIN
LS492	20TH/21ST CENTURY HISPANIC LIT
<b>AND</b>	
<b>Honors Thesis</b>	Choose 1 of 1
Write an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	

Complete the requirements of the major as shown above, AND attain a minimum APSC of 3.0 in the core curriculum and a minimum APSC of 3.5 in the major.

### 2021 Foreign Language Major: Portuguese & Arabic Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FPA0	Foreign Language: Portuguese & Arabic	Foreign Language Major: Portuguese & Arabic	Foreign Language: Portuguese & Arabic	2	13

## 2021 Foreign Language Major: Portuguese & Arabic Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
LN380	NATURE OF MODERN LANGUAGES
<b>AND</b>	
<b>Electives</b>	Choose 6 of 18
LN440P	PORTUGUESE IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
LP371	INTENSIVE INTERMED. PORTUGUESE
LP372	PORTUGUESE FOR ORAL/WRIT COMM
LP470	SPECIAL TOPIC IN PORTUGUESE
LP475	PORTUGUESE RDG/WRITG THRU MEDIA
LP476	MILITARY SPKG/RDG - PORTUGUESE
LP483	PORTUGUESE CIVILIZATION I
LP484	PORTUGUESE CIVILIZATION II
LP485	SURVEY OF PORTUGUESE LIT I
LP492	LIT OF PORT-SPKG WORLD
<b>AND</b>	
<b>Secondary Language Track</b>	Choose 4 of 14
LA203	ARABIC I (STANDARD)
LA204	ARABIC II (STANDARD)
LA371	INTENSIVE INTERMEDIATE ARABIC
LA372	ARABIC FOR ORAL & WRITTEN COMM
LA472	COLLOQUIAL ARABIC
LA475	ARABIC RDG/WRITG THRU MEDIA
LA476	MILITARY SPKG/RDG - ARABIC
LA483	ARAB CIVILIZATION I
LA484	ARAB CIVILIZATION II
LA485	ARABIC LITERATURE I
LA486	ARABIC LITERATURE II
LA492	ARABIC LITERATURE III
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	
<b>Complementary Support Courses</b>	Choose 3 of 19
Choose 3 of 19, each from a different discipline.	
DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV373	GEOGRAPHY OF LATIN AMERICA
EV375	GEOGRAPHY OF AFRICA
EV386	GEOGRAPHY OF EUROPE
HI345	MODERN AFRICA
HI348	MODERN LATIN AMERICA

HI364	MODERN WESTERN EUROPE
HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS377	POLITICS & GOV OF EUROPE
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS384	POLITICS & GOVT-LATIN AMER
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES
SS485	GOV & POLITICS SUB-SAHARAN AFR

**AND****Integrative Experience for the Major**

Choose 1 of 1

LN490

LANGUAGE &amp; CULTURE CAP SEM

**AND****Science Depth**

Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II

**STEM Depth**

Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**AND****Curriculum Requirement**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**Core Engineering Sequence**

Cadets in this major may choose any approved three course engineering sequence.

**Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN380.

LN380	NATURE OF MODERN LANGUAGES
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## 2021 Foreign Language Major: Portuguese & Arabic w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FPA0H	Foreign Lang: Portuguese & Arabic w/ Honors	Foreign Language Major: Portuguese & Arabic w/ Honors	Foreign Lang: Portuguese & Arabic w/ Honors	1	0

### 2021 Foreign Language Major: Portuguese & Arabic w/ Honors Tracks

Subject Area	Description
<b>Honors Thesis Course</b>	Choose 1 of 1
Write an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	

Complete the requirements of the major as shown above, AND attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

### 2021 Foreign Language Major: Portuguese & Chinese Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FPC0	Foreign Language: Portuguese & Chinese	Foreign Language Major: Portuguese & Chinese	Foreign Language: Portuguese & Chinese	2	13

### 2021 Foreign Language Major: Portuguese & Chinese Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
LN380	NATURE OF MODERN LANGUAGES
<b>AND</b>	
<b>Electives</b>	Choose 6 of 18
LN440P	PORTUGUESE IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
LP371	INTENSIVE INTERMED. PORTUGUESE
LP372	PORTUGUESE FOR ORAL/WRIT COMM
LP470	SPECIAL TOPIC IN PORTUGUESE
LP475	PORTUGUESE RDG/WRTG THRU MEDIA
LP476	MILITARY SPKG/RDG - PORTUGUESE
LP483	PORTUGUESE CIVILIZATION I
LP484	PORTUGUESE CIVILIZATION II
LP485	SURVEY OF PORTUGUESE LIT I
LP492	LIT OF PORT-SPKG WORLD
<b>AND</b>	
<b>Secondary Language Track</b>	Choose 4 of 13
LC203	CHINESE I (STANDARD)

LC204	CHINESE II (STANDARD)
LC371	INTENSIVE INTERMEDIATE CHINESE
LC372	CHINESE FOR ORAL & WRIT COMM
LC475	CHINESE RDG/WRTG THRU MEDIA
LC476	MILITARY SPKG/RDG - CHINESE
LC483	CHINESE CIVILIZATION I
LC484	CHINESE CIVILIZATION II
LC485	CHINESE LITERATURE I
LC486	CHINESE LITERATURE II
LC492	CHINESE LITERATURE III
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS

**AND****Complementary Support Courses**

Choose 3 of 19

Choose 3 of 19, each from a different discipline.

DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV373	GEOGRAPHY OF LATIN AMERICA
EV375	GEOGRAPHY OF AFRICA
EV386	GEOGRAPHY OF EUROPE
HI345	MODERN AFRICA
HI348	MODERN LATIN AMERICA
HI364	MODERN WESTERN EUROPE
HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS377	POLITICS & GOV OF EUROPE
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS384	POLITICS & GOVT-LATIN AMER
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES
SS485	GOV & POLITICS SUB-SAHARAN AFR

**AND****Integrative Experience for the Major**

Choose 1 of 1

LN490

LANGUAGE &amp; CULTURE CAP SEM

**AND****Science Depth**

Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II

**STEM Depth**

Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**AND****Curriculum Requirement**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>Core Engineering Sequence</b>	
Cadets in this major may choose any approved three course engineering sequence.	
<b>Writing-in-the-Major</b>	
Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN380.	
LN380	NATURE OF MODERN LANGUAGES

## 2021 Foreign Language Major: Portuguese & Chinese w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FPC0H	Foreign Lang: Portuguese & Chinese w/ Honors	Foreign Language Major: Portuguese & Chinese w/ Honors	Foreign Lang: Portuguese & Chinese w/ Honors	1	0

## 2021 Foreign Language Major: Portuguese & Chinese w/ Honors Tracks

Subject Area	Description
<b>Honors Thesis Course</b>	Choose 1 of 1
	Write an honors thesis under the direction of a senior faculty member.
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	

Complete the requirements of the major as shown above, AND attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

## 2021 Foreign Language Major: Portuguese & French Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FPF0	Foreign Language: Portuguese & French	Foreign Language Major: Portuguese & French	Foreign Language: Portuguese & French	2	13

## 2021 Foreign Language Major: Portuguese & French Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
LN380	NATURE OF MODERN LANGUAGES
<b>AND</b>	
<b>Electives</b>	Choose 6 of 18
LN440P	PORTUGUESE IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT

LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
LP371	INTENSIVE INTERMED. PORTUGUESE
LP372	PORTUGUESE FOR ORAL/WRIT COMM
LP470	SPECIAL TOPIC IN PORTUGUESE
LP475	PORTUGUESE RDG/WRITG THRU MEDIA
LP476	MILITARY SPKG/RDG - PORTUGUESE
LP483	PORTUGUESE CIVILIZATION I
LP484	PORTUGUESE CIVILIZATION II
LP485	SURVEY OF PORTUGUESE LIT I
LP492	LIT OF PORT-SPKG WORLD

**AND****Secondary Language Track**

Choose 4 of 13

LF203	FRENCH I (STANDARD)
LF204	FRENCH II (STANDARD)
LF371	INTENSIVE INTERMEDIATE FRENCH
LF372	FRENCH FOR ORAL & WRITTEN COMM
LF475	FRENCH RDG/WRITG THRU MEDIA
LF476	MILITARY SPKG/RDG - FRENCH
LF483	FRENCH CIVILIZATION I
LF484	FRENCH CIVILIZATION II
LF485	SURVEY OF FRENCH LIT I
LF486	SURVEY OF FRENCH LIT II
LF492	MASTERWORKS OF FRENCH LIT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS

**AND****Complementary Support Courses**

Choose 3 of 19

Choose 3 of 19, each from a different discipline.

DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV373	GEOGRAPHY OF LATIN AMERICA
EV375	GEOGRAPHY OF AFRICA
EV386	GEOGRAPHY OF EUROPE
HI345	MODERN AFRICA
HI348	MODERN LATIN AMERICA
HI364	MODERN WESTERN EUROPE
HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS377	POLITICS & GOV OF EUROPE
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS384	POLITICS & GOVT-LATIN AMER
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES
SS485	GOV & POLITICS SUB-SAHARAN AFR

**AND**



<b>Integrative Experience for the Major</b>	Choose 1 of 1
LN490	LANGUAGE & CULTURE CAP SEM
<b>AND</b>	
<b>Science Depth</b>	
Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.	
CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II
<b>STEM Depth</b>	
Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.	
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>AND</b>	
<b>Curriculum Requirement</b>	
This section describes how cadets in this major satisfy various curriculum requirements.	
<b>IT/CYBER Requirement</b>	
Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.	
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>Core Engineering Sequence</b>	
Cadets in this major may choose any approved three course engineering sequence.	
<b>Writing-in-the-Major</b>	
Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN380.	
LN380	NATURE OF MODERN LANGUAGES

## 2021 Foreign Language Major: Portuguese & French w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FPF0H	Foreign Lang: Portuguese & French w/ Honors	Foreign Language Major: Portuguese & French w/ Honors	Foreign Lang: Portuguese & French w/ Honors	1	0

## 2021 Foreign Language Major: Portuguese & French w/ Honors Tracks

Subject Area	Description
<b>Honors Thesis Course</b>	Choose 1 of 1
Write an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	

Complete the requirements of the major as shown above, AND attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

## 2021 Foreign Language Major: Portuguese & German Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FPG0	Foreign Language: Portuguese & German	Foreign Language Major: Portuguese & German	Foreign Language: Portuguese & German	2	13

### 2021 Foreign Language Major: Portuguese & German Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
LN380	NATURE OF MODERN LANGUAGES
<b>AND</b>	
<b>Electives</b>	Choose 6 of 18
LN440P	PORTUGUESE IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
LP371	INTENSIVE INTERMED. PORTUGUESE
LP372	PORTUGUESE FOR ORAL/WRIT COMM
LP470	SPECIAL TOPIC IN PORTUGUESE
LP475	PORTUGUESE RDG/WRTG THRU MEDIA
LP476	MILITARY SPKG/RDG - PORTUGUESE
LP483	PORTUGUESE CIVILIZATION I
LP484	PORTUGUESE CIVILIZATION II
LP485	SURVEY OF PORTUGUESE LIT I
LP492	LIT OF PORT-SPKG WORLD
<b>AND</b>	
<b>Secondary Language Track</b>	Choose 4 of 13
LG203	GERMAN I (STANDARD)
LG204	GERMAN II (STANDARD)
LG371	INTENSIVE INTERMEDIATE GERMAN
LG372	GERMAN FOR ORAL & WRITTEN COMM
LG475	GERMAN RDG/WRTG THRU MEDIA
LG476	MILITARY SPKG/RDG - GERMAN
LG483	GERMAN CIVILIZATION I
LG484	GERMAN CIVILIZATION II
LG485	SURVEY OF GERMAN LIT I
LG486	SURVEY OF GERMAN LIT II
LG492	20TH & 21ST CENTURY GERMANY
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS

**AND****Complementary Support Courses**

Choose 3 of 19

Choose 3 of 19, each from a different discipline.

DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV373	GEOGRAPHY OF LATIN AMERICA
EV375	GEOGRAPHY OF AFRICA
EV386	GEOGRAPHY OF EUROPE
HI345	MODERN AFRICA
HI348	MODERN LATIN AMERICA
HI364	MODERN WESTERN EUROPE
HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS377	POLITICS & GOV OF EUROPE
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS384	POLITICS & GOVT-LATIN AMER
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES
SS485	GOV & POLITICS SUB-SAHARAN AFR

**AND****Integrative Experience for the Major**

Choose 1 of 1

LN490

LANGUAGE &amp; CULTURE CAP SEM

**AND****Science Depth**

Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II

**STEM Depth**

Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**AND****Curriculum Requirement**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**Core Engineering Sequence**

Cadets in this major may choose any approved three course engineering sequence.

**Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN380.

LN380	NATURE OF MODERN LANGUAGES
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## 2021 Foreign Language Major: Portuguese & German w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FPG0H	Foreign Lang: Portuguese & German w/ Honors	Foreign Language Major: Portuguese & German w/ Honors	Foreign Lang: Portuguese & German w/ Honors	1	0

### 2021 Foreign Language Major: Portuguese & German w/ Honors Tracks

Subject Area	Description
<b>Honors Thesis Course</b>	Choose 1 of 1
	Write an honors thesis under the direction of a senior faculty member.
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	

Complete the requirements of the major as shown above, AND attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

## 2021 Foreign Language Major: Portuguese & Russian Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FPR1	Foreign Language: Portuguese & Russian	Foreign Language Major: Portuguese & Russian	Foreign Language: Portuguese & Russian	2	13

### 2021 Foreign Language Major: Portuguese & Russian Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
LN380	NATURE OF MODERN LANGUAGES
<b>AND</b>	
<b>Electives</b>	Choose 6 of 18
LN440P	PORTUGUESE IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
LP371	INTENSIVE INTERMED. PORTUGUESE
LP372	PORTUGUESE FOR ORAL/WRIT COMM

LP470	SPECIAL TOPIC IN PORTUGUESE
LP475	PORTUGUESE RDG/WRTG THRU MEDIA
LP476	MILITARY SPKG/RDG - PORTUGUESE
LP483	PORTUGUESE CIVILIZATION I
LP484	PORTUGUESE CIVILIZATION II
LP485	SURVEY OF PORTUGUESE LIT I
LP492	LIT OF PORT-SPKG WORLD

**AND****Secondary Language Track**

Choose 4 of 13

LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LR203	RUSSIAN I (STANDARD)
LR204	RUSSIAN II (STANDARD)
LR371	INTENSIVE INTERMEDIATE RUSSIAN
LR372	RUSSIAN FOR ORAL & WRIT COMM
LR475	RUSSIAN RDG/WRTG THRU MEDIA
LR476	MILITARY SPKG/RDG - RUSSIAN
LR483	RUSSIAN CIV I
LR484	RUSSIAN CIV II
LR485	SURVEY OF RUSSIAN LITERATURE I
LR486	SURVEY OF RUSSIAN LIT. II
LR492	RUSSIAN LIFE IN FICTION

**AND****Complementary Support Courses**

Choose 3 of 19

Choose 3 of 19, each from a different discipline.

DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV373	GEOGRAPHY OF LATIN AMERICA
EV375	GEOGRAPHY OF AFRICA
EV386	GEOGRAPHY OF EUROPE
HI345	MODERN AFRICA
HI348	MODERN LATIN AMERICA
HI364	MODERN WESTERN EUROPE
HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS377	POLITICS & GOV OF EUROPE
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS384	POLITICS & GOVT-LATIN AMER
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES
SS485	GOV & POLITICS SUB-SAHARAN AFR

**AND****Integrative Experience for the Major**

Choose 1 of 1

LN490

LANGUAGE &amp; CULTURE CAP SEM

**AND****Science Depth**

Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II

PH256	ADVANCED PHYSICS II
<b>STEM Depth</b>	
Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.	
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>AND</b>	
<b>Curriculum Requirement</b>	
This section describes how cadets in this major satisfy various curriculum requirements.	
<b>IT/CYBER Requirement</b>	
Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.	
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>Core Engineering Sequence</b>	
Cadets in this major may choose any approved three course engineering sequence.	
<b>Writing-in-the-Major</b>	
Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN380.	
LN380	NATURE OF MODERN LANGUAGES

### 2021 Foreign Language Major: Portuguese & Russian w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FPR1H	Foreign Lang: Portuguese & Russian w/ Honors	Foreign Language Major: Portuguese & Russian w/ Honors	Foreign Lang: Portuguese & Russian w/ Honors	1	0

### 2021 Foreign Language Major: Portuguese & Russian w/ Honors Tracks

Subject Area	Description
<b>Honors Thesis Course</b>	Choose 1 of 1
Write an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	

Complete the requirements of the major as shown above, AND attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

### 2021 Foreign Language Major: Portuguese & Spanish Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FPS1	Foreign Language: Portuguese & Spanish	Foreign Language Major: Portuguese & Spanish	Foreign Language: Portuguese & Spanish	2	13

## 2021 Foreign Language Major: Portuguese & Spanish Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
LN380	NATURE OF MODERN LANGUAGES
<b>AND</b>	
<b>Electives</b>	Choose 6 of 18
LN440P	PORTUGUESE IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
LP371	INTENSIVE INTERMED. PORTUGUESE
LP372	PORTUGUESE FOR ORAL/WRIT COMM
LP470	SPECIAL TOPIC IN PORTUGUESE
LP475	PORTUGUESE RDG/WRITG THRU MEDIA
LP476	MILITARY SPKG/RDG - PORTUGUESE
LP483	PORTUGUESE CIVILIZATION I
LP484	PORTUGUESE CIVILIZATION II
LP485	SURVEY OF PORTUGUESE LIT I
LP492	LIT OF PORT-SPKG WORLD
<b>AND</b>	
<b>Secondary Language Track</b>	Choose 4 of 13
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LS203	SPANISH I (STANDARD)
LS204	SPANISH II (STANDARD)
LS371	INTENSIVE INTERMEDIATE SPANISH
LS372	SPANISH FOR ORAL & WRIT COMM
LS475	SPANISH RDG/WRITG THRU MEDIA
LS476	MILITARY SPKG/RDG - SPANISH
LS483	SPANISH CIV AND CULTURE
LS484	SPANISH AMERICAN CIV AND CULT
LS485	SPANISH-AMERICAN LITERATURE
LS486	THE LITERATURE OF SPAIN
LS492	20TH/21ST CENTURY HISPANIC LIT
<b>AND</b>	
<b>Complementary Support Courses</b>	Choose 3 of 19
Choose 3 of 19, each from a different discipline.	
DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV373	GEOGRAPHY OF LATIN AMERICA
EV375	GEOGRAPHY OF AFRICA
EV386	GEOGRAPHY OF EUROPE
HI345	MODERN AFRICA
HI348	MODERN LATIN AMERICA
HI364	MODERN WESTERN EUROPE

HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS377	POLITICS & GOV OF EUROPE
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS384	POLITICS & GOVT-LATIN AMER
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES
SS485	GOV & POLITICS SUB-SAHARAN AFR

**AND**


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**Integrative Experience for the Major** Choose 1 of 1

LN490	LANGUAGE & CULTURE CAP SEM
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**AND****Science Depth**

Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II

**STEM Depth**

Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**AND****Curriculum Requirement**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**Core Engineering Sequence**

Cadets in this major may choose any approved three course engineering sequence.

**Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN380.

LN380	NATURE OF MODERN LANGUAGES
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## 2021 Foreign Language Major: Portuguese & Spanish w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FPS1H	Foreign Lang: Portuguese & Spanish w/ Honors	Foreign Language Major: Portuguese & Spanish w/ Honors	Foreign Lang: Portuguese & Spanish w/ Honors	1	0

## 2021 Foreign Language Major: Portuguese & Spanish w/ Honors Tracks



Subject Area	Description
<b>Honors Thesis Course</b>	Choose 1 of 1
Write an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	

Complete the requirements of the major as shown above, AND attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

## 2021 Foreign Language Major: Portuguese & Persian Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FPZ1	Foreign Language: Portuguese & Persian	Foreign Language Major: Portuguese & Persian	Foreign Language: Portuguese & Persian	2	13

## 2021 Foreign Language Major: Portuguese & Persian Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
LN380	NATURE OF MODERN LANGUAGES
<b>AND</b>	
<b>Electives</b>	Choose 6 of 18
LN440P	PORTUGUESE IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
LP371	INTENSIVE INTERMED. PORTUGUESE
LP372	PORTUGUESE FOR ORAL/WRIT COMM
LP470	SPECIAL TOPIC IN PORTUGUESE
LP475	PORTUGUESE RDG/WRITG THRU MEDIA
LP476	MILITARY SPKG/RDG - PORTUGUESE
LP483	PORTUGUESE CIVILIZATION I
LP484	PORTUGUESE CIVILIZATION II
LP485	SURVEY OF PORTUGUESE LIT I
LP492	LIT OF PORT-SPKG WORLD
<b>AND</b>	
<b>Secondary Language Track</b>	Choose 4 of 9
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LZ203	PERSIAN I (STANDARD)
LZ204	PERSIAN II (STANDARD)
LZ371	INTENSIVE INTERMEDIATE PERSIAN

LZ372	PERSIAN FOR ORAL & WRIT COMM
LZ470	SPECIAL TOPIC IN PERSIAN
LZ475	PERSIAN RDG/WRTG THRU MEDIA
LZ484	PERSIAN CIVILIZATION

**AND****Complementary Support Courses**

Choose 3 of 19

Choose 3 of 19, each from a different discipline.

DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV373	GEOGRAPHY OF LATIN AMERICA
EV375	GEOGRAPHY OF AFRICA
EV386	GEOGRAPHY OF EUROPE
HI345	MODERN AFRICA
HI348	MODERN LATIN AMERICA
HI364	MODERN WESTERN EUROPE
HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS377	POLITICS & GOV OF EUROPE
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS384	POLITICS & GOVT-LATIN AMER
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES
SS485	GOV & POLITICS SUB-SAHARAN AFR

**AND****Integrative Experience for the Major**

Choose 1 of 1

LN490

LANGUAGE &amp; CULTURE CAP SEM

**AND****Science Depth**

Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II

**STEM Depth**

Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**AND****Curriculum Requirement**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**Core Engineering Sequence**

Cadets in this major may choose any approved three course engineering sequence.

**Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN380.

LN380	NATURE OF MODERN LANGUAGES
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## 2021 Foreign Language Major: Portuguese & Persian w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FPZ1H	Foreign Lang: Portuguese & Persian w/ Honors	Foreign Language Major: Portuguese & Persian w/ Honors	Foreign Lang: Portuguese & Persian w/ Honors	1	0

## 2021 Foreign Language Major: Portuguese & Persian w/ Honors Tracks

Subject Area	Description
<b>Honors Thesis Course</b>	Choose 1 of 1
	Write an honors thesis under the direction of a senior faculty member.
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	

Complete the requirements of the major as shown above, AND attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

## 2021 Foreign Language Major: Russian & Arabic Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FRA0	Foreign Language: Russian & Arabic	Foreign Language Major: Russian & Arabic	Foreign Language: Russian & Arabic	2	13

## 2021 Foreign Language Major: Russian & Arabic Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
LN380	NATURE OF MODERN LANGUAGES
<b>AND</b>	
<b>Electives</b>	Choose 6 of 19
LN440R	RUSSIAN IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
LR371	INTENSIVE INTERMEDIATE RUSSIAN
LR372	RUSSIAN FOR ORAL & WRIT COMM

LR470	SPECIAL TOPIC IN RUSSIAN
LR475	RUSSIAN RDG/WRTG THRU MEDIA
LR476	MILITARY SPKG/RDG - RUSSIAN
LR483	RUSSIAN CIV I
LR484	RUSSIAN CIV II
LR485	SURVEY OF RUSSIAN LITERATURE I
LR486	SURVEY OF RUSSIAN LIT. II
LR492	RUSSIAN LIFE IN FICTION

**AND****Secondary Language Track**

Choose 4 of 14

LA203	ARABIC I (STANDARD)
LA204	ARABIC II (STANDARD)
LA371	INTENSIVE INTERMEDIATE ARABIC
LA372	ARABIC FOR ORAL & WRITTEN COMM
LA472	COLLOQUIAL ARABIC
LA475	ARABIC RDG/WRTG THRU MEDIA
LA476	MILITARY SPKG/RDG - ARABIC
LA483	ARAB CIVILIZATION I
LA484	ARAB CIVILIZATION II
LA485	ARABIC LITERATURE I
LA486	ARABIC LITERATURE II
LA492	ARABIC LITERATURE III
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS

**AND****Complementary Support Courses**

Choose 3 of 15

Choose 3 of 15, each from a different discipline.

DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV371	GEOGRAPHY OF RUSSIA
HI344	MODERN DIPLOMACY
HI358	STRATEGY, POLICY & GENERALSHIP
HI367	IMPERIAL AND SOVIET RUSSIA
HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS375	GOV & POL RUSSIA & NEIGHBORS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES

**AND****Integrative Experience for the Major**

Choose 1 of 1

LN490	LANGUAGE & CULTURE CAP SEM
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**AND****Science Depth**

Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II

**STEM Depth**

Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.

CY305 CYBER FOUNDATIONS  
CY355 CYBER FOUNDATIONS - COMPUTING

**AND****Curriculum Requirement**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305 CYBER FOUNDATIONS  
CY355 CYBER FOUNDATIONS - COMPUTING

**Core Engineering Sequence**

Cadets in this major may choose any approved three course engineering sequence.

**Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN380.

LN380 NATURE OF MODERN LANGUAGES

## 2021 Foreign Language Major: Russian & Arabic w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FRA0H	Foreign Language: Russian & Arabic w/ Honors	Foreign Language Major: Russian & Arabic w/ Honors	Foreign Language: Russian & Arabic w/ Honors	1	0

### 2021 Foreign Language Major: Russian & Arabic w/ Honors Tracks

Subject Area	Description
<b>Honors Thesis Course</b>	Choose 1 of 1
	Write an honors thesis under the direction of a senior faculty member.
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	

Complete the requirements of the major as shown above, AND attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

## 2021 Foreign Language Major: Russian & Chinese Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FRC0	Foreign Language: Russian & Chinese	Foreign Language Major: Russian & Chinese	Foreign Language: Russian & Chinese	2	13

### 2021 Foreign Language Major: Russian & Chinese Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
LN380	NATURE OF MODERN LANGUAGES
<b>AND</b>	
<b>Electives</b>	Choose 6 of 19
LN440R	RUSSIAN IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
LR371	INTENSIVE INTERMEDIATE RUSSIAN
LR372	RUSSIAN FOR ORAL & WRIT COMM
LR470	SPECIAL TOPIC IN RUSSIAN
LR475	RUSSIAN RDG/WRTG THRU MEDIA
LR476	MILITARY SPKG/RDG - RUSSIAN
LR483	RUSSIAN CIV I
LR484	RUSSIAN CIV II
LR485	SURVEY OF RUSSIAN LITERATURE I
LR486	SURVEY OF RUSSIAN LIT. II
LR492	RUSSIAN LIFE IN FICTION
<b>AND</b>	
<b>Secondary Language Track</b>	Choose 4 of 13
LC203	CHINESE I (STANDARD)
LC204	CHINESE II (STANDARD)
LC371	INTENSIVE INTERMEDIATE CHINESE
LC372	CHINESE FOR ORAL & WRIT COMM
LC475	CHINESE RDG/WRTG THRU MEDIA
LC476	MILITARY SPKG/RDG - CHINESE
LC483	CHINESE CIVILIZATION I
LC484	CHINESE CIVILIZATION II
LC485	CHINESE LITERATURE I
LC486	CHINESE LITERATURE II
LC492	CHINESE LITERATURE III
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	
<b>Complementary Support Courses</b>	Choose 3 of 15
Choose 3 of 15, each from a different discipline.	
DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV371	GEOGRAPHY OF RUSSIA
HI344	MODERN DIPLOMACY
HI358	STRATEGY, POLICY & GENERALSHIP
HI367	IMPERIAL AND SOVIET RUSSIA
HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS375	GOV & POL RUSSIA & NEIGHBORS

SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES
<b>AND</b>	
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<b>Integrative Experience for the Major</b>	Choose 1 of 1
LN490	LANGUAGE & CULTURE CAP SEM
<b>AND</b>	
<hr/>	
<b>Science Depth</b>	
Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.	
CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II
<b>STEM Depth</b>	
Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.	
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>AND</b>	
<hr/>	
<b>Curriculum Requirement</b>	
This section describes how cadets in this major satisfy various curriculum requirements.	
<b>IT/CYBER Requirement</b>	
Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.	
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>Core Engineering Sequence</b>	
Cadets in this major may choose any approved three course engineering sequence.	
<b>Writing-in-the-Major</b>	
Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN380.	
LN380	NATURE OF MODERN LANGUAGES

## 2021 Foreign Language Major: Russian & Chinese w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FRC0H	Foreign Language: Russian & Chinese w/ Honors	Foreign Language Major: Russian & Chinese w/ Honors	Foreign Language: Russian & Chinese w/ Honors	1	0

## 2021 Foreign Language Major: Russian & Chinese w/ Honors Tracks

Subject Area	Description
<b>Honors Thesis Course</b>	Choose 1 of 1
Write an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	

Complete the requirements of the major as shown above, AND attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

## 2021 Foreign Language Major: Russian & French Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FRF0	Foreign Language: Russian & French	Foreign Language Major: Russian & French	Foreign Language: Russian & French	2	13

## 2021 Foreign Language Major: Russian & French Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
LN380	NATURE OF MODERN LANGUAGES
<b>AND</b>	
<b>Electives</b>	Choose 6 of 19
LN440R	RUSSIAN IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
LR371	INTENSIVE INTERMEDIATE RUSSIAN
LR372	RUSSIAN FOR ORAL & WRIT COMM
LR470	SPECIAL TOPIC IN RUSSIAN
LR475	RUSSIAN RDG/WRTG THRU MEDIA
LR476	MILITARY SPKG/RDG - RUSSIAN
LR483	RUSSIAN CIV I
LR484	RUSSIAN CIV II
LR485	SURVEY OF RUSSIAN LITERATURE I
LR486	SURVEY OF RUSSIAN LIT. II
LR492	RUSSIAN LIFE IN FICTION
<b>AND</b>	
<b>Secondary Language Track</b>	Choose 4 of 13
LF203	FRENCH I (STANDARD)
LF204	FRENCH II (STANDARD)
LF371	INTENSIVE INTERMEDIATE FRENCH
LF372	FRENCH FOR ORAL & WRITTEN COMM
LF475	FRENCH RDG/WRTG THRU MEDIA
LF476	MILITARY SPKG/RDG - FRENCH
LF483	FRENCH CIVILIZATION I
LF484	FRENCH CIVILIZATION II
LF485	SURVEY OF FRENCH LIT I
LF486	SURVEY OF FRENCH LIT II
LF492	MASTERWORKS OF FRENCH LIT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS



**AND****Complementary Support Courses**

Choose 3 of 15

Choose 3 of 15, each from a different discipline.

DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV371	GEOGRAPHY OF RUSSIA
HI344	MODERN DIPLOMACY
HI358	STRATEGY, POLICY & GENERALSHIP
HI367	IMPERIAL AND SOVIET RUSSIA
HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS375	GOV & POL RUSSIA & NEIGHBORS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES

**AND****Integrative Experience for the Major**

Choose 1 of 1

LN490	LANGUAGE & CULTURE CAP SEM
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**AND****Science Depth**

Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II

**STEM Depth**

Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**AND****Curriculum Requirement**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**Core Engineering Sequence**

Cadets in this major may choose any approved three course engineering sequence.

**Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN380.

LN380	NATURE OF MODERN LANGUAGES
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Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FRF0H	Foreign Language: Russian & French w/ Honors	Foreign Language Major: Russian & French w/ Honors	Foreign Language: Russian & French w/ Honors	1	0

### 2021 Foreign Language Major: Russian & French w/ Honors Tracks

Subject Area	Description
<b>Honors Thesis Course</b>	Choose 1 of 1
Write an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	

Complete the requirements of the major as shown above, AND attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

### 2021 Foreign Language Major: Russian & German Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FRG0	Foreign Language: Russian & German	Foreign Language Major: Russian & German	Foreign Language: Russian & German	2	13

### 2021 Foreign Language Major: Russian & German Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
LN380	NATURE OF MODERN LANGUAGES
<b>AND</b>	
<b>Electives</b>	Choose 6 of 19
LN440R	RUSSIAN IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
LR371	INTENSIVE INTERMEDIATE RUSSIAN
LR372	RUSSIAN FOR ORAL & WRIT COMM
LR470	SPECIAL TOPIC IN RUSSIAN
LR475	RUSSIAN RDG/WRTG THRU MEDIA
LR476	MILITARY SPKG/RDG - RUSSIAN
LR483	RUSSIAN CIV I
LR484	RUSSIAN CIV II
LR485	SURVEY OF RUSSIAN LITERATURE I
LR486	SURVEY OF RUSSIAN LIT. II

LR492	RUSSIAN LIFE IN FICTION
<b>AND</b>	
<b>Secondary Language Track</b>	Choose 4 of 13
LG203	GERMAN I (STANDARD)
LG204	GERMAN II (STANDARD)
LG371	INTENSIVE INTERMEDIATE GERMAN
LG372	GERMAN FOR ORAL & WRITTEN COMM
LG475	GERMAN RDG/WRTG THRU MEDIA
LG476	MILITARY SPKG/RDG - GERMAN
LG483	GERMAN CIVILIZATION I
LG484	GERMAN CIVILIZATION II
LG485	SURVEY OF GERMAN LIT I
LG486	SURVEY OF GERMAN LIT II
LG492	20TH & 21ST CENTURY GERMANY
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	
<b>Complementary Support Courses</b>	Choose 3 of 15
Choose 3 of 15, each from a different discipline.	
DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV371	GEOGRAPHY OF RUSSIA
HI344	MODERN DIPLOMACY
HI358	STRATEGY, POLICY & GENERALSHIP
HI367	IMPERIAL AND SOVIET RUSSIA
HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS375	GOV & POL RUSSIA & NEIGHBORS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES
<b>AND</b>	
<b>Integrative Experience for the Major</b>	Choose 1 of 1
LN490	LANGUAGE & CULTURE CAP SEM
<b>AND</b>	
<b>Science Depth</b>	
Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.	
CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II
<b>STEM Depth</b>	
Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.	
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>AND</b>	
<b>Curriculum Requirement</b>	
This section describes how cadets in this major satisfy various curriculum requirements.	
<b>IT/CYBER Requirement</b>	
Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.	

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>Core Engineering Sequence</b>	
Cadets in this major may choose any approved three course engineering sequence.	
<b>Writing-in-the-Major</b>	
Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN380.	
LN380	NATURE OF MODERN LANGUAGES

### 2021 Foreign Language Major: Russian & German w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FRG0H	Foreign Language: Russian & German w/ Honors	Foreign Language Major: Russian & German w/ Honors	Foreign Language: Russian & German w/ Honors	1	0

### 2021 Foreign Language Major: Russian & German w/ Honors Tracks

Subject Area	Description
<b>Honors Thesis Course</b>	Choose 1 of 1
Write an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	

Complete the requirements of the major as shown above, AND attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

### 2021 Foreign Language Major: Russian & Portuguese Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FRP0	Foreign Language: Russian & Portuguese	Foreign Language Major: Russian & Portuguese	Foreign Language: Russian & Portuguese	2	13

### 2021 Foreign Language Major: Russian & Portuguese Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
LN380	NATURE OF MODERN LANGUAGES
<b>AND</b>	
<b>Electives</b>	Choose 6 of 19
LN440R	RUSSIAN IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT

LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
LR371	INTENSIVE INTERMEDIATE RUSSIAN
LR372	RUSSIAN FOR ORAL & WRIT COMM
LR470	SPECIAL TOPIC IN RUSSIAN
LR475	RUSSIAN RDG/WRTG THRU MEDIA
LR476	MILITARY SPKG/RDG - RUSSIAN
LR483	RUSSIAN CIV I
LR484	RUSSIAN CIV II
LR485	SURVEY OF RUSSIAN LITERATURE I
LR486	SURVEY OF RUSSIAN LIT. II
LR492	RUSSIAN LIFE IN FICTION

**AND****Secondary Language Track**

Choose 4 of 12

LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LP203	PORTUGUESE I (STANDARD)
LP204	PORTUGUESE II (STANDARD)
LP371	INTENSIVE INTERMED. PORTUGUESE
LP372	PORTUGUESE FOR ORAL/WRIT COMM
LP475	PORTUGUESE RDG/WRTG THRU MEDIA
LP476	MILITARY SPKG/RDG - PORTUGUESE
LP483	PORTUGUESE CIVILIZATION I
LP484	PORTUGUESE CIVILIZATION II
LP485	SURVEY OF PORTUGUESE LIT I
LP492	LIT OF PORT-SPKG WORLD

**AND****Complementary Support Courses**

Choose 3 of 15

Choose 3 of 15, each from a different discipline.

DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV371	GEOGRAPHY OF RUSSIA
HI344	MODERN DIPLOMACY
HI358	STRATEGY, POLICY & GENERALSHIP
HI367	IMPERIAL AND SOVIET RUSSIA
HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS375	GOV & POL RUSSIA & NEIGHBORS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES

**AND****Integrative Experience for the Major**

Choose 1 of 1

LN490	LANGUAGE & CULTURE CAP SEM
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**AND****Science Depth**

Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II

#### **STEM Depth**

Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

#### **AND**

#### **Curriculum Requirement**

This section describes how cadets in this major satisfy various curriculum requirements.

#### **IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

#### **Core Engineering Sequence**

Cadets in this major may choose any approved three course engineering sequence.

#### **Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN380.

LN380	NATURE OF MODERN LANGUAGES
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## **2021 Foreign Language Major: Russian & Portuguese w/ Honors Curriculum**

<b>Code</b>	<b>Short Description</b>	<b>Description</b>	<b>Transcript Description</b>	<b>Req Crse Cnt</b>	<b>Opt Crse Cnt</b>
FRP0H	Foreign Lang: Russian & Portuguese w/ Honors	Foreign Language Major: Russian & Portuguese w/ Honors	Foreign Lang: Russian & Portuguese w/ Honors	1	0

## **2021 Foreign Language Major: Russian & Portuguese w/ Honors Tracks**

<b>Subject Area</b>	<b>Description</b>
<b>Honors Thesis Course</b>	Choose 1 of 1
	Write an honors thesis under the direction of a senior faculty member.
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	

Complete the requirements of the major as shown above, AND attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

## **2021 Foreign Language Major: Russian & Spanish Curriculum**

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FRS1	Foreign Language: Russian & Spanish	Foreign Language Major: Russian & Spanish	Foreign Language: Russian & Spanish	2	13

### 2021 Foreign Language Major: Russian & Spanish Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
LN380	NATURE OF MODERN LANGUAGES
<b>AND</b>	
<b>Electives</b>	Choose 6 of 19
LN440R	RUSSIAN IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
LR371	INTENSIVE INTERMEDIATE RUSSIAN
LR372	RUSSIAN FOR ORAL & WRIT COMM
LR470	SPECIAL TOPIC IN RUSSIAN
LR475	RUSSIAN RDG/WRTG THRU MEDIA
LR476	MILITARY SPKG/RDG - RUSSIAN
LR483	RUSSIAN CIV I
LR484	RUSSIAN CIV II
LR485	SURVEY OF RUSSIAN LITERATURE I
LR486	SURVEY OF RUSSIAN LIT. II
LR492	RUSSIAN LIFE IN FICTION
<b>AND</b>	
<b>Secondary Language Track</b>	Choose 4 of 13
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LS203	SPANISH I (STANDARD)
LS204	SPANISH II (STANDARD)
LS371	INTENSIVE INTERMEDIATE SPANISH
LS372	SPANISH FOR ORAL & WRIT COMM
LS475	SPANISH RDG/WRTG THRU MEDIA
LS476	MILITARY SPKG/RDG - SPANISH
LS483	SPANISH CIV AND CULTURE
LS484	SPANISH AMERICAN CIV AND CULT
LS485	SPANISH-AMERICAN LITERATURE
LS486	THE LITERATURE OF SPAIN
LS492	20TH/21ST CENTURY HISPANIC LIT
<b>AND</b>	
<b>Complementary Support Courses</b>	Choose 3 of 15
Choose 3 of 15, each from a different discipline.	
DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV371	GEOGRAPHY OF RUSSIA
HI344	MODERN DIPLOMACY

HI358	STRATEGY, POLICY & GENERALSHIP
HI367	IMPERIAL AND SOVIET RUSSIA
HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS375	GOV & POL RUSSIA & NEIGHBORS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES

**AND**


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**Integrative Experience for the Major** Choose 1 of 1

LN490	LANGUAGE & CULTURE CAP SEM
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**AND****Science Depth**

Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II

**STEM Depth**

Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**AND****Curriculum Requirement**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**Core Engineering Sequence**

Cadets in this major may choose any approved three course engineering sequence.

**Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN380.

LN380	NATURE OF MODERN LANGUAGES
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## 2021 Foreign Language Major: Russian & Spanish w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FRS1H	Foreign Language: Russian & Spanish w/ Honors	Foreign Language Major: Russian & Spanish w/ Honors	Foreign Language: Russian & Spanish w/ Honors	1	0

## 2021 Foreign Language Major: Russian & Spanish w/ Honors Tracks



Subject Area	Description
<b>Honors Thesis Course</b>	Choose 1 of 1
Write an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	

Complete the requirements of the major as shown above, AND attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

## 2021 Foreign Language Major: Russian & Persian Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FRZ1	Foreign Language: Russian & Persian	Foreign Language Major: Russian & Persian	Foreign Language: Russian & Persian	2	13

## 2021 Foreign Language Major: Russian & Persian Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
LN380	NATURE OF MODERN LANGUAGES
<b>AND</b>	
<b>Electives</b>	Choose 6 of 19
LN440R	RUSSIAN IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
LR371	INTENSIVE INTERMEDIATE RUSSIAN
LR372	RUSSIAN FOR ORAL & WRIT COMM
LR470	SPECIAL TOPIC IN RUSSIAN
LR475	RUSSIAN RDG/WRITG THRU MEDIA
LR476	MILITARY SPKG/RDG - RUSSIAN
LR483	RUSSIAN CIV I
LR484	RUSSIAN CIV II
LR485	SURVEY OF RUSSIAN LITERATURE I
LR486	SURVEY OF RUSSIAN LIT. II
LR492	RUSSIAN LIFE IN FICTION
<b>AND</b>	
<b>Secondary Language Track</b>	Choose 4 of 9
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LZ203	PERSIAN I (STANDARD)
LZ204	PERSIAN II (STANDARD)
LZ371	INTENSIVE INTERMEDIATE PERSIAN

LZ372	PERSIAN FOR ORAL & WRIT COMM
LZ470	SPECIAL TOPIC IN PERSIAN
LZ475	PERSIAN RDG/WRTG THRU MEDIA
LZ484	PERSIAN CIVILIZATION

**AND****Complementary Support Courses**

Choose 3 of 15

Choose 3 of 15, each from a different discipline.

DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV371	GEOGRAPHY OF RUSSIA
HI344	MODERN DIPLOMACY
HI358	STRATEGY, POLICY & GENERALSHIP
HI367	IMPERIAL AND SOVIET RUSSIA
HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS375	GOV & POL RUSSIA & NEIGHBORS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES

**AND****Integrative Experience for the Major**

Choose 1 of 1

LN490

LANGUAGE &amp; CULTURE CAP SEM

**AND****Science Depth**

Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II

**STEM Depth**

Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**AND****Curriculum Requirement**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**Core Engineering Sequence**

Cadets in this major may choose any approved three course engineering sequence.

**Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN380.

LN380	NATURE OF MODERN LANGUAGES
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## 2021 Foreign Language Major: Russian & Persian w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FRZ1H	Foreign Language: Russian & Persian w/ Honors	Foreign Language Major: Russian & Persian w/ Honors	Foreign Language: Russian & Persian w/ Honors	1	0

## 2021 Foreign Language Major: Russian & Persian w/ Honors Tracks

Subject Area	Description
<b>Honors Thesis Course</b>	Choose 1 of 1
	Write an honors thesis under the direction of a senior faculty member.
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	

Complete the requirements of the major as shown above, AND attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

## 2021 Foreign Area Studies Major: East Asia Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FSA1	Foreign Area Studies: East Asia	Foreign Area Studies Major: East Asia	Foreign Area Studies: East Asia	5	8

## 2021 Foreign Area Studies Major: East Asia Tracks

Subject Area	Description
<b>Required Courses</b>	Choose 5 of 5
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV372	GEOGRAPHY OF ASIA
HI337	CHINA-C. KINGDOM TO COMM RULE
SS366	COMPARATIVE POLITICS
SS372	POLITICS AND GOV OF CHINA
<b>AND</b>	
<b>Chinese Electives</b>	Choose 4 of 19
LC371	INTENSIVE INTERMEDIATE CHINESE
LC372	CHINESE FOR ORAL & WRIT COMM
LC470	SPECIAL TOPIC IN CHINESE
LC475	CHINESE RDG/WRTG THRU MEDIA
LC476	MILITARY SPKG/RDG - CHINESE
LC483	CHINESE CIVILIZATION I
LC484	CHINESE CIVILIZATION II

LC485	CHINESE LITERATURE I
LC486	CHINESE LITERATURE II
LC492	CHINESE LITERATURE III
LN440C	CHINESE IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V

**AND****Complementary Support Courses**

Choose 3 of 9

Choose 3 of 9, each from a different discipline.

DS455	COMPARATIVE DEFENSE POLICY
HI344	MODERN DIPLOMACY
HI347	ASIAN WARFARE AND POLITICS
HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
SS374	POL & GOV OF KOREAS & JAPAN
SS385	HISTORY OF ECONOMICS
SS484	INTERNATIONAL ECONOMICS
SS487	INT'L POLITICAL ECONOMY

**AND****Integrative Experience for the Major**

Choose 1 of 3

EV482	MILITARY GEOGRAPHY
LN490	LANGUAGE & CULTURE CAP SEM
SS486	INTERNATIONAL SECURITY SEMINAR

**AND****Science Depth**

Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II

**STEM Depth**

Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**AND****Curriculum Requirements**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**Core Engineering Sequence**

Cadets in this major may choose any approved three course engineering sequence.

**Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN490.

LN490	LANGUAGE & CULTURE CAP SEM
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### 2021 Foreign Area Studies Major: East Asia w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FSA1H	Foreign Area Studies: East Asia w/ Honors	Foreign Area Studies Major: East Asia w/ Honors	Foreign Area Studies: East Asia w/ Honors	1	1

### 2021 Foreign Area Studies Major: East Asia w/ Honors Tracks

Subject Area	Description
<b>Additional Elective</b>	
Take an additional course in Chinese.	
<b>AND</b>	
<b>Honors Thesis</b>	Choose 1 of 1
Take LN488 and complete an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	

Complete the requirements of the major as shown above, AND attain a minimum APSC of 3.0 in the core curriculum and 3.5 in the major.

### 2021 Foreign Language Major: Spanish & Arabic Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FSB0	Foreign Language: Spanish & Arabic	Foreign Language Major: Spanish & Arabic	Foreign Language: Spanish & Arabic	2	13

### 2021 Foreign Language Major: Spanish & Arabic Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
LN380	NATURE OF MODERN LANGUAGES
<b>AND</b>	
<b>Electives</b>	Choose 6 of 19
LN440S	SPANISH IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III

LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
LS371	INTENSIVE INTERMEDIATE SPANISH
LS372	SPANISH FOR ORAL & WRIT COMM
LS470	SPECIAL TOPIC IN SPANISH
LS475	SPANISH RDG/WRTG THRU MEDIA
LS476	MILITARY SPKG/RDG - SPANISH
LS483	SPANISH CIV AND CULTURE
LS484	SPANISH AMERICAN CIV AND CULT
LS485	SPANISH-AMERICAN LITERATURE
LS486	THE LITERATURE OF SPAIN
LS492	20TH/21ST CENTURY HISPANIC LIT

**AND****Secondary Language Track**

Choose 4 of 14

LA203	ARABIC I (STANDARD)
LA204	ARABIC II (STANDARD)
LA371	INTENSIVE INTERMEDIATE ARABIC
LA372	ARABIC FOR ORAL & WRITTEN COMM
LA472	COLLOQUIAL ARABIC
LA475	ARABIC RDG/WRTG THRU MEDIA
LA476	MILITARY SPKG/RDG - ARABIC
LA483	ARAB CIVILIZATION I
LA484	ARAB CIVILIZATION II
LA485	ARABIC LITERATURE I
LA486	ARABIC LITERATURE II
LA492	ARABIC LITERATURE III
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS

**AND****Complementary Support Courses**

Choose 3 of 16

Choose 3 of 16, each from a different discipline.

DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV373	GEOGRAPHY OF LATIN AMERICA
EV386	GEOGRAPHY OF EUROPE
HI348	MODERN LATIN AMERICA
HI364	MODERN WESTERN EUROPE
HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS377	POLITICS & GOV OF EUROPE
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS384	POLITICS & GOVT-LATIN AMER
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES

**AND****Integrative Experience for the Major**

Choose 1 of 1

LN490	LANGUAGE & CULTURE CAP SEM
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**AND****Science Depth**

Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
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CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II
<b>STEM Depth</b>	
Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.	
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**AND****Curriculum Requirement**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**Core Engineering Sequence**

Cadets in this major may choose any approved three course engineering sequence.

**Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN380.

LN380	NATURE OF MODERN LANGUAGES
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## 2021 Foreign Language Major: Spanish & Arabic w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FSB0H	Foreign Language: Spanish & Arabic w/ Honors	Foreign Language Major: Spanish & Arabic w/ Honors	Foreign Language: Spanish & Arabic w/ Honors	1	0

## 2021 Foreign Language Major: Spanish & Arabic w/ Honors Tracks

Subject Area	Description
<b>Honors Thesis Course</b>	Choose 1 of 1
Write an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	

Complete the requirements of the major as shown above, AND attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

## 2021 Foreign Language Major: Spanish & Chinese Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
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FSC0	Foreign Language: Spanish & Chinese	Foreign Language Major: Spanish & Chinese	Foreign Language: Spanish & Chinese	2	13
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### 2021 Foreign Language Major: Spanish & Chinese Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
LN380	NATURE OF MODERN LANGUAGES
<b>AND</b>	
<b>Electives</b>	Choose 6 of 19
LN440S	SPANISH IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
LS371	INTENSIVE INTERMEDIATE SPANISH
LS372	SPANISH FOR ORAL & WRIT COMM
LS470	SPECIAL TOPIC IN SPANISH
LS475	SPANISH RDG/WRTG THRU MEDIA
LS476	MILITARY SPKG/RDG - SPANISH
LS483	SPANISH CIV AND CULTURE
LS484	SPANISH AMERICAN CIV AND CULT
LS485	SPANISH-AMERICAN LITERATURE
LS486	THE LITERATURE OF SPAIN
LS492	20TH/21ST CENTURY HISPANIC LIT
<b>AND</b>	
<b>Secondary Language Track</b>	Choose 4 of 13
LC203	CHINESE I (STANDARD)
LC204	CHINESE II (STANDARD)
LC371	INTENSIVE INTERMEDIATE CHINESE
LC372	CHINESE FOR ORAL & WRIT COMM
LC475	CHINESE RDG/WRTG THRU MEDIA
LC476	MILITARY SPKG/RDG - CHINESE
LC483	CHINESE CIVILIZATION I
LC484	CHINESE CIVILIZATION II
LC485	CHINESE LITERATURE I
LC486	CHINESE LITERATURE II
LC492	CHINESE LITERATURE III
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	
<b>Complementary Support Courses</b>	Choose 3 of 16
Choose 3 of 16, each from a different discipline.	
DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV373	GEOGRAPHY OF LATIN AMERICA
EV386	GEOGRAPHY OF EUROPE
HI348	MODERN LATIN AMERICA
HI364	MODERN WESTERN EUROPE



HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS377	POLITICS & GOV OF EUROPE
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS384	POLITICS & GOVT-LATIN AMER
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES

**AND****Integrative Experience for the Major**

Choose 1 of 1

LN490

LANGUAGE &amp; CULTURE CAP SEM

**AND****Science Depth**

Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.

CH102

GENERAL CHEMISTRY II

CH275

BIOLOGY

PH206

PHYSICS II

PH256

ADVANCED PHYSICS II

**STEM Depth**

Cadets in this major must take IT305/355 to satisfy the STEM Depth requirement.

CY305

CYBER FOUNDATIONS

CY355

CYBER FOUNDATIONS - COMPUTING

**AND****Curriculum Requirement**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and IT305.

CY305

CYBER FOUNDATIONS

CY355

CYBER FOUNDATIONS - COMPUTING

**Core Engineering Sequence**

Cadets in this major may choose any approved three course engineering sequence.

**Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN380.

LN380

NATURE OF MODERN LANGUAGES

## 2021 Foreign Language Major: Spanish & Chinese w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FSC0H	Foreign Language: Spanish & Chinese w/ Honors	Foreign Language Major: Spanish & Chinese w/ Honors	Foreign Language: Spanish & Chinese w/ Honors	1	0

## 2021 Foreign Language Major: Spanish & Chinese w/ Honors Tracks

Subject Area	Description
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**Honors Thesis Course**

Choose 1 of 1

Write an honors thesis under the direction of a senior faculty member.

LN488

ADV IND STUDY-FOREIGN LANGS

**AND**

Complete the requirements of the major as shown above, AND attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

## 2021 Foreign Area Studies Major: Europe Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FSE1	Foreign Area Studies: Europe	Foreign Area Studies Major: Europe	Foreign Area Studies: Europe	4	9

### 2021 Foreign Area Studies Major: Europe Tracks

Subject Area	Description
<b>Required Courses</b>	Choose 4 of 4
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV386	GEOGRAPHY OF EUROPE
SS366	COMPARATIVE POLITICS
SS377	POLITICS & GOV OF EUROPE
<b>AND</b>	
<b>Language Track</b>	
You must choose one of the following four language tracks.	
<b>French Electives</b>	Choose 5 of 20
Choose 4 of 19 French and 1 of 1 History.	
HI364	MODERN WESTERN EUROPE
LF371	INTENSIVE INTERMEDIATE FRENCH
LF372	FRENCH FOR ORAL & WRITTEN COMM
LF470	SPECIAL TOPIC IN FRENCH
LF475	FRENCH RDG/WRTG THRU MEDIA
LF476	MILITARY SPKG/RDG - FRENCH
LF483	FRENCH CIVILIZATION I
LF484	FRENCH CIVILIZATION II
LF485	SURVEY OF FRENCH LIT I
LF486	SURVEY OF FRENCH LIT II
LF492	MASTERWORKS OF FRENCH LIT
LN440F	FRENCH IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
<b>OR</b>	
<b>German Electives</b>	Choose 5 of 20

Choose 4 of 19 German and 1 of 1 History.

HI343	MODERN GERMANY
LG371	INTENSIVE INTERMEDIATE GERMAN
LG372	GERMAN FOR ORAL & WRITTEN COMM
LG470	SPECIAL TOPIC IN GERMAN
LG475	GERMAN RDG/WRTG THRU MEDIA
LG476	MILITARY SPKG/RDG - GERMAN
LG483	GERMAN CIVILIZATION I
LG484	GERMAN CIVILIZATION II
LG485	SURVEY OF GERMAN LIT I
LG486	SURVEY OF GERMAN LIT II
LG492	20TH & 21ST CENTURY GERMANY
LN440G	GERMAN IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V

**OR**

**Portuguese Electives**

Choose 5 of 20

Choose 4 of 18 Portuguese and 1 of 2 History.

HI344	MODERN DIPLOMACY
HI364	MODERN WESTERN EUROPE
LN440P	PORTUGUESE IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
LP371	INTENSIVE INTERMED. PORTUGUESE
LP372	PORTUGUESE FOR ORAL/WRIT COMM
LP470	SPECIAL TOPIC IN PORTUGUESE
LP475	PORTUGUESE RDG/WRTG THRU MEDIA
LP476	MILITARY SPKG/RDG - PORTUGUESE
LP483	PORTUGUESE CIVILIZATION I
LP484	PORTUGUESE CIVILIZATION II
LP485	SURVEY OF PORTUGUESE LIT I
LP492	LIT OF PORT-SPKG WORLD

**OR**

**Spanish Electives**

Choose 5 of 21

Choose 4 of 19 Spanish and 1 of 2 History.

HI344	MODERN DIPLOMACY
HI364	MODERN WESTERN EUROPE
LN440S	SPANISH IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV

LN495	SEM ABROAD: ADV LANG & CULT V
LS371	INTENSIVE INTERMEDIATE SPANISH
LS372	SPANISH FOR ORAL & WRIT COMM
LS470	SPECIAL TOPIC IN SPANISH
LS475	SPANISH RDG/WRTG THRU MEDIA
LS476	MILITARY SPKG/RDG - SPANISH
LS483	SPANISH CIV AND CULTURE
LS484	SPANISH AMERICAN CIV AND CULT
LS485	SPANISH-AMERICAN LITERATURE
LS486	THE LITERATURE OF SPAIN
LS492	20TH/21ST CENTURY HISPANIC LIT

**AND****Complementary Support Courses**

Choose 3 of 9

Choose 3 of 9, each from a different discipline. DACs will counsel cadets on appropriate CSC choices based on language track and courses only counting towards one requirement (track versus CSC).

DS455	COMPARATIVE DEFENSE POLICY
HI338	WARFARE IN AGE OF REVOLUTIONS
HI344	MODERN DIPLOMACY
HI364	MODERN WESTERN EUROPE
HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
SS465	TERRORISM: NEW CHALLENGES
SS484	INTERNATIONAL ECONOMICS
SS487	INT'L POLITICAL ECONOMY

**AND****Integrative Experience for the Major**

Choose 1 of 3

EV482	MILITARY GEOGRAPHY
LN490	LANGUAGE & CULTURE CAP SEM
SS486	INTERNATIONAL SECURITY SEMINAR

**AND****Science Depth**

Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II

**STEM Depth**

Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**AND****Curriculum Requirements**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**Core Engineering Sequence**

Cadets in this major may choose any approved three course engineering sequence.

**Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN490.

LN490

LANGUAGE &amp; CULTURE CAP SEM

## 2021 Foreign Area Studies Major: Europe w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FSE1H	Foreign Area Studies: Europe w/ Honors	Foreign Area Studies Major: Europe w/ Honors	Foreign Area Studies: Europe w/ Honors	1	1

## 2021 Foreign Area Studies Major: Europe w/ Honors Tracks

Subject Area	Description
<b>Additional Elective</b>	
	Take an additional course in French, German, Portuguese or Spanish.
<b>AND</b>	
<b>Honors Thesis</b>	Choose 1 of 1
	Take LN488 and complete an honors thesis under the direction of a senior faculty member.
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	

Complete the requirements of the major as shown above, AND attain a minimum APSC of 3.0 in the core curriculum and 3.5 in the major.

## 2021 Foreign Language Major: Spanish & French Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FSF0	Foreign Language: Spanish & French	Foreign Language Major: Spanish & French	Foreign Language: Spanish & French	2	13

## 2021 Foreign Language Major: Spanish & French Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
LN380	NATURE OF MODERN LANGUAGES
<b>AND</b>	
<b>Electives</b>	Choose 6 of 19
LN440S	SPANISH IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II

LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
LS371	INTENSIVE INTERMEDIATE SPANISH
LS372	SPANISH FOR ORAL & WRIT COMM
LS470	SPECIAL TOPIC IN SPANISH
LS475	SPANISH RDG/WRTG THRU MEDIA
LS476	MILITARY SPKG/RDG - SPANISH
LS483	SPANISH CIV AND CULTURE
LS484	SPANISH AMERICAN CIV AND CULT
LS485	SPANISH-AMERICAN LITERATURE
LS486	THE LITERATURE OF SPAIN
LS492	20TH/21ST CENTURY HISPANIC LIT

**AND****Secondary Language Track**

Choose 4 of 13

LF203	FRENCH I (STANDARD)
LF204	FRENCH II (STANDARD)
LF371	INTENSIVE INTERMEDIATE FRENCH
LF372	FRENCH FOR ORAL & WRITTEN COMM
LF475	FRENCH RDG/WRTG THRU MEDIA
LF476	MILITARY SPKG/RDG - FRENCH
LF483	FRENCH CIVILIZATION I
LF484	FRENCH CIVILIZATION II
LF485	SURVEY OF FRENCH LIT I
LF486	SURVEY OF FRENCH LIT II
LF492	MASTERWORKS OF FRENCH LIT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS

**AND****Complementary Support Courses**

Choose 3 of 16

Choose 3 of 16, each from a different discipline.

DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV373	GEOGRAPHY OF LATIN AMERICA
EV386	GEOGRAPHY OF EUROPE
HI348	MODERN LATIN AMERICA
HI364	MODERN WESTERN EUROPE
HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS377	POLITICS & GOV OF EUROPE
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS384	POLITICS & GOVT-LATIN AMER
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES

**AND****Integrative Experience for the Major**

Choose 1 of 1

LN490	LANGUAGE & CULTURE CAP SEM
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**AND****Science Depth**

Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
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CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II
<b>STEM Depth</b>	
Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.	
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>AND</b>	

**Curriculum Requirement**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**Core Engineering Sequence**

Cadets in this major may choose any approved three course engineering sequence.

**Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN380.

LN380	NATURE OF MODERN LANGUAGES
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## 2021 Foreign Language Major: Spanish & French w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FSF0H	Foreign Language: Spanish & French w/ Honors	Foreign Language Major: Spanish & French w/ Honors	Foreign Language: Spanish & French w/ Honors	1	0

## 2021 Foreign Language Major: Spanish & French w/ Honors Tracks

Subject Area	Description
<b>Honors Thesis Course</b>	Choose 1 of 1
	Write an honors thesis under the direction of a senior faculty member.
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	

Complete the requirements of the major as shown above, AND attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

## 2021 Foreign Language Major: Spanish & German Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
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FSG0	Foreign Language: Spanish & German	Foreign Language Major: Spanish & German	Foreign Language: Spanish & German	2	13
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### 2021 Foreign Language Major: Spanish & German Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
LN380	NATURE OF MODERN LANGUAGES
<b>AND</b>	
<b>Electives</b>	Choose 6 of 19
LN440S	SPANISH IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
LS371	INTENSIVE INTERMEDIATE SPANISH
LS372	SPANISH FOR ORAL & WRIT COMM
LS470	SPECIAL TOPIC IN SPANISH
LS475	SPANISH RDG/WRTG THRU MEDIA
LS476	MILITARY SPKG/RDG - SPANISH
LS483	SPANISH CIV AND CULTURE
LS484	SPANISH AMERICAN CIV AND CULT
LS485	SPANISH-AMERICAN LITERATURE
LS486	THE LITERATURE OF SPAIN
LS492	20TH/21ST CENTURY HISPANIC LIT
<b>AND</b>	
<b>Secondary Language Track</b>	Choose 4 of 13
LG203	GERMAN I (STANDARD)
LG204	GERMAN II (STANDARD)
LG371	INTENSIVE INTERMEDIATE GERMAN
LG372	GERMAN FOR ORAL & WRITTEN COMM
LG475	GERMAN RDG/WRTG THRU MEDIA
LG476	MILITARY SPKG/RDG - GERMAN
LG483	GERMAN CIVILIZATION I
LG484	GERMAN CIVILIZATION II
LG485	SURVEY OF GERMAN LIT I
LG486	SURVEY OF GERMAN LIT II
LG492	20TH & 21ST CENTURY GERMANY
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	
<b>Complementary Support Courses</b>	Choose 3 of 16
Choose 3 of 16, each from a different discipline.	
DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV373	GEOGRAPHY OF LATIN AMERICA
EV386	GEOGRAPHY OF EUROPE
HI348	MODERN LATIN AMERICA
HI364	MODERN WESTERN EUROPE



HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS377	POLITICS & GOV OF EUROPE
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS384	POLITICS & GOVT-LATIN AMER
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES

**AND**


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**Integrative Experience for the Major** Choose 1 of 1

LN490	LANGUAGE & CULTURE CAP SEM
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**AND****Science Depth**

Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II

**STEM Depth**

Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**AND****Curriculum Requirement**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**Core Engineering Sequence**

Cadets in this major may choose any approved three course engineering sequence.

**Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN380.

LN380	NATURE OF MODERN LANGUAGES
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## 2021 Foreign Language Major: Spanish & German w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FSG0H	Foreign Language: Spanish & German w/ Honors	Foreign Language Major: Spanish & German w/ Honors	Foreign Language: Spanish & German w/ Honors	1	0

## 2021 Foreign Language Major: Spanish & German w/ Honors Tracks

Subject Area	Description
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**Honors Thesis Course**

Choose 1 of 1

Write an honors thesis under the direction of a senior faculty member.

LN488

ADV IND STUDY-FOREIGN LANGS

**AND**

Complete the requirements of the major as shown above, AND attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

## 2021 Foreign Area Studies Major: Africa Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FSI1	Foreign Area Studies: Africa	Foreign Area Studies Major: Africa	Foreign Area Studies: Africa	5	8

### 2021 Foreign Area Studies Major: Africa Tracks

Subject Area	Description
<b>Required Courses</b>	Choose 5 of 5
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV375	GEOGRAPHY OF AFRICA
HI345	MODERN AFRICA
SS366	COMPARATIVE POLITICS
SS485	GOV & POLITICS SUB-SAHARAN AFR
<b>AND</b>	
<b>Language Track</b>	
You must choose one of the following two language tracks.	
<b>French Electives</b>	Choose 4 of 19
LF371	INTENSIVE INTERMEDIATE FRENCH
LF372	FRENCH FOR ORAL & WRITTEN COMM
LF470	SPECIAL TOPIC IN FRENCH
LF475	FRENCH RDG/WRTG THRU MEDIA
LF476	MILITARY SPKG/RDG - FRENCH
LF483	FRENCH CIVILIZATION I
LF484	FRENCH CIVILIZATION II
LF485	SURVEY OF FRENCH LIT I
LF486	SURVEY OF FRENCH LIT II
LF492	MASTERWORKS OF FRENCH LIT
LN440F	FRENCH IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
<b>OR</b>	
<b>Portuguese Electives</b>	Choose 4 of 18
LN440P	PORTUGUESE IN CULTURAL CONTEXT

LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
LP371	INTENSIVE INTERMED. PORTUGUESE
LP372	PORTUGUESE FOR ORAL/WRIT COMM
LP470	SPECIAL TOPIC IN PORTUGUESE
LP475	PORTUGUESE RDG/WRITG THRU MEDIA
LP476	MILITARY SPKG/RDG - PORTUGUESE
LP483	PORTUGUESE CIVILIZATION I
LP484	PORTUGUESE CIVILIZATION II
LP485	SURVEY OF PORTUGUESE LIT I
LP492	LIT OF PORT-SPKG WORLD

**AND****Complementary Support Courses**

Choose 3 of 8

Choose 3 of 8, each from a different discipline.

DS455	COMPARATIVE DEFENSE POLICY
HI344	MODERN DIPLOMACY
HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES
SS484	INTERNATIONAL ECONOMICS
SS487	INT'L POLITICAL ECONOMY

**AND****Integrative Experience for the Major**

Choose 1 of 3

EV482	MILITARY GEOGRAPHY
LN490	LANGUAGE & CULTURE CAP SEM
SS486	INTERNATIONAL SECURITY SEMINAR

**AND****Science Depth**

Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II

**STEM Depth**

Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**AND****Curriculum Requirements**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**Core Engineering Sequence**

Cadets in this major may choose any approved three course engineering sequence.

**Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN490.

LN490

LANGUAGE &amp; CULTURE CAP SEM

**2021 Foreign Area Studies Major: Africa w/ Honors Curriculum**

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FSI1H	Foreign Area Studies: Africa w/ Honors	Foreign Area Studies Major: Africa w/ Honors	Foreign Area Studies: Africa w/ Honors	1	1

**2021 Foreign Area Studies Major: Africa w/ Honors Tracks**

Subject Area	Description
<b>Additional Elective</b>	
Take an additional course in French or Portuguese.	
<b>AND</b>	
<b>Honors Thesis</b>	Choose 1 of 1
Take LN488 and complete an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	
Complete the requirements of the major as shown above, AND attain a minimum APSC of 3.0 in the core curriculum and 3.5 in the major.	

**2021 Foreign Area Studies Major: Latin America Curriculum**

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FSL1	Foreign Area Studies: Latin America	Foreign Area Studies Major: Latin America	Foreign Area Studies: Latin America	5	8

**2021 Foreign Area Studies Major: Latin America Tracks**

Subject Area	Description
<b>Required Courses</b>	Choose 5 of 5
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV373	GEOGRAPHY OF LATIN AMERICA
HI348	MODERN LATIN AMERICA
SS366	COMPARATIVE POLITICS
SS384	POLITICS & GOVT-LATIN AMER
<b>AND</b>	

**Language Track**

You must choose one of the following two language tracks.

**Portuguese Electives**

Choose 4 of 20

LN440P	PORTUGUESE IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
LP371	INTENSIVE INTERMED. PORTUGUESE
LP372	PORTUGUESE FOR ORAL/WRIT COMM
LP470	SPECIAL TOPIC IN PORTUGUESE
LP475	PORTUGUESE RDG/WRTG THRU MEDIA
LP476	MILITARY SPKG/RDG - PORTUGUESE
LP481	SHORT STORY IN PORTUGUESE
LP482	CIVIL OF PORT-SPKG WORLD
LP483	PORTUGUESE CIVILIZATION I
LP484	PORTUGUESE CIVILIZATION II
LP485	SURVEY OF PORTUGUESE LIT I
LP492	LIT OF PORT-SPKG WORLD

**OR****Spanish Electives**

Choose 4 of 19

LN440S	SPANISH IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
LS371	INTENSIVE INTERMEDIATE SPANISH
LS372	SPANISH FOR ORAL & WRIT COMM
LS470	SPECIAL TOPIC IN SPANISH
LS475	SPANISH RDG/WRTG THRU MEDIA
LS476	MILITARY SPKG/RDG - SPANISH
LS483	SPANISH CIV AND CULTURE
LS484	SPANISH AMERICAN CIV AND CULT
LS485	SPANISH-AMERICAN LITERATURE
LS486	THE LITERATURE OF SPAIN
LS492	20TH/21ST CENTURY HISPANIC LIT

**AND****Complementary Support Courses**

Choose 3 of 8

Choose 3 of 8, each from a different discipline.

DS455	COMPARATIVE DEFENSE POLICY
HI344	MODERN DIPLOMACY
HI385	WAR & ITS THEORISTS
HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
SS465	TERRORISM: NEW CHALLENGES
SS484	INTERNATIONAL ECONOMICS
SS487	INT'L POLITICAL ECONOMY

**AND****Integrative Experience for the Major** Choose 1 of 3

EV482	MILITARY GEOGRAPHY
LN490	LANGUAGE & CULTURE CAP SEM
SS486	INTERNATIONAL SECURITY SEMINAR

**AND****Science Depth**

Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II

**STEM Depth**

Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**AND****Curriculum Requirements**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**Core Engineering Sequence**

Cadets in this major may choose any approved three course engineering sequence.

**Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN490.

LN490	LANGUAGE & CULTURE CAP SEM
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**2021 Foreign Area Studies Major: Latin America w/ Honors Curriculum**

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FSL1H	Foreign Area Studies: Latin America w/ Honors	Foreign Area Studies Major: Latin America w/ Honors	Foreign Area Studies: Latin America w/ Honors	1	1

**2021 Foreign Area Studies Major: Latin America w/ Honors Tracks**

Subject Area	Description
<b>Additional Elective</b>	

Take an additional course in Portuguese or Spanish.

**AND****Honors Thesis**

Choose 1 of 1

Take LN488 and complete an honors thesis under the direction of a senior faculty member.

LN488	ADV IND STUDY-FOREIGN LANGS
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**AND**

Complete the requirements of the major as shown above, AND attain a minimum APSC of 3.0 in the core curriculum and 3.5 in the major.

### 2021 Foreign Area Studies Major: Middle East Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FSM1	Foreign Area Studies: Middle East	Foreign Area Studies Major: Middle East	Foreign Area Studies: Middle East	5	8

### 2021 Foreign Area Studies Major: Middle East Tracks

Subject Area	Description
<b>Required Courses</b>	Choose 5 of 5
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV376	GEOGRAPHY OF THE MIDDLE EAST
HI339	THE MODERN MIDDLE EAST
SS366	COMPARATIVE POLITICS
SS383	POLITICS & GOVT-MIDDLE EAST
<b>AND</b>	
<b>Language Track</b>	
You must choose one of the following two language tracks.	
<b>Arabic Electives</b>	Choose 4 of 20
LA371	INTENSIVE INTERMEDIATE ARABIC
LA372	ARABIC FOR ORAL & WRITTEN COMM
LA470	SPECIAL TOPIC IN ARABIC
LA472	COLLOQUIAL ARABIC
LA475	ARABIC RDG/WRTG THRU MEDIA
LA476	MILITARY SPKG/RDG - ARABIC
LA483	ARAB CIVILIZATION I
LA484	ARAB CIVILIZATION II
LA485	ARABIC LITERATURE I
LA486	ARABIC LITERATURE II
LA492	ARABIC LITERATURE III
LN440A	ARABIC IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
<b>OR</b>	
<b>Persian Electives</b>	Choose 4 of 14
LN440Z	PERSIAN IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS

LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
LZ371	INTENSIVE INTERMEDIATE PERSIAN
LZ372	PERSIAN FOR ORAL & WRIT COMM
LZ470	SPECIAL TOPIC IN PERSIAN
LZ475	PERSIAN RDG/WRTG THRU MEDIA
LZ484	PERSIAN CIVILIZATION

**AND****Complementary Support Courses**

Choose 3 of 9

Choose 3 of 9, each from a different discipline.

DS455	COMPARATIVE DEFENSE POLICY
HI344	MODERN DIPLOMACY
HI349	THE MIDDLE EAST TO 1798
HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES
SS484	INTERNATIONAL ECONOMICS
SS487	INT'L POLITICAL ECONOMY

**AND****Integrative Experience for the Major**

Choose 1 of 3

EV482	MILITARY GEOGRAPHY
LN490	LANGUAGE & CULTURE CAP SEM
SS486	INTERNATIONAL SECURITY SEMINAR

**AND****Science Depth**

Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II

**STEM Depth**

Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**AND****Curriculum Requirements**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**Core Engineering Sequence**

Cadets in this major may choose any approved three course engineering sequence.

**Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN490.

LN490	LANGUAGE & CULTURE CAP SEM
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## 2021 Foreign Area Studies Major: Middle East w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FSM1H	Foreign Area Studies: Middle East w/ Honors	Foreign Area Studies Major: Middle East w/ Honors	Foreign Area Studies: Middle East w/ Honors	1	1

## 2021 Foreign Area Studies Major: Middle East w/ Honors Tracks

Subject Area	Description
<b>Additional Elective</b>	
Take an additional course in Arabic or Persian.	
<b>AND</b>	
<b>Honors Thesis</b>	Choose 1 of 1
Take LN488 and complete an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	

Complete the requirements of the major as shown above, AND attain a minimum APSC of 3.0 in the core curriculum and 3.5 in the major.

## 2021 Foreign Language Major: Spanish & Portuguese Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FSP0	Foreign Language: Spanish & Portuguese	Foreign Language Major: Spanish & Portuguese	Foreign Language: Spanish & Portuguese	2	13

## 2021 Foreign Language Major: Spanish & Portuguese Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
LN380	NATURE OF MODERN LANGUAGES
<b>AND</b>	
<b>Electives</b>	Choose 6 of 19
LN440S	SPANISH IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III

LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
LS371	INTENSIVE INTERMEDIATE SPANISH
LS372	SPANISH FOR ORAL & WRIT COMM
LS470	SPECIAL TOPIC IN SPANISH
LS475	SPANISH RDG/WRTG THRU MEDIA
LS476	MILITARY SPKG/RDG - SPANISH
LS483	SPANISH CIV AND CULTURE
LS484	SPANISH AMERICAN CIV AND CULT
LS485	SPANISH-AMERICAN LITERATURE
LS486	THE LITERATURE OF SPAIN
LS492	20TH/21ST CENTURY HISPANIC LIT

**AND****Secondary Language Track**

Choose 4 of 12

LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LP203	PORTUGUESE I (STANDARD)
LP204	PORTUGUESE II (STANDARD)
LP371	INTENSIVE INTERMED. PORTUGUESE
LP372	PORTUGUESE FOR ORAL/WRIT COMM
LP475	PORTUGUESE RDG/WRTG THRU MEDIA
LP476	MILITARY SPKG/RDG - PORTUGUESE
LP483	PORTUGUESE CIVILIZATION I
LP484	PORTUGUESE CIVILIZATION II
LP485	SURVEY OF PORTUGUESE LIT I
LP492	LIT OF PORT-SPKG WORLD

**AND****Complementary Support Courses**

Choose 3 of 16

Choose 3 of 16, each from a different discipline.

DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV373	GEOGRAPHY OF LATIN AMERICA
EV386	GEOGRAPHY OF EUROPE
HI348	MODERN LATIN AMERICA
HI364	MODERN WESTERN EUROPE
HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS377	POLITICS & GOV OF EUROPE
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS384	POLITICS & GOVT-LATIN AMER
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES

**AND****Integrative Experience for the Major**

Choose 1 of 1

LN490	LANGUAGE & CULTURE CAP SEM
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**AND****Science Depth**

Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II

PH256	ADVANCED PHYSICS II
<b>STEM Depth</b>	
Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.	
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>AND</b>	

**Curriculum Requirement**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**Core Engineering Sequence**

Cadets in this major may choose any approved three course engineering sequence.

**Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN380.

LN380	NATURE OF MODERN LANGUAGES
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## 2021 Foreign Language Major: Spanish & Portuguese w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FSP0H	Foreign Lang: Spanish & Portuguese w/ Honors	Foreign Language Major: Spanish & Portuguese w/ Honors	Foreign Lang: Spanish & Portuguese w/ Honors	1	0

## 2021 Foreign Language Major: Spanish & Portuguese w/ Honors Tracks

Subject Area	Description
<b>Honors Thesis Course</b>	Choose 1 of 1
Write an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	

Complete the requirements of the major as shown above, AND attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

## 2021 Foreign Language Major: Spanish & Russian Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FSR0	Foreign Language: Spanish & Russian	Foreign Language Major: Spanish & Russian	Foreign Language: Spanish & Russian	2	13

## 2021 Foreign Language Major: Spanish & Russian Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
LN380	NATURE OF MODERN LANGUAGES
<b>AND</b>	
<b>Electives</b>	Choose 6 of 19
LN440S	SPANISH IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
LS371	INTENSIVE INTERMEDIATE SPANISH
LS372	SPANISH FOR ORAL & WRIT COMM
LS470	SPECIAL TOPIC IN SPANISH
LS475	SPANISH RDG/WRTG THRU MEDIA
LS476	MILITARY SPKG/RDG - SPANISH
LS483	SPANISH CIV AND CULTURE
LS484	SPANISH AMERICAN CIV AND CULT
LS485	SPANISH-AMERICAN LITERATURE
LS486	THE LITERATURE OF SPAIN
LS492	20TH/21ST CENTURY HISPANIC LIT
<b>AND</b>	
<b>Secondary Language Track</b>	Choose 4 of 13
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LR203	RUSSIAN I (STANDARD)
LR204	RUSSIAN II (STANDARD)
LR371	INTENSIVE INTERMEDIATE RUSSIAN
LR372	RUSSIAN FOR ORAL & WRIT COMM
LR475	RUSSIAN RDG/WRTG THRU MEDIA
LR476	MILITARY SPKG/RDG - RUSSIAN
LR483	RUSSIAN CIV I
LR484	RUSSIAN CIV II
LR485	SURVEY OF RUSSIAN LITERATURE I
LR486	SURVEY OF RUSSIAN LIT. II
LR492	RUSSIAN LIFE IN FICTION
<b>AND</b>	
<b>Complementary Support Courses</b>	Choose 3 of 16
Choose 3 of 16, each from a different discipline.	
DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV373	GEOGRAPHY OF LATIN AMERICA
EV386	GEOGRAPHY OF EUROPE
HI348	MODERN LATIN AMERICA
HI364	MODERN WESTERN EUROPE
HI381	HISTORY OF IRREGULAR WARFARE

HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS377	POLITICS & GOV OF EUROPE
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS384	POLITICS & GOVT-LATIN AMER
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES

**AND****Integrative Experience for the Major**

Choose 1 of 1

LN490

LANGUAGE &amp; CULTURE CAP SEM

**AND****Science Depth**

Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.

CH102

GENERAL CHEMISTRY II

CH275

BIOLOGY

PH206

PHYSICS II

PH256

ADVANCED PHYSICS II

**STEM Depth**

Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.

CY305

CYBER FOUNDATIONS

CY355

CYBER FOUNDATIONS - COMPUTING

**AND****Curriculum Requirement**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305

CYBER FOUNDATIONS

CY355

CYBER FOUNDATIONS - COMPUTING

**Core Engineering Sequence**

Cadets in this major may choose any approved three course engineering sequence.

**Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN380.

LN380

NATURE OF MODERN LANGUAGES

## 2021 Foreign Language Major: Spanish & Russian w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FSR0H	Foreign Language: Spanish & Russian w/ Honors	Foreign Language Major: Spanish & Russian w/ Honors	Foreign Language: Spanish & Russian w/ Honors	1	0

## 2021 Foreign Language Major: Spanish & Russian w/ Honors Tracks

Subject Area	Description
Honors Thesis Course	Choose 1 of 1

Write an honors thesis under the direction of a senior faculty member.

LN488

ADV IND STUDY-FOREIGN LANGS

AND

Complete the requirements of the major as shown above, AND attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

## 2021 Foreign Area Studies Major: Eurasia Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FSU1	Foreign Area Studies: Eurasia	Foreign Area Studies Major: Eurasia	Foreign Area Studies: Eurasia	5	8

## 2021 Foreign Area Studies Major: Eurasia Tracks

Subject Area	Description
<b>Required Courses</b>	Choose 5 of 5
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV371	GEOGRAPHY OF RUSSIA
HI367	IMPERIAL AND SOVIET RUSSIA
SS366	COMPARATIVE POLITICS
SS375	GOV & POL RUSSIA & NEIGHBORS
<b>AND</b>	
<b>Russian Electives</b>	Choose 4 of 19
LN440R	RUSSIAN IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
LR371	INTENSIVE INTERMEDIATE RUSSIAN
LR372	RUSSIAN FOR ORAL & WRIT COMM
LR470	SPECIAL TOPIC IN RUSSIAN
LR475	RUSSIAN RDG/WRTG THRU MEDIA
LR476	MILITARY SPKG/RDG - RUSSIAN
LR483	RUSSIAN CIV I
LR484	RUSSIAN CIV II
LR485	SURVEY OF RUSSIAN LITERATURE I
LR486	SURVEY OF RUSSIAN LIT. II
LR492	RUSSIAN LIFE IN FICTION
<b>AND</b>	
<b>Complementary Support Courses</b>	Choose 3 of 11
Choose 3 of 11, each from a different discipline.	
DS455	COMPARATIVE DEFENSE POLICY
HI344	MODERN DIPLOMACY

HI358	STRATEGY, POLICY & GENERALSHIP
HI362	POLITICS/SOC-EARLY MOD EURO
HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES
SS484	INTERNATIONAL ECONOMICS
SS487	INT'L POLITICAL ECONOMY

**AND**


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**Integrative Experience for the Major** Choose 1 of 3

EV482	MILITARY GEOGRAPHY
LN490	LANGUAGE & CULTURE CAP SEM
SS486	INTERNATIONAL SECURITY SEMINAR

**AND****Science Depth**

Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II

**STEM Depth**

Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**AND****Curriculum Requirements**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**Core Engineering Sequence**

Cadets in this major may choose any approved three course engineering sequence.

**Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN490.

LN490	LANGUAGE & CULTURE CAP SEM
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## 2021 Foreign Area Studies Major: Eurasia w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FSU1H	Foreign Area Studies: Eurasia w/ Honors	Foreign Area Studies Major: Eurasia w/ Honors	Foreign Area Studies: Eurasia w/ Honors	1	1

### 2021 Foreign Area Studies Major: Eurasia w/ Honors Tracks

Subject Area	Description
<b>Additional Elective</b>	
Take an additional course in Russian.	
<b>AND</b>	
<b>Honors Thesis</b>	Choose 1 of 1
Take LN488 and complete an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	
Complete the requirements of the major as shown above, AND attain a minimum APSC of 3.0 in the core curriculum and 3.5 in the major.	

### 2021 Foreign Language Major: Spanish & Persian Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FSZ1	Foreign Language: Spanish & Persian	Foreign Language Major: Spanish & Persian	Foreign Language: Spanish & Persian	2	13

### 2021 Foreign Language Major: Spanish & Persian Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
LN380	NATURE OF MODERN LANGUAGES
<b>AND</b>	
<b>Electives</b>	Choose 6 of 19
LN440S	SPANISH IN CULTURAL CONTEXT
LN451	ADV LANG & CULTURE IN CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LN493	SEM ABROAD: ADV LANG&CULT III
LN494	SEM ABROAD: ADV LANG & CULT IV
LN495	SEM ABROAD: ADV LANG & CULT V
LS371	INTENSIVE INTERMEDIATE SPANISH
LS372	SPANISH FOR ORAL & WRIT COMM
LS470	SPECIAL TOPIC IN SPANISH
LS475	SPANISH RDG/WRTG THRU MEDIA
LS476	MILITARY SPKG/RDG - SPANISH
LS483	SPANISH CIV AND CULTURE
LS484	SPANISH AMERICAN CIV AND CULT
LS485	SPANISH-AMERICAN LITERATURE
LS486	THE LITERATURE OF SPAIN
LS492	20TH/21ST CENTURY HISPANIC LIT



**AND****Secondary Language Track**

Choose 4 of 9

LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LZ203	PERSIAN I (STANDARD)
LZ204	PERSIAN II (STANDARD)
LZ371	INTENSIVE INTERMEDIATE PERSIAN
LZ372	PERSIAN FOR ORAL & WRIT COMM
LZ470	SPECIAL TOPIC IN PERSIAN
LZ475	PERSIAN RDG/WRTG THRU MEDIA
LZ484	PERSIAN CIVILIZATION

**AND****Complementary Support Courses**

Choose 3 of 16

Choose 3 of 16, each from a different discipline.

DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV373	GEOGRAPHY OF LATIN AMERICA
EV386	GEOGRAPHY OF EUROPE
HI348	MODERN LATIN AMERICA
HI364	MODERN WESTERN EUROPE
HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS377	POLITICS & GOV OF EUROPE
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS384	POLITICS & GOVT-LATIN AMER
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES

**AND****Integrative Experience for the Major**

Choose 1 of 1

LN490	LANGUAGE & CULTURE CAP SEM
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**AND****Science Depth**

Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II

**STEM Depth**

Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**AND****Curriculum Requirement**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**Core Engineering Sequence**

Cadets in this major may choose any approved three course engineering sequence.

**Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of LN380.

LN380

NATURE OF MODERN LANGUAGES

**2021 Foreign Language Major: Spanish & Persian w/ Honors Curriculum**

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FSZ1H	Foreign Language: Spanish & Persian w/ Honors	Foreign Language Major: Spanish & Persian w/ Honors	Foreign Language: Spanish & Persian w/ Honors	1	0

**2021 Foreign Language Major: Spanish & Persian w/ Honors Tracks**

Subject Area	Description
<b>Honors Thesis Course</b>	Choose 1 of 1
Write an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
<b>AND</b>	

Complete the requirements of the major as shown above, AND attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

**2021 Regional Studies Minor - East Asia Curriculum**

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
RSA0N	Regional Studies Minor - East Asia	Regional Studies Minor - East Asia	Regional Studies Minor - East Asia	0	5

**2021 Regional Studies Minor - East Asia Tracks**

Subject Area	Description
	The course of instruction for the Regional Studies Minor will consist of five courses that form a coherent, interdisciplinary study of a geographical region. Three of the courses must be in a foreign language at the 300 or 400 level. The other two courses must be regional or comparative electives. For any Single or Dual Foreign Language majors choosing this minor, exceptions can be made to the language requirement if all possible language courses for the Cadets' chosen region have been completed as part of the major. Cadets who choose the Foreign Area Studies: East Asia (FSA1) major are not allowed to choose this minor.
<b>Language Courses</b>	
	Take three courses at the 300-level (or higher) in the following language. Any courses taken to fulfill the requirements for this minor are eligible for double-counting practices, including any that are taken to fulfill core, major or minor curricular components. Three courses must be unique to this minor.
<b>Chinese</b>	Choose 3 of 10

LC371	INTENSIVE INTERMEDIATE CHINESE
LC372	CHINESE FOR ORAL & WRIT COMM
LC475	CHINESE RDG/WRTG THRU MEDIA
LC476	MILITARY SPKG/RDG - CHINESE
LC483	CHINESE CIVILIZATION I
LC484	CHINESE CIVILIZATION II
LC485	CHINESE LITERATURE I
LC486	CHINESE LITERATURE II
LC492	CHINESE LITERATURE III
LN440C	CHINESE IN CULTURAL CONTEXT

**AND**

Choose one course from the following regional track and one course from the regional and comparative studies course track. Any course taken from the Regional Track cannot double-count with the course chosen for the Regional and Comparative Studies Track. All pre-requisites for any courses on these lists should be taken prior to taking the chosen course from either track.

**East Asia Regional Track**

Choose 1 of 6

EV372	GEOGRAPHY OF ASIA
HI337	CHINA-C. KINGDOM TO COMM RULE
HI347	ASIAN WARFARE AND POLITICS
PY369	EASTERN THOUGHT
SS372	POLITICS AND GOV OF CHINA
SS374	POL & GOV OF KOREAS & JAPAN

**AND****Regional And Comparative Studies Track**

Choose 1 of 25

DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV372	GEOGRAPHY OF ASIA
EV482	MILITARY GEOGRAPHY
HI337	CHINA-C. KINGDOM TO COMM RULE
HI344	MODERN DIPLOMACY
HI347	ASIAN WARFARE AND POLITICS
HI358	STRATEGY, POLICY & GENERALSHIP
HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
LW481	INTERNATIONAL LAW
MG472	INTERNATIONAL MANAGEMENT
PY369	EASTERN THOUGHT
SS366	COMPARATIVE POLITICS
SS372	POLITICS AND GOV OF CHINA
SS374	POL & GOV OF KOREAS & JAPAN
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS465	TERRORISM: NEW CHALLENGES
SS475	DEMOCRATIZATION
SS479	INTERNATIONAL ORGANIZATION
SS484	INTERNATIONAL ECONOMICS
SS486	INTERNATIONAL SECURITY SEMINAR
SS487	INT'L POLITICAL ECONOMY

## 2021 Regional Studies Minor - Europe Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
RSE0N	Regional Studies Minor - Europe	Regional Studies Minor - Europe	Regional Studies Minor - Europe	0	5

## 2021 Regional Studies Minor - Europe Tracks

### Subject Area Description

The course of instruction for the Regional Studies Minor will consist of five courses that form a coherent, interdisciplinary study of a geographical region. Three of the courses must be in a foreign language at the 300 or 400 level. The other two courses must be regional or comparative electives. For any Single or Dual Foreign Language majors choosing this minor, exceptions can be made to the language requirement if all possible language courses for the Cadets' chosen region have been completed as part of the major. Cadets who choose the Foreign Area Studies: Europe (FSE1) major are not allowed to choose this minor.

#### Language Courses

Take three courses at the 300-level (or higher) in one of the following languages. Any courses taken to fulfill the requirements for this minor are eligible for double-counting practices, including any that are taken to fulfill core, major or minor curricular components. Three courses must be unique to this minor.

#### French

Choose 3 of 10

LF371	INTENSIVE INTERMEDIATE FRENCH
LF372	FRENCH FOR ORAL & WRITTEN COMM
LF475	FRENCH RDG/WRTG THRU MEDIA
LF476	MILITARY SPKG/RDG - FRENCH
LF483	FRENCH CIVILIZATION I
LF484	FRENCH CIVILIZATION II
LF485	SURVEY OF FRENCH LIT I
LF486	SURVEY OF FRENCH LIT II
LF492	MASTERWORKS OF FRENCH LIT
LN440F	FRENCH IN CULTURAL CONTEXT

#### OR

#### German

Choose 3 of 10

LG371	INTENSIVE INTERMEDIATE GERMAN
LG372	GERMAN FOR ORAL & WRITTEN COMM
LG475	GERMAN RDG/WRTG THRU MEDIA
LG476	MILITARY SPKG/RDG - GERMAN
LG483	GERMAN CIVILIZATION I
LG484	GERMAN CIVILIZATION II
LG485	SURVEY OF GERMAN LIT I
LG486	SURVEY OF GERMAN LIT II
LG492	20TH & 21ST CENTURY GERMANY
LN440G	GERMAN IN CULTURAL CONTEXT

#### OR

#### Portuguese

Choose 3 of 9

LN440P	PORTUGUESE IN CULTURAL CONTEXT
LP371	INTENSIVE INTERMED. PORTUGUESE
LP372	PORTUGUESE FOR ORAL/WRIT COMM

LP475	PORTUGUESE RDG/WRTG THRU MEDIA
LP476	MILITARY SPKG/RDG - PORTUGUESE
LP483	PORTUGUESE CIVILIZATION I
LP484	PORTUGUESE CIVILIZATION II
LP485	SURVEY OF PORTUGUESE LIT I
LP492	LIT OF PORT-SPKG WORLD

**OR****Spanish**

Choose 3 of 10

LN440S	SPANISH IN CULTURAL CONTEXT
LS371	INTENSIVE INTERMEDIATE SPANISH
LS372	SPANISH FOR ORAL & WRIT COMM
LS475	SPANISH RDG/WRTG THRU MEDIA
LS476	MILITARY SPKG/RDG - SPANISH
LS483	SPANISH CIV AND CULTURE
LS484	SPANISH AMERICAN CIV AND CULT
LS485	SPANISH-AMERICAN LITERATURE
LS486	THE LITERATURE OF SPAIN
LS492	20TH/21ST CENTURY HISPANIC LIT

**AND**

Choose one course from the following regional track and one course from the regional and comparative studies course track. Any course taken from the Regional Track cannot double-count with the course chosen for the Regional and Comparative Studies Track. All pre-requisites for any courses on these lists should be taken prior to taking the chosen course from either track. Note: Cadets who choose any language other than German to fulfill their language requirement may not choose HI343 from this list.

**Europe Regional Track**

Choose 1 of 8

EV386	GEOGRAPHY OF EUROPE
HI341	THE AGE OF EXPLORATION
HI343	MODERN GERMANY
HI364	MODERN WESTERN EUROPE
HI368	MOD CENTRAL & E. EUR,1896-1989
PY375	KANT & 19TH CENTURY PHILOSOPHY
SS377	POLITICS & GOV OF EUROPE
XH405	THE HOLOCAUST AND ITS LEGACY

**AND****Regional and Comparative Studies Track**

Choose 1 of 27

DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV386	GEOGRAPHY OF EUROPE
EV482	MILITARY GEOGRAPHY
HI341	THE AGE OF EXPLORATION
HI343	MODERN GERMANY
HI344	MODERN DIPLOMACY
HI358	STRATEGY, POLICY & GENERALSHIP
HI364	MODERN WESTERN EUROPE
HI368	MOD CENTRAL & E. EUR,1896-1989
HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
LW481	INTERNATIONAL LAW
MG472	INTERNATIONAL MANAGEMENT
PY375	KANT & 19TH CENTURY PHILOSOPHY
SS366	COMPARATIVE POLITICS
SS377	POLITICS & GOV OF EUROPE

SS381	CULTURAL/POLIT ANTHROPOLOGY
SS465	TERRORISM: NEW CHALLENGES
SS475	DEMOCRATIZATION
SS479	INTERNATIONAL ORGANIZATION
SS484	INTERNATIONAL ECONOMICS
SS486	INTERNATIONAL SECURITY SEMINAR
SS487	INT'L POLITICAL ECONOMY
XH405	THE HOLOCAUST AND ITS LEGACY

### 2021 Regional Studies Minor - Africa Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
RS10N	Regional Studies Minor - Africa	Regional Studies Minor - Africa	Regional Studies Minor - Africa	0	5

### 2021 Regional Studies Minor - Africa Tracks

#### Subject Area Description

The course of instruction for the Regional Studies Minor will consist of five courses that form a coherent, interdisciplinary study of a geographical region. Three of the courses must be in a foreign language at the 300 or 400 level. The other two courses must be regional or comparative course electives. For any Single or Dual Foreign Language majors choosing this minor, exceptions can be made to the language requirement if all possible language courses for the Cadets' chosen region have been completed as part of the major. Cadets who choose the Foreign Area Studies: Africa (FSI1) major are not allowed to choose this minor.

#### Language Courses

Take three courses at the 300-level (or higher) in one of the following languages. Any courses taken to fulfill the requirements for this minor are eligible for double-counting practices, including any that are taken to fulfill core, major or minor curricular components. Three courses must be unique to this minor.

#### French

Choose 3 of 10

LF371	INTENSIVE INTERMEDIATE FRENCH
LF372	FRENCH FOR ORAL & WRITTEN COMM
LF475	FRENCH RDG/WRTG THRU MEDIA
LF476	MILITARY SPKG/RDG - FRENCH
LF483	FRENCH CIVILIZATION I
LF484	FRENCH CIVILIZATION II
LF485	SURVEY OF FRENCH LIT I
LF486	SURVEY OF FRENCH LIT II
LF492	MASTERWORKS OF FRENCH LIT
LN440F	FRENCH IN CULTURAL CONTEXT

#### OR

#### Portuguese

Choose 3 of 9

LN440P	PORTUGUESE IN CULTURAL CONTEXT
LP371	INTENSIVE INTERMED. PORTUGUESE
LP372	PORTUGUESE FOR ORAL/WRIT COMM
LP475	PORTUGUESE RDG/WRTG THRU MEDIA
LP476	MILITARY SPKG/RDG - PORTUGUESE
LP483	PORTUGUESE CIVILIZATION I
LP484	PORTUGUESE CIVILIZATION II

LP485	SURVEY OF PORTUGUESE LIT I
LP492	LIT OF PORT-SPKG WORLD
<b>AND</b>	
Choose one course from the following regional track and one course from the regional and comparative studies course track. Any course taken from the Regional Track cannot double-count with the course chosen for the Regional and Comparative Studies Track. All pre-requisites for any courses on these lists should be taken prior to taking the chosen course from either track.	
<b>Africa Regional Track</b>	Choose 1 of 4
EV375	GEOGRAPHY OF AFRICA
HI341	THE AGE OF EXPLORATION
HI345	MODERN AFRICA
SS485	GOV & POLITICS SUB-SAHARAN AFR
<b>AND</b>	
<b>Regional and Comparative Studies Track</b>	Choose 1 of 23
DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV375	GEOGRAPHY OF AFRICA
EV482	MILITARY GEOGRAPHY
HI341	THE AGE OF EXPLORATION
HI344	MODERN DIPLOMACY
HI345	MODERN AFRICA
HI358	STRATEGY, POLICY & GENERALSHIP
HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
LW481	INTERNATIONAL LAW
MG472	INTERNATIONAL MANAGEMENT
SS366	COMPARATIVE POLITICS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS465	TERRORISM: NEW CHALLENGES
SS475	DEMOCRATIZATION
SS479	INTERNATIONAL ORGANIZATION
SS484	INTERNATIONAL ECONOMICS
SS485	GOV & POLITICS SUB-SAHARAN AFR
SS486	INTERNATIONAL SECURITY SEMINAR
SS487	INT'L POLITICAL ECONOMY

### 2021 Regional Studies Minor - Latin America Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
RSL0N	Regional Studies Minor - Latin America	Regional Studies Minor - Latin America	Regional Studies Minor - Latin America	0	5

### 2021 Regional Studies Minor - Latin America Tracks

Subject Area	Description
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The course of instruction for the Regional Studies Minor will consist of five courses that form a coherent, interdisciplinary study of a geographical region. Three of the courses must be in a foreign language at the 300 or 400 level. The other two courses must be regional or comparative electives. For any Single or Dual Foreign Language majors choosing this minor, exceptions can be made to the language requirement if all possible language courses for the Cadets' chosen region have been completed as part of the major. Cadets who choose the Foreign Area Studies: Latin America (FSL1) major are not allowed to choose this minor.

### Language Courses

Take three courses at the 300-level (or higher) in one of the following languages. Any courses taken to fulfill the requirements for this minor are eligible for double-counting practices, including any that are taken to fulfill core, major or minor curricular components. Three courses must be unique to this minor.

<b>Portuguese</b>	Choose 3 of 9
LN440P	PORTUGUESE IN CULTURAL CONTEXT
LP371	INTENSIVE INTERMED. PORTUGUESE
LP372	PORTUGUESE FOR ORAL/WRIT COMM
LP475	PORTUGUESE RDG/WRTG THRU MEDIA
LP476	MILITARY SPKG/RDG - PORTUGUESE
LP483	PORTUGUESE CIVILIZATION I
LP484	PORTUGUESE CIVILIZATION II
LP485	SURVEY OF PORTUGUESE LIT I
LP492	LIT OF PORT-SPKG WORLD
<b>OR</b>	
<b>Spanish</b>	Choose 3 of 10
LN440S	SPANISH IN CULTURAL CONTEXT
LS371	INTENSIVE INTERMEDIATE SPANISH
LS372	SPANISH FOR ORAL & WRIT COMM
LS475	SPANISH RDG/WRTG THRU MEDIA
LS476	MILITARY SPKG/RDG - SPANISH
LS483	SPANISH CIV AND CULTURE
LS484	SPANISH AMERICAN CIV AND CULT
LS485	SPANISH-AMERICAN LITERATURE
LS486	THE LITERATURE OF SPAIN
LS492	20TH/21ST CENTURY HISPANIC LIT
<b>AND</b>	

Choose one course from the following regional track and one course from the regional and comparative studies course track. Any course taken from the Regional Track cannot double-count with the course chosen for the Regional and Comparative Studies Track. All pre-requisites for any courses on these lists should be taken prior to taking the chosen course from either track.

<b>Latin America Track</b>	Choose 1 of 4
EV373	GEOGRAPHY OF LATIN AMERICA
HI341	THE AGE OF EXPLORATION
HI348	MODERN LATIN AMERICA
SS384	POLITICS & GOVT-LATIN AMER
<b>AND</b>	
<b>Regional and Comparative Studies Track</b>	Choose 1 of 23
DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV373	GEOGRAPHY OF LATIN AMERICA
EV482	MILITARY GEOGRAPHY
HI341	THE AGE OF EXPLORATION
HI344	MODERN DIPLOMACY
HI348	MODERN LATIN AMERICA



HI358	STRATEGY, POLICY & GENERALSHIP
HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
LW481	INTERNATIONAL LAW
MG472	INTERNATIONAL MANAGEMENT
SS366	COMPARATIVE POLITICS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS384	POLITICS & GOVT-LATIN AMER
SS465	TERRORISM: NEW CHALLENGES
SS475	DEMOCRATIZATION
SS479	INTERNATIONAL ORGANIZATION
SS484	INTERNATIONAL ECONOMICS
SS486	INTERNATIONAL SECURITY SEMINAR
SS487	INT'L POLITICAL ECONOMY

### 2021 Regional Studies Minor - Middle East Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
RSM0N	Regional Studies Minor - Middle East	Regional Studies Minor - Middle East	Regional Studies Minor - Middle East	0	5

### 2021 Regional Studies Minor - Middle East Tracks

#### Subject Area Description

The course of instruction for the Regional Studies Minor will consist of five courses that form a coherent, interdisciplinary study of a geographical region. Three of the courses must be in a foreign language at the 300 or 400 level. The other two courses must be regional or comparative electives. For any Single or Dual Foreign Language majors choosing this minor, exceptions can be made to the language requirement if all possible language courses for the Cadets' chosen region have been completed as part of the major. Cadets who choose the Foreign Area Studies: Middle East (FSM1) major are not allowed to choose this minor.

#### Language Courses

Take three courses at the 300-level (or higher) in one of the following languages. Any courses taken to fulfill the requirements for this minor are eligible for double-counting practices, including any that are taken to fulfill core, major or minor curricular components. Three courses must be unique to this minor.

<b>Arabic</b>	Choose 3 of 11
LA371	INTENSIVE INTERMEDIATE ARABIC
LA372	ARABIC FOR ORAL & WRITTEN COMM
LA472	COLLOQUIAL ARABIC
LA475	ARABIC RDG/WRTG THRU MEDIA
LA476	MILITARY SPKG/RDG - ARABIC
LA483	ARAB CIVILIZATION I
LA484	ARAB CIVILIZATION II
LA485	ARABIC LITERATURE I
LA486	ARABIC LITERATURE II
LA492	ARABIC LITERATURE III
LN440A	ARABIC IN CULTURAL CONTEXT

OR

<b>Persian</b>	Choose 3 of 5
LN440Z	PERSIAN IN CULTURAL CONTEXT
LZ371	INTENSIVE INTERMEDIATE PERSIAN
LZ372	PERSIAN FOR ORAL & WRIT COMM
LZ475	PERSIAN RDG/WRTG THRU MEDIA
LZ484	PERSIAN CIVILIZATION
<b>AND</b>	

Choose one course from the following regional track and one course from the regional and comparative studies course track. Any course taken from the Regional Track cannot double-count with the course chosen for the Regional and Comparative Studies Track. All pre-requisites for any courses on these lists should be taken prior to taking the chosen course from either track.

<b>Middle East Regional Track</b>	Choose 1 of 4
EV376	GEOGRAPHY OF THE MIDDLE EAST
HI339	THE MODERN MIDDLE EAST
HI349	THE MIDDLE EAST TO 1798
SS383	POLITICS & GOVT-MIDDLE EAST
<b>AND</b>	
<b>Regional and Comparative Studies Track</b>	Choose 1 of 23
DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV376	GEOGRAPHY OF THE MIDDLE EAST
EV482	MILITARY GEOGRAPHY
HI339	THE MODERN MIDDLE EAST
HI344	MODERN DIPLOMACY
HI349	THE MIDDLE EAST TO 1798
HI358	STRATEGY, POLICY & GENERALSHIP
HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
LW481	INTERNATIONAL LAW
MG472	INTERNATIONAL MANAGEMENT
SS366	COMPARATIVE POLITICS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS383	POLITICS & GOVT-MIDDLE EAST
SS465	TERRORISM: NEW CHALLENGES
SS475	DEMOCRATIZATION
SS479	INTERNATIONAL ORGANIZATION
SS484	INTERNATIONAL ECONOMICS
SS486	INTERNATIONAL SECURITY SEMINAR
SS487	INT'L POLITICAL ECONOMY

## 2021 Regional Studies Minor - Eurasia Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
RSU0N	Regional Studies Minor - Eurasia	Regional Studies Minor - Eurasia	Regional Studies Minor - Eurasia	0	5

## 2021 Regional Studies Minor - Eurasia Tracks

<b>Subject Area</b>	<b>Description</b>
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The course of instruction for the Regional Studies Minor will consist of five courses that form a coherent, interdisciplinary study of a geographical region. Three of the courses must be in a foreign language at the 300 or 400 level. The other two courses must be regional or comparative electives. For any Single or Dual Foreign Language majors choosing this minor, exceptions can be made to the language requirement if all possible language courses for the Cadets' chosen region have been completed as part of the major. Cadets who choose the Foreign Area Studies: Eurasia (FSU1) major are not allowed to choose this minor.

### Language Courses

Take three courses at the 300-level (or higher) in the following language. Any courses taken to fulfill the requirements for this minor are eligible for double-counting practices, including any that are taken to fulfill core, major or minor curricular components. Three courses must be unique to this minor.

<b>Russian</b>	Choose 3 of 10
LN440R	RUSSIAN IN CULTURAL CONTEXT
LR371	INTENSIVE INTERMEDIATE RUSSIAN
LR372	RUSSIAN FOR ORAL & WRIT COMM
LR475	RUSSIAN RDG/WRITG THRU MEDIA
LR476	MILITARY SPKG/RDG - RUSSIAN
LR483	RUSSIAN CIV I
LR484	RUSSIAN CIV II
LR485	SURVEY OF RUSSIAN LITERATURE I
LR486	SURVEY OF RUSSIAN LIT. II
LR492	RUSSIAN LIFE IN FICTION

### AND

Choose one course from the following regional track and one course from the regional and comparative studies course track. Any course taken from the Regional Track cannot double-count with the course chosen for the Regional and Comparative Studies Track. All pre-requisites for any courses on these lists should be taken prior to taking the chosen course from either track.

<b>Eurasia Regional Track</b>	Choose 1 of 3
EV371	GEOGRAPHY OF RUSSIA
HI367	IMPERIAL AND SOVIET RUSSIA
SS375	GOV & POL RUSSIA & NEIGHBORS

### AND

<b>Regional and Comparative Studies Track</b>	Choose 1 of 22
DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV371	GEOGRAPHY OF RUSSIA
EV482	MILITARY GEOGRAPHY
HI344	MODERN DIPLOMACY
HI358	STRATEGY, POLICY & GENERALSHIP
HI367	IMPERIAL AND SOVIET RUSSIA
HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
LW481	INTERNATIONAL LAW
MG472	INTERNATIONAL MANAGEMENT
SS366	COMPARATIVE POLITICS
SS375	GOV & POL RUSSIA & NEIGHBORS
SS381	CULTURAL/POLIT ANTHROPOLOGY

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SS465	TERRORISM: NEW CHALLENGES
SS475	DEMOCRATIZATION
SS479	INTERNATIONAL ORGANIZATION
SS484	INTERNATIONAL ECONOMICS
SS486	INTERNATIONAL SECURITY SEMINAR
SS487	INT'L POLITICAL ECONOMY

## Department of Geography and Environmental Engineering

### 2021 Environmental Engineering Studies Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
EES0	Environmental Engineering Studies	Environmental Engineering Studies Major	Environmental Engineering Studies	14	0

### 2021 Environmental Engineering Studies Major Tracks

Subject Area	Description
<b>Required Courses</b>	Choose 11 of 11
EE301	FUNDAMENTALS OF ELEC ENGIN
EV301	ENV SCIENCE FOR ENGR & SCIEN
EV388A	PHYSICAL GEOLOGY
EV396	ENVIRONMENTAL BIOLOGICAL SYS
EV397	AIR POLLUTION ENGINEERING
EV401	PHYS & CHEM TREATMENT
EV402	BIOCHEMICAL TREATMENT
EV481	WATER RESOURCES PLAN & DESIGN
EV490	ADV ENVIRON ENG DESIGN
MC311	THERMAL-FLUID SYSTEMS I
XS391	PRIN & APPL OF ENV CHEM
<b>AND</b>	
<b>Directed Electives</b>	Choose 2 of 4
EV394	HYDROGEOLOGY/HYDRAULIC SYSTEMS
EV488	SOLID & HAZ WASTE TREAT & REMD
MA366	APPLIED ENGINEERING MATH
MC300	FUND OF ENGR MECH AND DESIGN
<b>AND</b>	
<b>Environmental Field Electives</b>	Choose 1 of 29
CE350	INFRASTRUCTURE ENGINEERING
CE371	SOIL MECHANICS/FNDTN ENGNRG
CE380	HYDROLOGY/HYDRAULIC DESIGN
CE450	CONSTRUCTION MANAGEMENT
CH362	MASS & ENERGY BALANCES
EE377	ELECTRICAL POWER ENGNRNG
EM380	ENGINEERING MATERIALS
EM381	ENGINEERING ECONOMY
EM411	PROJECT MANAGEMENT
EV377	REMOTE SENSING
EV380	SURVEYING
EV388B	GEOMORPHOLOGY
EV391B	NATURAL HAZARDS AND RISK
EV394	HYDROGEOLOGY/HYDRAULIC SYSTEMS
EV398	GEOG INFORMATION SYSTEMS
EV399A	GEOLOGY FIELD COURSE
EV485	SPEC TOPICS-GEOG & ENVRNMNT
EV488	SOLID & HAZ WASTE TREAT & REMD
EV489A	ADVANCED INDIVIDUAL STUDY I

EV489B	ADVANCED INDIVIDUAL STUDY II
MC300	FUND OF ENGR MECH AND DESIGN
MC312	THERMAL-FLUID SYSTEMS II
MC364	MECHANICS OF MATERIALS
MC380	ENGINEERING MATERIALS
ME350	INTRO THERMAL SYS W/ ARMY APPL
ME370	COMPUTER AIDED DESIGN
ME472	ENERGY CONVERSION SYSTEMS
SE375	STATISTICS FOR ENGINEERS
SE385	DECISION ANALYSIS

## 2021 Environmental Science Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
ESC1	Environmental Science	Environmental Science Major	Environmental Science	5	8

## 2021 Environmental Science Major Tracks

Subject Area	Description
<b>Foundation Courses</b>	Choose 3 of 3
EV310	AQUATIC SCIENCE
EV388A	PHYSICAL GEOLOGY
EV471	ECOLOGY
<b>AND</b>	
<b>Atmosphere Course</b>	Choose 1 of 2
EV387	METEOROLOGY
EV389B	CLIMATOLOGY
<b>AND</b>	
<b>Tools Elective</b>	Choose 1 of 3
CH387	HUMAN PHYSIOLOGY
EV377	REMOTE SENSING
EV398	GEOG INFORMATION SYSTEMS
<b>AND</b>	
<b>Depth Electives</b>	Choose 2 of 7
CH383	ORGANIC CHEMISTRY I
CH384	ORGANIC CHEMISTRY II
EV391A	LAND USE PLAN & MGT
EV391B	NATURAL HAZARDS AND RISK
EV396	ENVIRONMENTAL BIOLOGICAL SYS
EV398	GEOG INFORMATION SYSTEMS
XS391	PRIN & APPL OF ENV CHEM
<b>AND</b>	
<b>Field Elective</b>	Choose 2 of 47
CH383	ORGANIC CHEMISTRY I
CH384	ORGANIC CHEMISTRY II
CH385	INTRODUCTION TO CELL BIOLOGY
CH387	HUMAN PHYSIOLOGY
CH388	GENETICS

CH457	MICROBIOLOGY
CH460	HUMAN ANATOMY
CH473	BIOCHEMISTRY
CH481	PHYSICAL CHEMISTRY I
DS350	PERSUASIVE COMMUNICATIONS
EM381	ENGINEERING ECONOMY
EV371	GEOGRAPHY OF RUSSIA
EV372	GEOGRAPHY OF ASIA
EV373	GEOGRAPHY OF LATIN AMERICA
EV375	GEOGRAPHY OF AFRICA
EV376	GEOGRAPHY OF THE MIDDLE EAST
EV377	REMOTE SENSING
EV378	CARTOGRAPHY
EV380	SURVEYING
EV384	GEOGRAPHY OF NORTH AMERICA
EV386	GEOGRAPHY OF EUROPE
EV387	METEOROLOGY
EV388B	GEOMORPHOLOGY
EV390B	URBAN GEOGRAPHY
EV391A	LAND USE PLAN & MGT
EV391B	NATURAL HAZARDS AND RISK
EV394	HYDROGEOLOGY/HYDRAULIC SYSTEMS
EV396	ENVIRONMENTAL BIOLOGICAL SYS
EV397	AIR POLLUTION ENGINEERING
EV398	GEOG INFORMATION SYSTEMS
EV482	MILITARY GEOGRAPHY
EV489A	ADVANCED INDIVIDUAL STUDY I
LW473	ENVIRONMENTAL LAW
LW481	INTERNATIONAL LAW
MA363	VECTOR CALCULUS AND ODE
MA366	APPLIED ENGINEERING MATH
MA376	APPLIED STATISTICS
MA391	MATHEMATICAL MODELING
MA396	NUM METH SOLUTIONS DIFF EQNS
MA476	MATHEMATICAL STATISTICS
PL396	SNA FOR PUBLIC POLICY
PY329	TOPICS IN ETHICS
PY350	PHILOSOPHY OF SCIENCE
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS387	PUBLIC FINANCE
SS485	GOV & POLITICS SUB-SAHARAN AFR
XS391	PRIN & APPL OF ENV CHEM

**AND**

**Complementary Support Course - Required** Choose 1 of 1

The CSCs for this major are divided between one required and two elective courses. The CSCs will provide foundational math and science support for cadets in this major

EV365	GEOGRAPHY OF GLOBAL CULTURES
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**AND**

**Complementary Support Course - Biology** Choose 1 of 2

CH275	BIOLOGY
CH375	INTRODUCTION TO BIOLOGY

**AND**

**Complementary Support Course - Math-Science** Choose 1 of 6

CH457	MICROBIOLOGY
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CH473	BIOCHEMISTRY
MA205	CALCULUS II
MA376	APPLIED STATISTICS
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II

**AND**


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**Integrative Experience for the Major** Choose 1 of 1

EV487	ENVIRONMENTAL SECURITY
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**AND****Science Depth**

Cadets in this major must take CH102 to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
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**STEM Depth**

Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**AND****Curriculum Requirements**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**Core Engineering Sequence**

Cadets in this major are directed to take the Environmental Engineering sequence to support their major.

EV301	ENV SCIENCE FOR ENGR & SCIEN
EV350	ENVIRONMNTL ENGR TECHNOLOGIES
EV450	ENV ENG FOR COMMUNITY DEVELOP

**Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of EV301.

EV301	ENV SCIENCE FOR ENGR & SCIEN
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## 2021 Environmental Science Major w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
ESC1H	Environmental Science w/ Honors	Environmental Science Major w/ Honors	Environmental Science w/ Honors	1	1

## 2021 Environmental Science Major w/ Honors Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
Take EV489A which requires individual research, a written report, and a formal presentation of research, analysis, and conclusions. You cannot double count EV489A in satisfying both field elective and honors requirements.	
EV489A	ADVANCED INDIVIDUAL STUDY I



**AND****Additional Field Elective**

Take one additional Field Elective from the Environmental Science Field Elective list above.

**AND****Grade Requirements**

Complete the requirements of the major as shown above, and attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

## 2021 Environmental Engineering Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
EVE1	Environmental Engineering	Environmental Engineering Major	Environmental Engineering	16	3

### 2021 Environmental Engineering Major Tracks

Subject Area	Description
<b>Required Courses</b>	Choose 11 of 11
EV301	ENV SCIENCE FOR ENGR & SCIEN
EV388A	PHYSICAL GEOLOGY
EV394	HYDROGEOLOGY/HYDRAULIC SYSTEMS
EV396	ENVIRONMENTAL BIOLOGICAL SYS
EV397	AIR POLLUTION ENGINEERING
EV401	PHYS & CHEM TREATMENT
EV402	BIOCHEMICAL TREATMENT
EV481	WATER RESOURCES PLAN & DESIGN
EV488	SOLID & HAZ WASTE TREAT & REMD
MC311	THERMAL-FLUID SYSTEMS I
XS391	PRIN & APPL OF ENV CHEM
<b>AND</b>	
<b>Environmental Field Electives</b>	Choose 3 of 23
Cadets who will graduate with honors must select EV489A as one of the three courses.	
CE350	INFRASTRUCTURE ENGINEERING
CE371	SOIL MECHANICS/FNDTN ENGNRG
CE380	HYDROLOGY/HYDRAULIC DESIGN
CE450	CONSTRUCTION MANAGEMENT
CH362	MASS & ENERGY BALANCES
EE377	ELECTRICAL POWER ENGNRNG
EM381	ENGINEERING ECONOMY
EM411	PROJECT MANAGEMENT
EV377	REMOTE SENSING
EV380	SURVEYING
EV398	GEOG INFORMATION SYSTEMS
EV485	SPEC TOPICS-GEOG & ENVRNMNT
EV489A	ADVANCED INDIVIDUAL STUDY I
EV489B	ADVANCED INDIVIDUAL STUDY II
MC300	FUND OF ENGR MECH AND DESIGN
MC312	THERMAL-FLUID SYSTEMS II
MC364	MECHANICS OF MATERIALS

MC380	ENGINEERING MATERIALS
ME370	COMPUTER AIDED DESIGN
ME472	ENERGY CONVERSION SYSTEMS
SE375	STATISTICS FOR ENGINEERS
SE385	DECISION ANALYSIS
XE442	ALTERNATIVE ENERGY ENGINEERING

**AND****Complementary Support Courses**

The following courses provide foundational math, engineering and applied science for cadets in the environmental engineering major.

**Complementary Support Course - Math** Choose 1 of 2

Cadets who take MA104 will take MA366. Cadets who take MA255 will take MA365 in place of MA366.

MA365	ADV MATH FOR ENGRS/SCIENTISTS
MA366	APPLIED ENGINEERING MATH

**AND****Complementary Support Courses - Non-Math** Choose 2 of 3

Cadets must take EE301 and either PH206 or its advanced version, PH256.

EE301	FUNDAMENTALS OF ELEC ENGIN
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II

**AND****Integrative Experience for the Major** Choose 2 of 2

EV490	ENVIRON ENG DESIGN
EV491	ADV ENVIRON ENG DESIGN

**AND****Science Depth**

Cadets in this major must take CH102 to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
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**STEM Depth**

Cadets in this major must take PH206/256 to satisfy the STEM Depth requirement.

PH206	PHYSICS II
PH256	ADVANCED PHYSICS II

**AND****Curriculum Requirements**

This section describes how cadets in this major will satisfy various curriculum requirements.

**IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the core curriculum, EE301 and other courses in the major including EV490.

EE301	FUNDAMENTALS OF ELEC ENGIN
EV490	ENVIRON ENG DESIGN

**Core Engineering Sequence**

Cadets in this major will satisfy the core engineering requirement as an ABET accredited engineering major.

**Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and several other courses in the major, including EV301.

EV301	ENV SCIENCE FOR ENGR & SCIEN
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## 2021 Environmental Engineering Major w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
EVE1H	Environmental Engineering w/ Honors	Environmental Engineering Major w/ Honors	Environmental Engineering w/ Honors	1	0

## 2021 Environmental Engineering Major w/ Honors Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
EV489A	ADVANCED INDIVIDUAL STUDY I
<b>AND</b>	

### Grade Requirements

Complete the requirements of the major as shown above, and attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

## 2021 Geography Major: Human-Environment Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
GEE0	Geography: Human-Environment	Geography Major: Human-Environment	Geography	6	7

## 2021 Geography Major: Human-Environment Tracks

Subject Area	Description
<b>Required Courses</b>	Choose 5 of 5
EV303	FOUNDATIONS IN GEOGRAPHY
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV367	GEOGRAPHIC RESEARCH METHODS
EV398	GEOG INFORMATION SYSTEMS
EV486	ENVIRONMENT AND DEVELOPMENT
<b>AND</b>	
<b>Regional Geography Course</b>	Choose 1 of 7
EV371	GEOGRAPHY OF RUSSIA
EV372	GEOGRAPHY OF ASIA
EV373	GEOGRAPHY OF LATIN AMERICA
EV375	GEOGRAPHY OF AFRICA
EV376	GEOGRAPHY OF THE MIDDLE EAST
EV384	GEOGRAPHY OF NORTH AMERICA
EV386	GEOGRAPHY OF EUROPE

**AND****Human Geography Elective**

Choose 1 of 3

EV390B

URBAN GEOGRAPHY

EV391A

LAND USE PLAN &amp; MGT

EV483

COLLOQUIUM IN GEOGRAPHY

**AND****Physical Geography Elective**

Choose 1 of 4

EV387

METEOROLOGY

EV388A

PHYSICAL GEOLOGY

EV388B

GEOMORPHOLOGY

EV389B

CLIMATOLOGY

**AND****Geography Elective**

Choose 1 of 24

EV371

GEOGRAPHY OF RUSSIA

EV372

GEOGRAPHY OF ASIA

EV373

GEOGRAPHY OF LATIN AMERICA

EV375

GEOGRAPHY OF AFRICA

EV376

GEOGRAPHY OF THE MIDDLE EAST

EV377

REMOTE SENSING

EV378

CARTOGRAPHY

EV379

PHOTOGRAMMETRY

EV380

SURVEYING

EV384

GEOGRAPHY OF NORTH AMERICA

EV386

GEOGRAPHY OF EUROPE

EV387

METEOROLOGY

EV388A

PHYSICAL GEOLOGY

EV388B

GEOMORPHOLOGY

EV389B

CLIMATOLOGY

EV390B

URBAN GEOGRAPHY

EV391A

LAND USE PLAN &amp; MGT

EV391B

NATURAL HAZARDS AND RISK

EV477

ADVANCED REMOTE SENSING

EV478

MILITARY GEOSPATIAL OPERATIONS

EV485

SPEC TOPICS-GEOG &amp; ENVRNMNT

EV487

ENVIRONMENTAL SECURITY

EV489B

ADVANCED INDIVIDUAL STUDY II

EV498

ADV GEOGRAPHIC INFORMATION SYS

**AND****Complementary Support Courses** Choose 3 of 44

For Human-Environment Track Geographers, choosing three CSCs is a 2-step process. First, in conjunction with a DAC, a Cadet narrows his/her interest to three of the five Focus Area Categories (Physical Science, Regional, Global, Philosophy/Sociology, Mathematical/Economic). Then, a Cadet chooses one course from each of those three selected Focus Areas that are appropriate for his/her interests (see DAC for a listing of courses associated with each focus area). The exception to this rule is if a pre-requisite is needed. In that case, both the prerequisite and the desired course can be selected from the same focus area.

CE371

SOIL MECHANICS/FNDTN ENGNRG

CE380

HYDROLOGY/HYDRAULIC DESIGN

HI343

MODERN GERMANY

HI344

MODERN DIPLOMACY

HI345

MODERN AFRICA

HI346

MODERN SOUTH ASIA

HI348

MODERN LATIN AMERICA

HI364

MODERN WESTERN EUROPE

HI374

HISTORY OF AFRICA

HI391

WORLD RELIGIONS

HI462	THE HISTORY OF INNOVATION
LW410	COMPARATIVE LEGAL SYSTEMS
LW473	ENVIRONMENTAL LAW
LW481	INTERNATIONAL LAW
MA376	APPLIED STATISTICS
MA394	FUNDAMENTALS/NETWORK SCIENCE
MC300	FUND OF ENGR MECH AND DESIGN
MC311	THERMAL-FLUID SYSTEMS I
MC364	MECHANICS OF MATERIALS
PL371	INTRODUCTORY SOCIOLOGY
PL377	SOCIAL INEQUALITY
PL384	SOCIOLOGICAL THEORY
PY350	PHILOSOPHY OF SCIENCE
SS364	GAME THEORY
SS366	COMPARATIVE POLITICS
SS368	ECONOMETRICS I
SS372	POLITICS AND GOV OF CHINA
SS374	POL & GOV OF KOREAS & JAPAN
SS375	GOV & POL RUSSIA & NEIGHBORS
SS377	POLITICS & GOV OF EUROPE
SS378	ADV INTL RELATIONS THEORY
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS382	MICROECONOMICS
SS383	POLITICS & GOVT-MIDDLE EAST
SS384	POLITICS & GOVT-LATIN AMER
SS385	HISTORY OF ECONOMICS
SS388	MACROECONOMICS
SS460	SEMINAR IN REGIONAL ECONOMICS
SS462	ECON OF STABILIZATION & GROWTH
SS469	ECONOMETRICS II
SS476	CONFLICT AND NEGOTIATION
SS484	INTERNATIONAL ECONOMICS
SS485	GOV & POLITICS SUB-SAHARAN AFR
SS487	INT'L POLITICAL ECONOMY

**AND****Integrative Experience for the Major**

Choose 1 of 1

EV482

MILITARY GEOGRAPHY

**AND****Science Depth**

Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II

**STEM Depth**

Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**AND****Curriculum Requirements**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>Core Engineering Sequence</b>	
Cadets in this major are required to take the Environmental Engineering Sequence.	
EV301	ENV SCIENCE FOR ENGR & SCIEN
EV350	ENVIRONMNTL ENGR TECHNOLOGIES
EV450	ENV ENG FOR COMMUNITY DEVELOP
<b>Writing-in-the-Major</b>	
Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of EV367.	
EV367	GEOGRAPHIC RESEARCH METHODS

### 2021 Geography Major: Human-Environment w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
GEE0H	Geography: Human-Environment w/ Honors	Geography Major: Human-Environment w/ Honors	Geography w/ Honors	2	0

### 2021 Geography Major: Human-Environment w/ Honors Tracks

Subject Area	Description
<b>Required Courses</b>	Choose 2 of 2
EV480	HONORS SEMINAR IN GEOGRAPHY
EV489B	ADVANCED INDIVIDUAL STUDY II
<b>AND</b>	
<b>Grade Requirements</b>	
Complete the requirements of the major as shown above, and attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.	

### 2021 Geography Major: Human Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
GEH0	Geography: Human	Geography Major: Human	Geography	6	7

### 2021 Geography Major: Human Tracks

Subject Area	Description
<b>Required Courses</b>	Choose 5 of 5
EV303	FOUNDATIONS IN GEOGRAPHY
EV365	GEOGRAPHY OF GLOBAL CULTURES

EV367	GEOGRAPHIC RESEARCH METHODS
EV398	GEOG INFORMATION SYSTEMS
EV483	COLLOQUIUM IN GEOGRAPHY
<b>AND</b>	
<b>Regional Geography Course</b>	Choose 1 of 7
EV371	GEOGRAPHY OF RUSSIA
EV372	GEOGRAPHY OF ASIA
EV373	GEOGRAPHY OF LATIN AMERICA
EV375	GEOGRAPHY OF AFRICA
EV376	GEOGRAPHY OF THE MIDDLE EAST
EV384	GEOGRAPHY OF NORTH AMERICA
EV386	GEOGRAPHY OF EUROPE
<b>AND</b>	
<b>Human Geography Elective</b>	Choose 1 of 11
EV371	GEOGRAPHY OF RUSSIA
EV372	GEOGRAPHY OF ASIA
EV373	GEOGRAPHY OF LATIN AMERICA
EV375	GEOGRAPHY OF AFRICA
EV376	GEOGRAPHY OF THE MIDDLE EAST
EV384	GEOGRAPHY OF NORTH AMERICA
EV386	GEOGRAPHY OF EUROPE
EV390B	URBAN GEOGRAPHY
EV391A	LAND USE PLAN & MGT
EV485	SPEC TOPICS-GEOG & ENVRNMNT
EV489B	ADVANCED INDIVIDUAL STUDY II
<b>AND</b>	
<b>Geography Electives</b>	Choose 2 of 25
EV371	GEOGRAPHY OF RUSSIA
EV372	GEOGRAPHY OF ASIA
EV373	GEOGRAPHY OF LATIN AMERICA
EV375	GEOGRAPHY OF AFRICA
EV376	GEOGRAPHY OF THE MIDDLE EAST
EV377	REMOTE SENSING
EV378	CARTOGRAPHY
EV379	PHOTOGRAMMETRY
EV380	SURVEYING
EV384	GEOGRAPHY OF NORTH AMERICA
EV386	GEOGRAPHY OF EUROPE
EV387	METEOROLOGY
EV388A	PHYSICAL GEOLOGY
EV388B	GEOMORPHOLOGY
EV389B	CLIMATOLOGY
EV390B	URBAN GEOGRAPHY
EV391A	LAND USE PLAN & MGT
EV391B	NATURAL HAZARDS AND RISK
EV477	ADVANCED REMOTE SENSING
EV478	MILITARY GEOSPATIAL OPERATIONS
EV485	SPEC TOPICS-GEOG & ENVRNMNT
EV486	ENVIRONMENT AND DEVELOPMENT
EV487	ENVIRONMENTAL SECURITY
EV489B	ADVANCED INDIVIDUAL STUDY II
EV498	ADV GEOGRAPHIC INFORMATION SYS
<b>AND</b>	

**Complementary Support Courses**

For Human Track Geographers, choosing three CSCs is a 2-step process. First, narrow your interest to one of the twelve focus areas, such as Asia or Cultural Geography, that are listed below. Then, work with your DAC to choose three courses from that focus area that are appropriate for your interests. All pre-requisites must be completed before courses may be taken.

<b>Cultural Geography</b>	Choose 3 of 33
EN300	LITERARY METHODOLOGIES
EN321	AMERICAN LITERATURE I
EN322	AMERICAN LITERATURE II
EN331	BRITISH LITERATURE I
EN332	BRITISH LITERATURE II
EN351	WORLD LITERATURE
EN352	POWER AND DIFFERENCE
EN355	CRITICISM COLLOQUIUM
EN362	FILM AND FILM THEORY
EN364	DRAMA
EN370	SHAKESPEARE
HI391	WORLD RELIGIONS
HI398	SOCIETY & CULTURE IN AMER HIST
HI462	THE HISTORY OF INNOVATION
HI463	RACE, ETHNICITY, NATION
LX300	3RD SEMESTER FOREIGN LANG
LX400	4TH SEMESTER FOREIGN LANG
MA376	APPLIED STATISTICS
PL371	INTRODUCTORY SOCIOLOGY
PY300	PHILOSOPHICAL METHODS
PY305	LOGICAL REASONING
PY325	MILITARY ETHICS
PY329	TOPICS IN ETHICS
PY330	POLITICAL PHILOSOPHY
PY345	PHILOSOPHY OF RELIGION
PY350	PHILOSOPHY OF SCIENCE
PY355	PHILOSOPHY OF MIND
PY360	ANCIENT PHILOSOPHY
PY370	17TH & 18TH CENTURY PHILOSOPHY
PY375	KANT & 19TH CENTURY PHILOSOPHY
SS381	CULTURAL/POLIT ANTHROPOLOGY
XH405	THE HOLOCAUST AND ITS LEGACY
XH415	GENOCIDE AND ETHNIC CLEANSING

**OR****East, South and Southeast Asia**

Choose 3 of 22

LX300 or LX400 (or even LX200) should be any Chinese, French, or Portuguese language course for which the cadet qualifies.

DS455	COMPARATIVE DEFENSE POLICY
EN300	LITERARY METHODOLOGIES
EN351	WORLD LITERATURE
HI337	CHINA-C. KINGDOM TO COMM RULE
HI346	MODERN SOUTH ASIA
HI347	ASIAN WARFARE AND POLITICS
HI359	ERA OF THE SECOND WORLD WAR
HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
LW481	INTERNATIONAL LAW
LX300	3RD SEMESTER FOREIGN LANG
LX400	4TH SEMESTER FOREIGN LANG



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MA376	APPLIED STATISTICS
SS366	COMPARATIVE POLITICS
SS372	POLITICS AND GOV OF CHINA
SS374	POL & GOV OF KOREAS & JAPAN
SS378	ADV INTL RELATIONS THEORY
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES
SS486	INTERNATIONAL SECURITY SEMINAR
XH415	GENOCIDE AND ETHNIC CLEANSING

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**OR****Europe**

Choose 3 of 33

LX300 or LX400 (or even LX200) should be any French, German, Portuguese, Spanish, or Russian language course for which the cadet qualifies.

DS455	COMPARATIVE DEFENSE POLICY
EN331	BRITISH LITERATURE I
EN332	BRITISH LITERATURE II
EN352	POWER AND DIFFERENCE
HI338	WARFARE IN AGE OF REVOLUTIONS
HI341	THE AGE OF EXPLORATION
HI342	THE BRITISH ISLES SINCE 1688
HI343	MODERN GERMANY
HI359	ERA OF THE SECOND WORLD WAR
HI361	MEDIEVAL EUROPE
HI362	POLITICS/SOC-EARLY MOD EURO
HI364	MODERN WESTERN EUROPE
HI365	THE ANCIENT WORLD
HI367	IMPERIAL AND SOVIET RUSSIA
HI368	MOD CENTRAL & E. EUR, 1896-1989
HI370	ANCIENT & MEDIEVAL WARFARE
HI376	EARLY MODERN WARFARE
HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
LW481	INTERNATIONAL LAW
LX300	3RD SEMESTER FOREIGN LANG
LX400	4TH SEMESTER FOREIGN LANG
MA376	APPLIED STATISTICS
PY360	ANCIENT PHILOSOPHY
PY370	17TH & 18TH CENTURY PHILOSOPHY
PY375	KANT & 19TH CENTURY PHILOSOPHY
SS366	COMPARATIVE POLITICS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES
SS484	INTERNATIONAL ECONOMICS
SS486	INTERNATIONAL SECURITY SEMINAR
XH405	THE HOLOCAUST AND ITS LEGACY

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**OR****Latin America**

Choose 3 of 19

LX300 or LX400 (or even LX200) should be any language course for which the cadet qualifies.

DS455	COMPARATIVE DEFENSE POLICY
DS460	INSURGENCY & COUNTERINSURGENCY
EN351	WORLD LITERATURE

EN352	POWER AND DIFFERENCE
HI341	THE AGE OF EXPLORATION
HI348	MODERN LATIN AMERICA
HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
LW481	INTERNATIONAL LAW
LX300	3RD SEMESTER FOREIGN LANG
LX400	4TH SEMESTER FOREIGN LANG
MA376	APPLIED STATISTICS
SS366	COMPARATIVE POLITICS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS384	POLITICS & GOVT-LATIN AMER
SS385	HISTORY OF ECONOMICS
SS473	AMERICAN FOREIGN POLICY
SS475	DEMOCRATIZATION
SS486	INTERNATIONAL SECURITY SEMINAR
<b>OR</b>	
<b>Africa</b>	Choose 3 of 21
LX300 or LX400 (or even LX200) should be any language course for which the cadet qualifies.	
DS360	SP OPNS/LOW-INTENSITY CONFLICT
DS455	COMPARATIVE DEFENSE POLICY
DS460	INSURGENCY & COUNTERINSURGENCY
EN351	WORLD LITERATURE
HI341	THE AGE OF EXPLORATION
HI345	MODERN AFRICA
HI374	HISTORY OF AFRICA
HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
LW481	INTERNATIONAL LAW
LX300	3RD SEMESTER FOREIGN LANG
LX400	4TH SEMESTER FOREIGN LANG
MA376	APPLIED STATISTICS
SS366	COMPARATIVE POLITICS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	HISTORY OF ECONOMICS
SS473	AMERICAN FOREIGN POLICY
SS475	DEMOCRATIZATION
SS485	GOV & POLITICS SUB-SAHARAN AFR
SS486	INTERNATIONAL SECURITY SEMINAR
XH415	GENOCIDE AND ETHNIC CLEANSING
<b>OR</b>	
<b>Middle East</b>	Choose 3 of 25
LX300 or LX400 (or even LX200) should be any Arabic, Persian, Hebrew, French or Russian course for which the cadet qualifies.	
DS360	SP OPNS/LOW-INTENSITY CONFLICT
DS455	COMPARATIVE DEFENSE POLICY
DS460	INSURGENCY & COUNTERINSURGENCY
EN351	WORLD LITERATURE
EN352	POWER AND DIFFERENCE
HI339	THE MODERN MIDDLE EAST
HI346	MODERN SOUTH ASIA
HI349	THE MIDDLE EAST TO 1798

HI365	THE ANCIENT WORLD
HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
LW481	INTERNATIONAL LAW
LX300	3RD SEMESTER FOREIGN LANG
LX400	4TH SEMESTER FOREIGN LANG
MA376	APPLIED STATISTICS
PY360	ANCIENT PHILOSOPHY
SS366	COMPARATIVE POLITICS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS383	POLITICS & GOVT-MIDDLE EAST
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES
SS466	COMBATING TERRORISM
SS475	DEMOCRATIZATION
SS486	INTERNATIONAL SECURITY SEMINAR
XH415	GENOCIDE AND ETHNIC CLEANSING

**OR****Russia**

Choose 3 of 26

LX300 or LX400 (or even LX200) should be any Russian course for which the cadet qualifies.

DS320	LANDPOWER
DS360	SP OPNS/LOW-INTENSITY CONFLICT
DS455	COMPARATIVE DEFENSE POLICY
EN351	WORLD LITERATURE
HI344	MODERN DIPLOMACY
HI355	WARFARE-AGE OF INDUSTRIALIZTN
HI357	WARFARE SINCE 1945
HI359	ERA OF THE SECOND WORLD WAR
HI367	IMPERIAL AND SOVIET RUSSIA
HI368	MOD CENTRAL & E. EUR,1896-1989
HI372	US FGN RELATIONS SINCE 1898
HI391	WORLD RELIGIONS
HI397	COLD WAR AMERICA
LW410	COMPARATIVE LEGAL SYSTEMS
LW481	INTERNATIONAL LAW
LX300	3RD SEMESTER FOREIGN LANG
LX400	4TH SEMESTER FOREIGN LANG
MA376	APPLIED STATISTICS
SS366	COMPARATIVE POLITICS
SS375	GOV & POL RUSSIA & NEIGHBORS
SS377	POLITICS & GOV OF EUROPE
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	HISTORY OF ECONOMICS
SS473	AMERICAN FOREIGN POLICY
SS486	INTERNATIONAL SECURITY SEMINAR
XH415	GENOCIDE AND ETHNIC CLEANSING

**OR****North America**

Choose 3 of 22

LX300 or LX400 (or even LX200) should be any French or Spanish course for which the cadet qualifies.

EN321	AMERICAN LITERATURE I
EN322	AMERICAN LITERATURE II
HI340	COLONIAL AMERICA
HI369	AMERICAN FRONTIERS

HI372	US FGN RELATIONS SINCE 1898
HI390	EARLY NATIONAL AMERICA
HI391	WORLD RELIGIONS
HI394	REVOLUTIONARY AMERICA
HI395	HIST OF CIVIL WAR AMERICA
HI396	MAKING OF MODERN AMERICA
HI397	COLD WAR AMERICA
HI398	SOCIETY & CULTURE IN AMER HIST
HI463	RACE, ETHNICITY, NATION
LX300	3RD SEMESTER FOREIGN LANG
LX400	4TH SEMESTER FOREIGN LANG
MA376	APPLIED STATISTICS
PL377	SOCIAL INEQUALITY
PL393	CRIMINOLOGY-CRIM JUST SYSTM
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS464	HOMELAND SECURITY
SS472	THE AM STATE & THE SOLDIER
SS481	POLITICS OF DEFENSE POLICY
<b>OR</b>	
<b>Economic Geography</b>	Choose 3 of 17
HI462	THE HISTORY OF INNOVATION
HI463	RACE, ETHNICITY, NATION
LW473	ENVIRONMENTAL LAW
MA376	APPLIED STATISTICS
MA394	FUNDAMENTALS/NETWORK SCIENCE
PL371	INTRODUCTORY SOCIOLOGY
PL377	SOCIAL INEQUALITY
PY350	PHILOSOPHY OF SCIENCE
SS364	GAME THEORY
SS368	ECONOMETRICS I
SS382	MICROECONOMICS
SS385	HISTORY OF ECONOMICS
SS388	MACROECONOMICS
SS460	SEMINAR IN REGIONAL ECONOMICS
SS469	ECONOMETRICS II
SS484	INTERNATIONAL ECONOMICS
SS487	INT'L POLITICAL ECONOMY
<b>OR</b>	
<b>Behavioral Geography</b>	Choose 3 of 11
EP333	CULTURAL STUDIES
MA376	APPLIED STATISTICS
PL371	INTRODUCTORY SOCIOLOGY
PL373	LIFE CYCLE & HUMAN DEVEL
PL376	PERSONALITY & AB PSYCH
PL383	EXPERIMENTAL SOCIAL PSYCHOLOGY
PL384	SOCIOLOGICAL THEORY
PL390	BIOLOGICAL PSYCHOLOGY
PL392	COGNITIVE PSYCHOLOGY
PY355	PHILOSOPHY OF MIND
SS381	CULTURAL/POLIT ANTHROPOLOGY
<b>OR</b>	
<b>Political Geography/Geopolitics/Military Geography</b>	Choose 3 of 36
DS320	LANDPOWER

DS360	SP OPNS/LOW-INTENSITY CONFLICT
DS370	STRATEGY AND POLICY
DS455	COMPARATIVE DEFENSE POLICY
DS460	INSURGENCY & COUNTERINSURGENCY
EN300	LITERARY METHODOLOGIES
EN353	WAR LITERATURE
HI344	MODERN DIPLOMACY
HI347	ASIAN WARFARE AND POLITICS
HI355	WARFARE-AGE OF INDUSTRIALIZTN
HI356	WAR AT SEA AND IN THE AIR
HI357	WARFARE SINCE 1945
HI358	STRATEGY, POLICY & GENERALSHIP
HI359	ERA OF THE SECOND WORLD WAR
HI370	ANCIENT & MEDIEVAL WARFARE
HI372	US FGN RELATIONS SINCE 1898
HI376	EARLY MODERN WARFARE
HI381	HISTORY OF IRREGULAR WARFARE
HI385	WAR & ITS THEORISTS
LW474	LAW OF ARMED CONFLICT
LW481	INTERNATIONAL LAW
MA376	APPLIED STATISTICS
PL482	ARMED FORCES AND SOCIETY
SS364	GAME THEORY
SS386	POLITICAL THOUGHT
SS464	HOMELAND SECURITY
SS465	TERRORISM: NEW CHALLENGES
SS466	COMBATING TERRORISM
SS472	THE AM STATE & THE SOLDIER
SS473	AMERICAN FOREIGN POLICY
SS475	DEMOCRATIZATION
SS486	INTERNATIONAL SECURITY SEMINAR
SS487	INT'L POLITICAL ECONOMY
XH405	THE HOLOCAUST AND ITS LEGACY
XH415	GENOCIDE AND ETHNIC CLEANSING
XH467	WINNING THE PEACE
<b>OR</b>	
<b>Civil/Military Operations</b>	Choose 3 of 27
DS455	COMPARATIVE DEFENSE POLICY
DS460	INSURGENCY & COUNTERINSURGENCY
EN352	POWER AND DIFFERENCE
HI344	MODERN DIPLOMACY
HI372	US FGN RELATIONS SINCE 1898
LW410	COMPARATIVE LEGAL SYSTEMS
LW473	ENVIRONMENTAL LAW
LW474	LAW OF ARMED CONFLICT
LW481	INTERNATIONAL LAW
MA376	APPLIED STATISTICS
PL371	INTRODUCTORY SOCIOLOGY
PL372	SOCIOLOGY OF THE FAMILY
PL373	LIFE CYCLE & HUMAN DEVEL
PL376	PERSONALITY & AB PSYCH
PL377	SOCIAL INEQUALITY
PL384	SOCIOLOGICAL THEORY

PL392	COGNITIVE PSYCHOLOGY
PL393	CRIMINOLOGY-CRIM JUST SYSTM
PL482	ARMED FORCES AND SOCIETY
PY325	MILITARY ETHICS
SS366	COMPARATIVE POLITICS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS473	AMERICAN FOREIGN POLICY
SS475	DEMOCRATIZATION
SS476	CONFLICT AND NEGOTIATION
XH415	GENOCIDE AND ETHNIC CLEANSING
XH467	WINNING THE PEACE

**AND****Integrative Experience for the Major**

Choose 1 of 1

EV482

MILITARY GEOGRAPHY

**AND****Science Depth**

Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II

**STEM Depth**

Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**AND****Curriculum Requirements**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**Core Engineering Sequence**

Cadets in this major may choose any approved three course engineering sequence.

**Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of EV367.

EV367	GEOGRAPHIC RESEARCH METHODS
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## 2021 Geography Major: Human w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
GEH0H	Geography: Human w/ Honors	Geography Major: Human w/ Honors	Geography w/ Honors	2	0

### 2021 Geography Major: Human w/ Honors Tracks

Subject Area	Description
<b>Required Courses</b>	Choose 2 of 2
EV480	HONORS SEMINAR IN GEOGRAPHY
EV489B	ADVANCED INDIVIDUAL STUDY II
<b>AND</b>	
<b>Grade Requirements</b>	
Complete the requirements of the major as shown above, and attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.	

### 2021 Geography Minor Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
GEO0N	Geography Minor	Geography Minor	Geography Minor	3	3

### 2021 Geography Minor Tracks

Subject Area	Description
Cadets majoring in Geography may not pursue a minor in Geography as well.	
<b>Required Courses</b>	Choose 3 of 3
EV203	PHYSICAL GEOGRAPHY
EV303	FOUNDATIONS IN GEOGRAPHY
EV365	GEOGRAPHY OF GLOBAL CULTURES
<b>AND</b>	
<b>Geography Electives</b>	Choose 3 of 28
EV367	GEOGRAPHIC RESEARCH METHODS
EV371	GEOGRAPHY OF RUSSIA
EV372	GEOGRAPHY OF ASIA
EV373	GEOGRAPHY OF LATIN AMERICA
EV375	GEOGRAPHY OF AFRICA
EV376	GEOGRAPHY OF THE MIDDLE EAST
EV377	REMOTE SENSING
EV378	CARTOGRAPHY
EV379	PHOTOGRAMMETRY
EV380	SURVEYING
EV384	GEOGRAPHY OF NORTH AMERICA
EV386	GEOGRAPHY OF EUROPE
EV387	METEOROLOGY
EV388B	GEOMORPHOLOGY
EV389B	CLIMATOLOGY
EV390B	URBAN GEOGRAPHY
EV391A	LAND USE PLAN & MGT
EV391B	NATURAL HAZARDS AND RISK
EV398	GEOG INFORMATION SYSTEMS
EV477	ADVANCED REMOTE SENSING

EV478	MILITARY GEOSPATIAL OPERATIONS
EV482	MILITARY GEOGRAPHY
EV483	COLLOQUIUM IN GEOGRAPHY
EV485	SPEC TOPICS-GEOG & ENVRNMNT
EV486	ENVIRONMENT AND DEVELOPMENT
EV487	ENVIRONMENTAL SECURITY
EV489B	ADVANCED INDIVIDUAL STUDY II
EV498	ADV GEOGRAPHIC INFORMATION SYS

## 2021 Geography Major: Physical Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
GEP0	Geography: Physical	Geography Major: Physical	Geography	5	8

## 2021 Geography Major: Physical Tracks

Subject Area	Description
<b>Required Courses</b>	Choose 4 of 4
EV303	FOUNDATIONS IN GEOGRAPHY
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV367	GEOGRAPHIC RESEARCH METHODS
EV398	GEOG INFORMATION SYSTEMS
<b>AND</b>	
<b>Physical Geography Electives</b>	Choose 3 of 5
EV387	METEOROLOGY
EV388A	PHYSICAL GEOLOGY
EV388B	GEOMORPHOLOGY
EV389B	CLIMATOLOGY
EV391B	NATURAL HAZARDS AND RISK
<b>AND</b>	
<b>Geography Tools Elective</b>	Choose 1 of 3
EV377	REMOTE SENSING
EV390B	URBAN GEOGRAPHY
EV391A	LAND USE PLAN & MGT
<b>AND</b>	
<b>Free Geography Elective</b>	Choose 1 of 17
EV371	GEOGRAPHY OF RUSSIA
EV372	GEOGRAPHY OF ASIA
EV373	GEOGRAPHY OF LATIN AMERICA
EV375	GEOGRAPHY OF AFRICA
EV376	GEOGRAPHY OF THE MIDDLE EAST
EV379	PHOTOGRAMMETRY
EV384	GEOGRAPHY OF NORTH AMERICA
EV386	GEOGRAPHY OF EUROPE
EV394	HYDROGEOLOGY/HYDRAULIC SYSTEMS
EV396	ENVIRONMENTAL BIOLOGICAL SYS
EV397	AIR POLLUTION ENGINEERING
EV471	ECOLOGY



EV477	ADVANCED REMOTE SENSING
EV483	COLLOQUIUM IN GEOGRAPHY
EV485	SPEC TOPICS-GEOG & ENVRNMNT
EV486	ENVIRONMENT AND DEVELOPMENT
EV489B	ADVANCED INDIVIDUAL STUDY II

**AND****Complementary Support Courses**

Choose 3 of 28

Cadet must work with DAC to choose 3 courses that are appropriate for his/her interests. The courses should be topically or disciplinarily related. All pre-requisites must be completed before courses may be taken.

CE371	SOIL MECHANICS/FNDTN ENGNRG
CE380	HYDROLOGY/HYDRAULIC DESIGN
CH375	INTRODUCTION TO BIOLOGY
CH387	HUMAN PHYSIOLOGY
HI462	THE HISTORY OF INNOVATION
IT300	PROGRAMMING FUNDAMENTALS
LW473	ENVIRONMENTAL LAW
MA364	ENGINEERING MATHEMATICS
MA365	ADV MATH FOR ENGRS/SCIENTISTS
MA376	APPLIED STATISTICS
MA394	FUNDAMENTALS/NETWORK SCIENCE
MC300	FUND OF ENGR MECH AND DESIGN
MC311	THERMAL-FLUID SYSTEMS I
MC312	THERMAL-FLUID SYSTEMS II
MC364	MECHANICS OF MATERIALS
ME472	ENERGY CONVERSION SYSTEMS
ME480	HEAT TRANSFER
PH456	SCIENCE AND POLICY
PH472	SPACE AND ASTROPHYSICS
PL371	INTRODUCTORY SOCIOLOGY
PL372	SOCIOLOGY OF THE FAMILY
PL390	BIOLOGICAL PSYCHOLOGY
PL392	COGNITIVE PSYCHOLOGY
PY350	PHILOSOPHY OF SCIENCE
SE300	INTRO TO SYSTEMS ENGINEERING
SE301	FNDTN ENGIN DSGN & SYS MGMT
SE370	COMPUTER AIDED SYSTEMS ENG
SE385	DECISION ANALYSIS

**AND****Integrative Experience for the Major**

Choose 1 of 1

EV482	MILITARY GEOGRAPHY
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**AND****Science Depth**

Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II

**STEM Depth**

Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**AND**

**Curriculum Requirements**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305

CYBER FOUNDATIONS

CY355

CYBER FOUNDATIONS - COMPUTING

**Core Engineering Sequence**

Cadets in this major are required to take the Environmental Engineering Sequence.

EV301

ENV SCIENCE FOR ENGR &amp; SCIEN

EV350

ENVIRONMNTL ENGR TECHNOLOGIES

EV450

ENV ENG FOR COMMUNITY DEVELOP

**Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of EV367.

EV367

GEOGRAPHIC RESEARCH METHODS

**2021 Geography Major: Physical w/ Honors Curriculum**

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
GEP0H	Geography: Physical w/ Honors	Geography Major: Physical w/ Honors	Geography w/ Honors	2	0

**2021 Geography Major: Physical w/ Honors Tracks**

Subject Area	Description
<b>Required Courses</b>	Choose 2 of 2
EV480	HONORS SEMINAR IN GEOGRAPHY
EV489B	ADVANCED INDIVIDUAL STUDY II
<b>AND</b>	

**Grade Requirements**

Complete the requirements of the major as shown above, and attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

**2021 Geospatial Information Science Major Curriculum**

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
GIS1	Geospatial Information Science	Geospatial Information Science Major	Geospatial Information Science	7	6

**2021 Geospatial Information Science Major Tracks**

Subject Area	Description
<b>Required Courses</b>	Choose 6 of 6
EV377	REMOTE SENSING
EV378	CARTOGRAPHY
EV398	GEOG INFORMATION SYSTEMS
EV477	ADVANCED REMOTE SENSING
EV478	MILITARY GEOSPATIAL OPERATIONS
EV498	ADV GEOGRAPHIC INFORMATION SYS
<b>AND</b>	
<b>Spatial Data Acquisition Block</b>	Choose 1 of 2
EV379	PHOTOGRAMMETRY
EV380	SURVEYING
<b>AND</b>	
<b>Restricted Regional Studies Elective</b>	Choose 1 of 13
EV371	GEOGRAPHY OF RUSSIA
EV372	GEOGRAPHY OF ASIA
EV373	GEOGRAPHY OF LATIN AMERICA
EV375	GEOGRAPHY OF AFRICA
EV376	GEOGRAPHY OF THE MIDDLE EAST
EV384	GEOGRAPHY OF NORTH AMERICA
EV386	GEOGRAPHY OF EUROPE
SS372	POLITICS AND GOV OF CHINA
SS374	POL & GOV OF KOREAS & JAPAN
SS375	GOV & POL RUSSIA & NEIGHBORS
SS377	POLITICS & GOV OF EUROPE
SS383	POLITICS & GOVT-MIDDLE EAST
SS384	POLITICS & GOVT-LATIN AMER
<b>AND</b>	
<b>Restrictive Environmental Analysis Elective</b>	Choose 1 of 11
**Courses selected in the Spatial Data Acquisition Block may not be selected from the Restricted Environmental Analysis Electives list.	
EV300	ENVIRONMENTAL SCIENCE
EV379	PHOTOGRAMMETRY
EV380	SURVEYING
EV388A	PHYSICAL GEOLOGY
EV388B	GEOMORPHOLOGY
EV389B	CLIMATOLOGY
EV390B	URBAN GEOGRAPHY
EV391A	LAND USE PLAN & MGT
EV391B	NATURAL HAZARDS AND RISK
EV397	AIR POLLUTION ENGINEERING
EV481	WATER RESOURCES PLAN & DESIGN
<b>AND</b>	
<b>Complementary Support Course - Required</b>	Choose 1 of 1
The CSCs for this major are divided between one required and two elective courses. The CSCs will provide foundational geography support and enrichment support for cadets in this major. Cadets may also choose three other courses to fulfill the complementary support course requirement at the discretion of the GIS Program Director.	
EV365	GEOGRAPHY OF GLOBAL CULTURES
<b>AND</b>	
<b>Complementary Support Course - Electives</b>	Choose 2 of 24
CE350	INFRASTRUCTURE ENGINEERING
CE371	SOIL MECHANICS/FNDTN ENGNRG

CE380	HYDROLOGY/HYDRAULIC DESIGN
CS393	DATABASE SYSTEMS
EV387	METEOROLOGY
EV388A	PHYSICAL GEOLOGY
EV388B	GEOMORPHOLOGY
EV391B	NATURAL HAZARDS AND RISK
EV471	ECOLOGY
EV487	ENVIRONMENTAL SECURITY
IT383	USER INTERFACE DEVELOPMENT
MA366	APPLIED ENGINEERING MATH
MA376	APPLIED STATISTICS
MA383	FOUNDATIONS OF MATH
ME370	COMPUTER AIDED DESIGN
PL377	SOCIAL INEQUALITY
PL393	CRIMINOLOGY-CRIM JUST SYSTM
SE301	FNDTN ENGIN DSGN & SYS MGMT
SE370	COMPUTER AIDED SYSTEMS ENG
SP471	ASTRONAUTICS
SP472	SPACE PHYSICS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS464	HOMELAND SECURITY
SS465	TERRORISM: NEW CHALLENGES

**AND**


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**Integrative Experience for the Major** Choose 1 of 1

EV482	MILITARY GEOGRAPHY
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**AND****Science Depth**

Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II

**STEM Depth**

Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**AND****Curriculum Requirements**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**Core Engineering Sequence**

Cadets in this major may choose any authorized engineering sequence.

**Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of EV477 and EV478.

EV477	ADVANCED REMOTE SENSING
EV478	MILITARY GEOSPATIAL OPERATIONS

## 2021 Geospatial Information Science Major w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
GIS1H	Geospatial Information Science w/ Honors	Geospatial Information Science Major w/ Honors	Geospatial Information Science w/ Honors	0	2

## 2021 Geospatial Information Science Major w/ Honors Tracks

Subject Area	Description
<b>Senior Thesis/Project Requirement</b>	
Completion of a senior thesis or project is required. To graduate w/ Honors the following two options are available.	
<b>Required Course</b>	Choose 2 of 2
EV489A	ADVANCED INDIVIDUAL STUDY I
EV489B	ADVANCED INDIVIDUAL STUDY II
<b>OR</b>	
<b>Alternate Course</b>	
EV489A is designed to satisfy the research/design project requirement. EV489A and an additional course from the GIS electives list in lieu of EV489B may be taken.	
<b>AND</b>	
<b>Grade Requirements</b>	
Cadets must complete the requirements of the major as shown above, and achieve a final APSC of at least 3.0 in the core curriculum and a final APSC of at least 3.5 in the major.	

## Department of History

### 2021 History Major: Military Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
HMH2	History Major: Military	History Major: Military	History: Military	13	0

### 2021 History Major: Military Tracks

Subject Area	Description
<b>Required Courses</b>	Choose 2 of 2
HI301H	HISTORY OF MILITARY ART
HI498	COLLOQUIUM IN HISTORY
<b>AND</b>	
<b>Military History</b>	Choose 5 of 10
HI338	WARFARE IN AGE OF REVOLUTIONS
HI355	WARFARE-AGE OF INDUSTRIALIZTN
HI356	WAR AT SEA AND IN THE AIR
HI357	WARFARE SINCE 1945
HI358	STRATEGY, POLICY & GENERALSHIP
HI359	ERA OF THE SECOND WORLD WAR
HI370	ANCIENT & MEDIEVAL WARFARE
HI376	EARLY MODERN WARFARE
HI381	HISTORY OF IRREGULAR WARFARE
HI385	WAR & ITS THEORISTS
<b>AND</b>	
<b>Out-of-Stem History Electives</b>	Choose 2 of 32
For cadets who will graduate w/ Honors, one of their courses must be from the HI400 series and they will take an additional elective from all Department of History offerings.	
HI337	CHINA-C. KINGDOM TO COMM RULE
HI339	THE MODERN MIDDLE EAST
HI340	COLONIAL AMERICA
HI341	THE AGE OF EXPLORATION
HI342	THE BRITISH ISLES SINCE 1688
HI343	MODERN GERMANY
HI344	MODERN DIPLOMACY
HI345	MODERN AFRICA
HI346	MODERN SOUTH ASIA
HI347	ASIAN WARFARE AND POLITICS
HI348	MODERN LATIN AMERICA
HI349	THE MIDDLE EAST TO 1798
HI361	MEDIEVAL EUROPE
HI364	MODERN WESTERN EUROPE
HI365	THE ANCIENT WORLD
HI367	IMPERIAL AND SOVIET RUSSIA
HI368	MOD CENTRAL & E. EUR, 1896-1989
HI369	AMERICAN FRONTIERS
HI372	US FGN RELATIONS SINCE 1898
HI390	EARLY NATIONAL AMERICA
HI391	WORLD RELIGIONS
HI394	REVOLUTIONARY AMERICA

HI395	HIST OF CIVIL WAR AMERICA
HI396	MAKING OF MODERN AMERICA
HI397	COLD WAR AMERICA
HI398	SOCIETY & CULTURE IN AMER HIST
HI460	SENIOR FACULTY COURSE
HI461	TOPICS IN GENDER HISTORY
HI462	THE HISTORY OF INNOVATION
HI463	RACE, ETHNICITY, NATION
XH405	THE HOLOCAUST AND ITS LEGACY
XH415	GENOCIDE AND ETHNIC CLEANSING

**AND****Complementary Support Courses**

Cadets in this major will fulfill the Complementary Support Course requirement by taking a third semester in a foreign language and two additional choices.

**AND****Complementary Support Course - Foreign Language**

Choose 1 of 1

LX300

3RD SEMESTER FOREIGN LANG

**AND****Complementary Support Courses - Electives**

Choose 2 of 71

Depending on their particular research interests, cadets will consult with their academic counselor to choose their final two CSCs. The courses found on the following list of courses could all aid in an historian's research abilities and methodologies, but a cadet may deviate from this list as long as they can justify why using a course not found on it will aid them in their historical study. In addition, a cadet may choose to fulfill this requirement by taking two additional courses in their chosen foreign language. This includes the DFL courses on regional civilization (example: LA483 Arab Civilization I), and regional literature (example: LF485 Survey of French Literature I).

DS345	MILITARY INNOVATION
DS350	PERSUASIVE COMMUNICATIONS
DS360	SP OPNS/LOW-INTENSITY CONFLICT
DS455	COMPARATIVE DEFENSE POLICY
DS460	INSURGENCY & COUNTERINSURGENCY
DS475	STRATEGIC DECISION MAKING
EN321	AMERICAN LITERATURE I
EN322	AMERICAN LITERATURE II
EN331	BRITISH LITERATURE I
EN332	BRITISH LITERATURE II
EN351	WORLD LITERATURE
EN352	POWER AND DIFFERENCE
EN353	WAR LITERATURE
EN355	CRITICISM COLLOQUIUM
EN362	FILM AND FILM THEORY
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV371	GEOGRAPHY OF RUSSIA
EV372	GEOGRAPHY OF ASIA
EV373	GEOGRAPHY OF LATIN AMERICA
EV375	GEOGRAPHY OF AFRICA
EV376	GEOGRAPHY OF THE MIDDLE EAST
EV384	GEOGRAPHY OF NORTH AMERICA
EV386	GEOGRAPHY OF EUROPE
EV390B	URBAN GEOGRAPHY
EV482	MILITARY GEOGRAPHY
LW410	COMPARATIVE LEGAL SYSTEMS
LW474	LAW OF ARMED CONFLICT
LW481	INTERNATIONAL LAW
LW482	NATIONAL SECURITY LAW

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LX400	4TH SEMESTER FOREIGN LANG
MA376	APPLIED STATISTICS
PL377	SOCIAL INEQUALITY
PL384	SOCIOLOGICAL THEORY
PL393	CRIMINOLOGY-CRIM JUST SYSTM
PL482	ARMED FORCES AND SOCIETY
PY300	PHILOSOPHICAL METHODS
PY305	LOGICAL REASONING
PY330	POLITICAL PHILOSOPHY
PY345	PHILOSOPHY OF RELIGION
PY360	ANCIENT PHILOSOPHY
PY369	EASTERN THOUGHT
PY370	17TH & 18TH CENTURY PHILOSOPHY
PY375	KANT & 19TH CENTURY PHILOSOPHY
SS370	MASS MEDIA & AMER POLITICS
SS372	POLITICS AND GOV OF CHINA
SS373	THE AMERICAN PRESIDENCY
SS374	POL & GOV OF KOREAS & JAPAN
SS375	GOV & POL RUSSIA & NEIGHBORS
SS376	AMERICAN POLITICAL DEVELOPMENT
SS377	POLITICS & GOV OF EUROPE
SS378	ADV INTL RELATIONS THEORY
SS379	LEGISLATIVE POLITICS
SS380	MANPOWER-LABOR ECONOMICS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS383	POLITICS & GOVT-MIDDLE EAST
SS384	POLITICS & GOVT-LATIN AMER
SS385	HISTORY OF ECONOMICS
SS386	POLITICAL THOUGHT
SS387	PUBLIC FINANCE
SS462	ECON OF STABILIZATION & GROWTH
SS464	HOMELAND SECURITY
SS465	TERRORISM: NEW CHALLENGES
SS472	THE AM STATE & THE SOLDIER
SS473	AMERICAN FOREIGN POLICY
SS476	CONFLICT AND NEGOTIATION
SS481	POLITICS OF DEFENSE POLICY
SS483	NATIONAL SECURITY SEMINAR
SS484	INTERNATIONAL ECONOMICS
SS485	POLIT & DEV SUB-SAHARAN AFR
SS487	INT'L POLITICAL ECONOMY
XH467	WINNING THE PEACE

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**AND****Integrative Experience for the Major**

Choose 1 of 25

Cadets majoring in history must take one of the following electives during their first class year. This course is not an additional elective, but it will require working with the instructor to integrate disciplines outside of history for the course's major writing requirement or project. If a cadet chooses one of these electives before their first class year they may not use it as their integrative experience.

HI341	THE AGE OF EXPLORATION
HI342	THE BRITISH ISLES SINCE 1688
HI344	MODERN DIPLOMACY
HI346	MODERN SOUTH ASIA
HI347	ASIAN WARFARE AND POLITICS
HI348	MODERN LATIN AMERICA
HI357	WARFARE SINCE 1945
HI358	STRATEGY, POLICY & GENERALSHIP
HI359	ERA OF THE SECOND WORLD WAR



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HI364	MODERN WESTERN EUROPE
HI368	MOD CENTRAL & E. EUR,1896-1989
HI372	US FGN RELATIONS SINCE 1898
HI381	HISTORY OF IRREGULAR WARFARE
HI385	WAR & ITS THEORISTS
HI391	WORLD RELIGIONS
HI395	HIST OF CIVIL WAR AMERICA
HI396	MAKING OF MODERN AMERICA
HI397	COLD WAR AMERICA
HI398	SOCIETY & CULTURE IN AMER HIST
HI460	SENIOR FACULTY COURSE
HI461	TOPICS IN GENDER HISTORY
HI462	THE HISTORY OF INNOVATION
HI463	RACE, ETHNICITY, NATION
XH405	THE HOLOCAUST AND ITS LEGACY
XH415	GENOCIDE AND ETHNIC CLEANSING

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**AND****Science Depth**

Cadets in this major may take any approved choice to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II

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**AND****STEM Depth**

Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

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**AND****Curriculum Requirements**

This section describes how cadets in this major satisfy various curriculum requirements.

**AND****IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

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**AND****Core Engineering Sequence**

Cadets in this major can choose any approved three-course Core Engineering Sequence.

**AND****Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and several history courses including HI498.

HI498	COLLOQUIUM IN HISTORY
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## 2021 History Major: Military w/ Thesis (Honors) Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
HMH2H	History: Military w/ Thesis (Honors)	History Major: Military w/ Thesis (Honors)	History: Military w/ Thesis (Honors)	1	1
2021 History Major: Military w/ Thesis (Honors) Tracks					
		Subject Area	Description		
		Elective	Take one additional elective from the History Department catalogue. For cadets in the honors program at least one of their electives must be at the 400 level (HI4XX). This 400 level elective is in addition to HI498 and HI499.		
		AND			
		Required Course	Choose 1 of 1		
		HI499	SENIOR THESIS		
		AND			
		Grade Requirement	Complete the requirements of the major as shown above, and attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major. Earn an A- in HI499.		
2021 History Major: Military w/ Thesis Curriculum					
Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
HMH2T	History: Military w/ Thesis	History Major: Military w/ Thesis	History: Military w/ Thesis	1	0
2021 History Major: Military w/ Thesis Tracks					
		Subject Area	Description		
		Required Course	Choose 1 of 1		
		HI499	SENIOR THESIS		
2021 History Major: International Curriculum					
Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
HNT2	History Major: International	History Major: International	History: International	13	0
2021 History Major: International Tracks					
		Subject Area	Description		
		Required Courses	Choose 2 of 2		
		HI301H	HISTORY OF MILITARY ART		

HI498	COLLOQUIUM IN HISTORY
<b>AND</b>	
<b>International History</b>	Choose 5 of 17
HI337	CHINA-C. KINGDOM TO COMM RULE
HI339	THE MODERN MIDDLE EAST
HI341	THE AGE OF EXPLORATION
HI342	THE BRITISH ISLES SINCE 1688
HI343	MODERN GERMANY
HI344	MODERN DIPLOMACY
HI345	MODERN AFRICA
HI346	MODERN SOUTH ASIA
HI347	ASIAN WARFARE AND POLITICS
HI348	MODERN LATIN AMERICA
HI349	THE MIDDLE EAST TO 1798
HI361	MEDIEVAL EUROPE
HI364	MODERN WESTERN EUROPE
HI365	THE ANCIENT WORLD
HI367	IMPERIAL AND SOVIET RUSSIA
HI368	MOD CENTRAL & E. EUR, 1896-1989
HI391	WORLD RELIGIONS
<b>AND</b>	
<b>Out-of-Stem History Electives</b>	Choose 2 of 25
For cadets who will graduate w/ Honors, one of their courses must be from the HI400 series and they will take an additional elective from all Department of History offerings.	
HI338	WARFARE IN AGE OF REVOLUTIONS
HI340	COLONIAL AMERICA
HI355	WARFARE-AGE OF INDUSTRIALIZTN
HI356	WAR AT SEA AND IN THE AIR
HI357	WARFARE SINCE 1945
HI358	STRATEGY, POLICY & GENERALSHIP
HI359	ERA OF THE SECOND WORLD WAR
HI369	AMERICAN FRONTIERS
HI370	ANCIENT & MEDIEVAL WARFARE
HI372	US FGN RELATIONS SINCE 1898
HI376	EARLY MODERN WARFARE
HI381	HISTORY OF IRREGULAR WARFARE
HI385	WAR & ITS THEORISTS
HI390	EARLY NATIONAL AMERICA
HI394	REVOLUTIONARY AMERICA
HI395	HIST OF CIVIL WAR AMERICA
HI396	MAKING OF MODERN AMERICA
HI397	COLD WAR AMERICA
HI398	SOCIETY & CULTURE IN AMER HIST
HI460	SENIOR FACULTY COURSE
HI461	TOPICS IN GENDER HISTORY
HI462	THE HISTORY OF INNOVATION
HI463	RACE, ETHNICITY, NATION
XH405	THE HOLOCAUST AND ITS LEGACY
XH415	GENOCIDE AND ETHNIC CLEANSING
<b>AND</b>	
<b>Complementary Support Courses</b>	
Cadets in this major will fulfill the Complementary Support Course requirement by taking a third semester in a foreign language and two additional choices.	
<b>AND</b>	
<b>Complementary Support Course - Foreign Language</b>	Choose 1 of 1
LX300	3RD SEMESTER FOREIGN LANG

**AND****Complementary Support Courses - Electives**

Choose 2 of 71

Depending on their particular research interests, cadets will consult with their academic counselor to choose their final two CSCs. The courses found on the following list of courses could all aid in an historian's research abilities and methodologies, but a cadet may deviate from this list as long as they can justify why using a course not found on it will aid them in their historical study. In addition, a cadet may choose to fulfill this requirement by taking two additional courses in their chosen foreign language. This includes the DFL courses on regional civilization (example: LA483 Arab Civilization I), and regional literature (example: LF485 Survey of French Literature I).

DS345	MILITARY INNOVATION
DS350	PERSUASIVE COMMUNICATIONS
DS360	SP OPNS/LOW-INTENSITY CONFLICT
DS455	COMPARATIVE DEFENSE POLICY
DS460	INSURGENCY & COUNTERINSURGENCY
DS475	STRATEGIC DECISION MAKING
EN321	AMERICAN LITERATURE I
EN322	AMERICAN LITERATURE II
EN331	BRITISH LITERATURE I
EN332	BRITISH LITERATURE II
EN351	WORLD LITERATURE
EN352	POWER AND DIFFERENCE
EN353	WAR LITERATURE
EN355	CRITICISM COLLOQUIUM
EN362	FILM AND FILM THEORY
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV371	GEOGRAPHY OF RUSSIA
EV372	GEOGRAPHY OF ASIA
EV373	GEOGRAPHY OF LATIN AMERICA
EV375	GEOGRAPHY OF AFRICA
EV376	GEOGRAPHY OF THE MIDDLE EAST
EV384	GEOGRAPHY OF NORTH AMERICA
EV386	GEOGRAPHY OF EUROPE
EV390B	URBAN GEOGRAPHY
EV482	MILITARY GEOGRAPHY
LW410	COMPARATIVE LEGAL SYSTEMS
LW474	LAW OF ARMED CONFLICT
LW481	INTERNATIONAL LAW
LW482	NATIONAL SECURITY LAW
LX400	4TH SEMESTER FOREIGN LANG
MA376	APPLIED STATISTICS
PL377	SOCIAL INEQUALITY
PL384	SOCIOLOGICAL THEORY
PL393	CRIMINOLOGY-CRIM JUST SYSTM
PL482	ARMED FORCES AND SOCIETY
PY300	PHILOSOPHICAL METHODS
PY305	LOGICAL REASONING
PY330	POLITICAL PHILOSOPHY
PY345	PHILOSOPHY OF RELIGION
PY360	ANCIENT PHILOSOPHY
PY369	EASTERN THOUGHT
PY370	17TH & 18TH CENTURY PHILOSOPHY
PY375	KANT & 19TH CENTURY PHILOSOPHY
SS370	MASS MEDIA & AMER POLITICS
SS372	POLITICS AND GOV OF CHINA
SS373	THE AMERICAN PRESIDENCY
SS374	POL & GOV OF KOREAS & JAPAN

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SS375	GOV & POL RUSSIA & NEIGHBORS
SS376	AMERICAN POLITICAL DEVELOPMENT
SS377	POLITICS & GOV OF EUROPE
SS378	ADV INTL RELATIONS THEORY
SS379	LEGISLATIVE POLITICS
SS380	MANPOWER-LABOR ECONOMICS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS383	POLITICS & GOVT-MIDDLE EAST
SS384	POLITICS & GOVT-LATIN AMER
SS385	HISTORY OF ECONOMICS
SS386	POLITICAL THOUGHT
SS387	PUBLIC FINANCE
SS462	ECON OF STABILIZATION & GROWTH
SS464	HOMELAND SECURITY
SS465	TERRORISM: NEW CHALLENGES
SS472	THE AM STATE & THE SOLDIER
SS473	AMERICAN FOREIGN POLICY
SS476	CONFLICT AND NEGOTIATION
SS481	POLITICS OF DEFENSE POLICY
SS483	NATIONAL SECURITY SEMINAR
SS484	INTERNATIONAL ECONOMICS
SS485	GOV & POLITICS SUB-SAHARAN AFR
SS487	INT'L POLITICAL ECONOMY
XH467	WINNING THE PEACE

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**AND****Integrative Experience for the Major**

Choose 1 of 25

Cadets majoring in history must take one of the following electives during their first class year. This course is not an additional elective, but it will require working with the instructor to integrate disciplines outside of history for the course's major writing requirement or project. If a cadet chooses one of these electives before their first class year they may not use it as their integrative experience.

HI341	THE AGE OF EXPLORATION
HI342	THE BRITISH ISLES SINCE 1688
HI344	MODERN DIPLOMACY
HI346	MODERN SOUTH ASIA
HI347	ASIAN WARFARE AND POLITICS
HI348	MODERN LATIN AMERICA
HI357	WARFARE SINCE 1945
HI358	STRATEGY, POLICY & GENERALSHIP
HI359	ERA OF THE SECOND WORLD WAR
HI364	MODERN WESTERN EUROPE
HI368	MOD CENTRAL & E. EUR,1896-1989
HI372	US FGN RELATIONS SINCE 1898
HI381	HISTORY OF IRREGULAR WARFARE
HI385	WAR & ITS THEORISTS
HI391	WORLD RELIGIONS
HI395	HIST OF CIVIL WAR AMERICA
HI396	MAKING OF MODERN AMERICA
HI397	COLD WAR AMERICA
HI398	SOCIETY & CULTURE IN AMER HIST
HI460	SENIOR FACULTY COURSE
HI461	TOPICS IN GENDER HISTORY
HI462	THE HISTORY OF INNOVATION
HI463	RACE, ETHNICITY, NATION
XH405	THE HOLOCAUST AND ITS LEGACY
XH415	GENOCIDE AND ETHNIC CLEANSING

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**AND****Science Depth**

Cadets in this major may take any approved choice to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II

**AND**

#### **STEM Depth**

Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**AND**

#### **Curriculum Requirements**

This section describes how cadets in this major satisfy various curriculum requirements.

**AND**

#### **IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**AND**

#### **Core Engineering Sequence**

Cadets in this major can choose any approved three-course Core Engineering Sequence.

**AND**

#### **Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and several history courses including HI498.

HI498	COLLOQUIUM IN HISTORY
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## **2021 History Major: International w/ Thesis (Honors) Curriculum**

<b>Code</b>	<b>Short Description</b>	<b>Description</b>	<b>Transcript Description</b>	<b>Req Crse Cnt</b>	<b>Opt Crse Cnt</b>
HNT2H	History: International w/ Thesis (Honors)	History Major: International w/ Thesis (Honors)	History: International w/ Thesis (Honors)	1	1

## **2021 History Major: International w/ Thesis (Honors) Tracks**

<b>Subject Area</b>	<b>Description</b>
<b>Elective</b>	Take one additional elective from the History Department catalogue. For cadets in the honors program at least one of their electives must be at the 400 level (HI4XX). This 400 level elective is in addition to HI498 and HI499.
<b>AND</b>	
<b>Required Course</b>	Choose 1 of 1
HI499	SENIOR THESIS
<b>AND</b>	
<b>Grade Requirement</b>	Complete the requirements of the major as shown above, and attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major. Earn an A- in HI499.

### 2021 History Major: International w/ Thesis Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
HNT2T	History: International w/ Thesis	History Major: International w/ Thesis	History: International w/ Thesis	1	0

### 2021 History Major: International w/ Thesis Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
HI499	SENIOR THESIS

### 2021 History Major: United States Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
HUS2	History Major: United States	History Major: United States	History: United States	13	0

### 2021 History Major: United States Tracks

Subject Area	Description
<b>Required Courses</b>	Choose 2 of 2
HI301H	HISTORY OF MILITARY ART
HI498	COLLOQUIUM IN HISTORY
<b>AND</b>	
<b>US History</b>	Choose 5 of 9
HI340	COLONIAL AMERICA
HI369	AMERICAN FRONTIERS
HI372	US FGN RELATIONS SINCE 1898
HI390	EARLY NATIONAL AMERICA
HI394	REVOLUTIONARY AMERICA
HI395	HIST OF CIVIL WAR AMERICA
HI396	MAKING OF MODERN AMERICA
HI397	COLD WAR AMERICA
HI398	SOCIETY & CULTURE IN AMER HIST
<b>AND</b>	
<b>Out-of-Stem History Electives</b>	Choose 2 of 33
For cadets who will graduate w/ Honors, one of their courses must be from the HI400 series and they will take an additional elective from all Department of History offerings.	
HI337	CHINA-C. KINGDOM TO COMM RULE
HI338	WARFARE IN AGE OF REVOLUTIONS
HI339	THE MODERN MIDDLE EAST

HI341	THE AGE OF EXPLORATION
HI342	THE BRITISH ISLES SINCE 1688
HI343	MODERN GERMANY
HI344	MODERN DIPLOMACY
HI345	MODERN AFRICA
HI346	MODERN SOUTH ASIA
HI347	ASIAN WARFARE AND POLITICS
HI348	MODERN LATIN AMERICA
HI349	THE MIDDLE EAST TO 1798
HI355	WARFARE-AGE OF INDUSTRIALIZTN
HI356	WAR AT SEA AND IN THE AIR
HI357	WARFARE SINCE 1945
HI358	STRATEGY, POLICY & GENERALSHIP
HI359	ERA OF THE SECOND WORLD WAR
HI361	MEDIEVAL EUROPE
HI364	MODERN WESTERN EUROPE
HI365	THE ANCIENT WORLD
HI367	IMPERIAL AND SOVIET RUSSIA
HI368	MOD CENTRAL & E. EUR,1896-1989
HI370	ANCIENT & MEDIEVAL WARFARE
HI376	EARLY MODERN WARFARE
HI381	HISTORY OF IRREGULAR WARFARE
HI385	WAR & ITS THEORISTS
HI391	WORLD RELIGIONS
HI460	SENIOR FACULTY COURSE
HI461	TOPICS IN GENDER HISTORY
HI462	THE HISTORY OF INNOVATION
HI463	RACE, ETHNICITY, NATION
XH405	THE HOLOCAUST AND ITS LEGACY
XH415	GENOCIDE AND ETHNIC CLEANSING

**AND****Complementary Support Courses**

Cadets in this major will fulfill the Complementary Support Course requirement by taking a third semester in a foreign language and two additional choices.

**AND****Complementary Support Course - Foreign Language**

Choose 1 of 1

LX300

3RD SEMESTER FOREIGN LANG

**AND****Complementary Support Courses - Electives**

Choose 2 of 71

Depending on their particular research interests, cadets will consult with their academic counselor to choose their final two CSCs. The courses found on the following list of courses could all aid in an historian's research abilities and methodologies, but a cadet may deviate from this list as long as they can justify why using a course not found on it will aid them in their historical study. In addition, a cadet may choose to fulfill this requirement by taking two additional courses in their chosen foreign language. This includes the DFL courses on regional civilization (example: LA483 Arab Civilization I), and regional literature (example: LF485 Survey of French Literature I).

DS345	MILITARY INNOVATION
DS350	PERSUASIVE COMMUNICATIONS
DS360	SP OPNS/LOW-INTENSITY CONFLICT
DS455	COMPARATIVE DEFENSE POLICY
DS460	INSURGENCY & COUNTERINSURGENCY
DS475	STRATEGIC DECISION MAKING
EN321	AMERICAN LITERATURE I
EN322	AMERICAN LITERATURE II
EN331	BRITISH LITERATURE I



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EN332	BRITISH LITERATURE II
EN351	WORLD LITERATURE
EN352	POWER AND DIFFERENCE
EN353	WAR LITERATURE
EN355	CRITICISM COLLOQUIUM
EN362	FILM AND FILM THEORY
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV371	GEOGRAPHY OF RUSSIA
EV372	GEOGRAPHY OF ASIA
EV373	GEOGRAPHY OF LATIN AMERICA
EV375	GEOGRAPHY OF AFRICA
EV376	GEOGRAPHY OF THE MIDDLE EAST
EV384	GEOGRAPHY OF NORTH AMERICA
EV386	GEOGRAPHY OF EUROPE
EV390B	URBAN GEOGRAPHY
EV482	MILITARY GEOGRAPHY
LW410	COMPARATIVE LEGAL SYSTEMS
LW474	LAW OF ARMED CONFLICT
LW481	INTERNATIONAL LAW
LW482	NATIONAL SECURITY LAW
LX400	4TH SEMESTER FOREIGN LANG
MA376	APPLIED STATISTICS
PL377	SOCIAL INEQUALITY
PL384	SOCIOLOGICAL THEORY
PL393	CRIMINOLOGY-CRIM JUST SYSTM
PL482	ARMED FORCES AND SOCIETY
PY300	PHILOSOPHICAL METHODS
PY305	LOGICAL REASONING
PY330	POLITICAL PHILOSOPHY
PY345	PHILOSOPHY OF RELIGION
PY360	ANCIENT PHILOSOPHY
PY369	EASTERN THOUGHT
PY370	17TH & 18TH CENTURY PHILOSOPHY
PY375	KANT & 19TH CENTURY PHILOSOPHY
SS370	MASS MEDIA & AMER POLITICS
SS372	POLITICS AND GOV OF CHINA
SS373	THE AMERICAN PRESIDENCY
SS374	POL & GOV OF KOREAS & JAPAN
SS375	GOV & POL RUSSIA & NEIGHBORS
SS376	AMERICAN POLITICAL DEVELOPMENT
SS377	POLITICS & GOV OF EUROPE
SS378	ADV INTL RELATIONS THEORY
SS379	LEGISLATIVE POLITICS
SS380	MANPOWER-LABOR ECONOMICS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS383	POLITICS & GOVT-MIDDLE EAST
SS384	POLITICS & GOVT-LATIN AMER
SS385	HISTORY OF ECONOMICS
SS386	POLITICAL THOUGHT
SS387	PUBLIC FINANCE
SS462	ECON OF STABILIZATION & GROWTH
SS464	HOMELAND SECURITY
SS465	TERRORISM: NEW CHALLENGES
SS472	THE AM STATE & THE SOLDIER
SS473	AMERICAN FOREIGN POLICY
SS476	CONFLICT AND NEGOTIATION
SS481	POLITICS OF DEFENSE POLICY

SS483	NATIONAL SECURITY SEMINAR
SS484	INTERNATIONAL ECONOMICS
SS485	GOV & POLITICS SUB-SAHARAN AFR
SS487	INT'L POLITICAL ECONOMY
XH467	WINNING THE PEACE

**AND****Integrative Experience for the Major**

Choose 1 of 25

Cadets majoring in history must take one of the following electives during their first class year. This course is not an additional elective, but it will require working with the instructor to integrate disciplines outside of history for the course's major writing requirement or project. If a cadet chooses one of these electives before their first class year they may not use it as their integrative experience.

HI341	THE AGE OF EXPLORATION
HI342	THE BRITISH ISLES SINCE 1688
HI344	MODERN DIPLOMACY
HI346	MODERN SOUTH ASIA
HI347	ASIAN WARFARE AND POLITICS
HI348	MODERN LATIN AMERICA
HI357	WARFARE SINCE 1945
HI358	STRATEGY, POLICY & GENERALSHIP
HI359	ERA OF THE SECOND WORLD WAR
HI364	MODERN WESTERN EUROPE
HI368	MOD CENTRAL & E. EUR, 1896-1989
HI372	US FGN RELATIONS SINCE 1898
HI381	HISTORY OF IRREGULAR WARFARE
HI385	WAR & ITS THEORISTS
HI391	WORLD RELIGIONS
HI395	HIST OF CIVIL WAR AMERICA
HI396	MAKING OF MODERN AMERICA
HI397	COLD WAR AMERICA
HI398	SOCIETY & CULTURE IN AMER HIST
HI460	SENIOR FACULTY COURSE
HI461	TOPICS IN GENDER HISTORY
HI462	THE HISTORY OF INNOVATION
HI463	RACE, ETHNICITY, NATION
XH405	THE HOLOCAUST AND ITS LEGACY
XH415	GENOCIDE AND ETHNIC CLEANSING

**AND****Science Depth**

Cadets in this major may take any approved choice to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II

**AND****STEM Depth**

Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**AND****Curriculum Requirements**

This section describes how cadets in this major satisfy various curriculum requirements.

**AND****IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305	CYBER FOUNDATIONS
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CY355	CYBER FOUNDATIONS - COMPUTING
<b>AND</b>	
<b>Core Engineering Sequence</b>	
Cadets in this major can choose any approved three-course Core Engineering Sequence.	
<b>AND</b>	
<b>Writing-in-the-Major</b>	
Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and several history courses including HI498.	
HI498	COLLOQUIUM IN HISTORY

### 2021 History Major: United States w/ Thesis (Honors) Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
HUS2H	History: United States w/ Thesis (Honors)	History Major: United States w/ Thesis (Honors)	History: United States w/ Thesis (Honors)	1	1

### 2021 History Major: United States w/ Thesis (Honors) Tracks

Subject Area	Description
<b>Elective</b>	
Take one additional elective from the History Department catalogue. For cadets in the honors program at least one of their electives must be at the 400 level (HI4XX). This 400 level elective is in addition to HI498 and HI499.	
<b>AND</b>	
<b>Required Course</b>	Choose 1 of 1
HI499	SENIOR THESIS
<b>AND</b>	
<b>Grade Requirement</b>	
Complete the requirements of the major as shown above, and attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major. Earn an A- in HI499.	

### 2021 History Major: United States w/ Thesis Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
HUS2T	History: United States w/ Thesis	History Major: United States w/ Thesis	History: United States w/ Thesis	1	0

### 2021 History Major: United States w/ Thesis Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1

HI499

SENIOR THESIS

## Department of Law

### 2021 Law and Legal Studies Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
LLS2	Law and Legal Studies	Law and Legal Studies Major	Law and Legal Studies	3	10

### 2021 Law and Legal Studies Major Tracks

Subject Area	Description
<b>Required Courses</b>	Choose 2 of 2
LW310	INTRO TO LEGAL METHOD
LW474	LAW OF ARMED CONFLICT
<b>AND</b>	
<b>Law Electives</b>	Choose 7 of 11
LW410	COMPARATIVE LEGAL SYSTEMS
LW461	CIVIL RIGHTS AND THE LAW
LW462	CYBER LAW
LW472	CRIMINAL LAW
LW473	ENVIRONMENTAL LAW
LW475	ADV CONSTITUTIONAL LAW SEM
LW476	ADVANCED LAW OF ARMED CONFLICT
LW481	INTERNATIONAL LAW
LW482	NATIONAL SECURITY LAW
LW488	BUSINESS LAW
LW490	SPECIAL TOPICS IN THE LAW
<b>AND</b>	
<b>Complementary Support Courses</b>	
You must select one of the following two specialty law tracks.	
<b>CSC - International Law and Legal Systems</b>	Choose 3 of 20
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV371	GEOGRAPHY OF RUSSIA
EV372	GEOGRAPHY OF ASIA
EV373	GEOGRAPHY OF LATIN AMERICA
EV375	GEOGRAPHY OF AFRICA
EV376	GEOGRAPHY OF THE MIDDLE EAST
EV386	GEOGRAPHY OF EUROPE
HI344	MODERN DIPLOMACY
HI372	US FGN RELATIONS SINCE 1898
HI391	WORLD RELIGIONS
MG390	NEGOTIATION FOR LEADERS
SS366	COMPARATIVE POLITICS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	HISTORY OF ECONOMICS
SS465	TERRORISM: NEW CHALLENGES
SS466	COMBATING TERRORISM
SS473	AMERICAN FOREIGN POLICY
SS483	NATIONAL SECURITY SEMINAR

SS486	INTERNATIONAL SECURITY SEMINAR
XH467	WINNING THE PEACE
<b>OR</b>	
<b>CSC - American Law and Society</b>	Choose 3 of 16
HI390	EARLY NATIONAL AMERICA
HI394	REVOLUTIONARY AMERICA
HI395	HIST OF CIVIL WAR AMERICA
HI396	MAKING OF MODERN AMERICA
HI398	SOCIETY & CULTURE IN AMER HIST
PL372	SOCIOLOGY OF THE FAMILY
PL377	SOCIAL INEQUALITY
PL393	CRIMINOLOGY-CRIM JUST SYSTM
PY305	LOGICAL REASONING
PY330	POLITICAL PHILOSOPHY
SS373	THE AMERICAN PRESIDENCY
SS379	LEGISLATIVE POLITICS
SS386	POLITICAL THOUGHT
SS464	HOMELAND SECURITY
SS472	THE AM STATE & THE SOLDIER
SS483	NATIONAL SECURITY SEMINAR
<b>AND</b>	
<b>Integrative Experience for the Major</b>	Choose 1 of 1
LW495	JURISPRUDENCE AND LEGAL THEORY
<b>AND</b>	
<b>Science Depth</b>	
Cadets in this major may take any approved choice to satisfy the Science Depth requirement.	
CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II
<b>STEM Depth</b>	
Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.	
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>AND</b>	
<b>Curriculum Requirements</b>	
This section describes how cadets in this major satisfy various curriculum requirements.	
<b>IT/CYBER Requirement</b>	
Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.	
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>Core Engineering Sequence</b>	
Cadets in this major can choose any approved three-course Core Engineering Sequence.	
<b>Writing-in-the-Major</b>	
Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum, LW310, LW474 and LW495.	
LW310	INTRO TO LEGAL METHOD
LW474	LAW OF ARMED CONFLICT
LW495	JURISPRUDENCE AND LEGAL THEORY

### 2021 Law and Legal Studies Major w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
LLS2H	Law and Legal Studies w/ Honors	Law and Legal Studies Major w/ Honors	Law and Legal Studies w/ Honors	2	0

### 2021 Law and Legal Studies Major w/ Honors Tracks

Subject Area	Description
<b>Required Courses</b>	Choose 2 of 2
LW498	THESIS I: PROPOSAL & RESEARCH
LW499	THESIS II: PAPER & DEFENSE
<b>AND</b>	
<b>Grade Requirements</b>	
Complete the requirements of the major as shown above, attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major, and an average of at least 3.33 in LW498 and LW499.	

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## Department of Mathematical Sciences

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### 2021 Applied Statistics Minor Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
AST1N	Applied Statistics Minor	Applied Statistics Minor	Applied Statistics Minor	1	4

### 2021 Applied Statistics Minor Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
MA476	MATHEMATICAL STATISTICS
<b>AND</b>	
<b>Foundation Course</b>	Choose 1 of 2
MA376	APPLIED STATISTICS
SE375	STATISTICS FOR ENGINEERS
<b>AND</b>	
<b>Electives</b>	Choose 3 of 16
Cadets may also choose from a variety of seminars, colloquia, summer AIADs for credit, and independent studies in any department, when topics are offered that are relevant to the Applied Statistics Minor. Approval authority for inclusion of these courses is the Applied Statistics DAC in the Department of Mathematical Sciences, who will coordinate with the offering department.	
EM481	SYSTEMS SIMULATION
KN494	RESEARCH METHODS/DATA ANALYSIS
MA205	CALCULUS II
MA255	ADV MULTIVARIABLE CALCULUS
MA371	LINEAR ALGEBRA
MA388	SABERMETRICS
MA394	FUNDAMENTALS/NETWORK SCIENCE
MA488	SPECIAL TOPICS IN MATHEMATICS
MA489	ADV INDIV STUDY IN MATH
PH361	EXPERIMENTAL PHYSICS
PH481	STATISTICAL PHYSICS
PL386	EXPERIMENTAL PSYCHOLOGY
PL497	SEMINAR IN BEHAVIORAL SCI
SE388	STOCHASTIC MODELS
SS368	ECONOMETRICS I
SS469	ECONOMETRICS II

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### 2021 Mathematical Sciences Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
MSC1	Mathematical Sciences	Mathematical Sciences Major	Mathematical Sciences	8	6



## 2021 Mathematical Sciences Major Tracks

Subject Area	Description
<b>Required Courses</b>	Choose 7 of 7
MA363	VECTOR CALCULUS AND ODE
MA371	LINEAR ALGEBRA
MA383	FOUNDATIONS OF MATH
MA386	INTRO TO NUMERICAL ANALYSIS
MA387	MATHEMATICAL ANALYSIS I
MA391	MATHEMATICAL MODELING
MA491	RESEARCH SEMNR-APPLD MATH
<b>AND</b>	
<b>Statistics Elective</b>	Choose 1 of 2
MA376	APPLIED STATISTICS
MA476	MATHEMATICAL STATISTICS
<b>AND</b>	
<b>Mathematics Electives</b>	Choose 2 of 23
MA372	INTRODUCTION TO DISCRETE MATH
MA376	APPLIED STATISTICS
MA381	NONLINEAR OPTIMIZATION
MA385	CHAOS AND FRACTALS
MA388	SABERMETRICS
MA394	FUNDAMENTALS/NETWORK SCIENCE
MA396	NUM METH SOLUTIONS DIFF EQNS
MA461	GRAPH THEORY AND NETWORKS
MA462	COMBINATORICS
MA464	APPLIED ALGEBRA W/ CRYPTOLOGY
MA466	ABSTRACT ALGEBRA
MA476	MATHEMATICAL STATISTICS
MA481	LINEAR OPTIMIZATION
MA484	PARTIAL DIFF EQUATIONS
MA485	APPLIED COMPLEX VARIABLES
MA487	MATHEMATICAL ANALYSIS II
MA488	SPECIAL TOPICS IN MATHEMATICS
MA489	ADV INDIV STUDY IN MATH
MA493A	OPNL CALC AND TRANSFORMS
MA493B	REAL VARIABLE THEORY
MA493C	TOPICS IN NUMERICAL ANALYSIS
MA493D	INTRODUCTION TO TOPOLOGY
MA493E	TOPICS IN ANALYSIS
<b>AND</b>	
<b>Complementary Support Course - Required</b>	Choose 1 of 2
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>AND</b>	
<b>Complementary Support Courses - Elective Tracks</b>	
Cadets may choose from these following courses to satisfy the remaining two CSC requirements. The list is organized into groups/themes to guide the selection process. DACs, in most cases, will guide cadets to choose two courses within a particular theme.	
<b>Computational Mathematics Tools</b>	Choose 2 of 7
CS350	DATABASE DESIGN & IMPLEMENT

CS384	DATA STRUCTURES
CS385	DESIGN & ANALYS-ALGORITHMS
CS393	DATABASE SYSTEMS
CS403	SOFTWARE TESTING & DEVELOPMENT
CS473	COMPUTER GRAPHICS
CY300	PROGRAMMING FUNDAMENTALS
<b>OR</b>	
<b>Finance Applications</b>	Choose 2 of 5
EM381	ENGINEERING ECONOMY
MG410	MANAGERIAL FINANCE
SS368	ECONOMETRICS I
SS382	MICROECONOMICS
SS388	MACROECONOMICS
<b>OR</b>	
<b>Cyber Applications</b>	Choose 2 of 10
Cadets who choose this track and are enrolled in the Cyber CES cannot double count courses to fulfill both requirements.	
CS483	DIGITAL FORENSICS
CY350	NETWORK ENGR & MGT
CY450	CYBER SECURITY ENGINEERING
IT384	NETWORK SYSTEM PROG
IT460	CYBER POLICY, STRATEGY & OPNS
LW482	NATIONAL SECURITY LAW
PY395	SPECIAL TOPICS IN PHILOSOPHY
XE401	INTEGRATIVE SYSTEM DESIGN I
XE402	INTEGRATIVE SYSTEM DESIGN II
XE492	DISRUPTIVE INNOVATIONS
<b>OR</b>	
<b>Engineering Applications</b>	Choose 2 of 16
CH481	PHYSICAL CHEMISTRY I
EE383	ELECTROMAGN FIELDS & WAVES
EM384	ANYL METH FOR ENGR MANAGEMENT
EM481	SYSTEMS SIMULATION
EV350	ENVIRONMNTL ENGR TECHNOLOGIES
EV377	REMOTE SENSING
EV379	PHOTOGRAMMETRY
EV394	HYDROGEOLOGY/HYDRAULIC SYSTEMS
EV397	AIR POLLUTION ENGINEERING
EV477	ADVANCED REMOTE SENSING
ME370	COMPUTER AIDED DESIGN
ME480	HEAT TRANSFER
NE355	NUCLEAR REACTOR ENGINEERING
PH381	INTRMED CLASSICAL MECHANICS
SA473	INTRODUCTION TO ASTRONAUTICS
SE370	COMPUTER AIDED SYSTEMS ENG
<b>OR</b>	
<b>Network Science</b>	Choose 2 of 4
CY350	NETWORK ENGR & MGT
EM482	SUPPLY CHAIN ENG & INFO MGMT
EV398	GEOG INFORMATION SYSTEMS
SE387	DETERMINISTIC MODELS
<b>OR</b>	
<b>Applied Statistics</b>	Choose 2 of 4
KN494	RESEARCH METHODS/DATA ANALYSIS
PH481	STATISTICAL PHYSICS
SE375	STATISTICS FOR ENGINEERS

SS469	ECONOMETRICS II
<b>AND</b>	
<b>Integrative Experience for the Major</b> Choose 1 of 1	
Cadets may take MA490 or any other major's integrative experience.	
MA490	APP PROB FROM MATH, SCI & ENGR
<b>AND</b>	
<b>Science Depth</b>	
Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.	
CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II
<b>STEM Depth</b>	
Cadets in this major must take MA205 to satisfy the STEM Depth requirement.	
MA205	CALCULUS II
<b>AND</b>	
<b>Curriculum Requirements</b>	
This section describes how cadets in this major satisfy various curriculum requirements.	
<b>IT/CYBER Requirement</b>	
Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.	
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>Core Engineering Sequence</b>	
Cadets in this major may choose any authorized engineering sequence.	
<b>Writing-in-the-Major</b>	
Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of MA371.	
MA371	LINEAR ALGEBRA

## 2021 Mathematical Sciences Major w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
MSC1H	Mathematical Sciences w/ Honors	Mathematical Sciences Major w/ Honors	Mathematical Sciences w/ Honors	2	0

## 2021 Mathematical Sciences Major w/ Honors Tracks

Subject Area	Description
<b>Required Courses</b>	Choose 2 of 2
Mathematical Sciences with Honors majors will replace MA491 with the two-course sequence of MA498 and MA499. Neither of these courses may count as one of the two electives.	
MA498	SR THESIS I: RSCRCH & PROPOSAL
MA499	SR THESIS II: PAPER & DEFENSE
<b>AND</b>	
<b>Grade Requirements</b>	

Complete the requirements of the major (excepting MA491) as shown above, and attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

## 2021 Network Science Minor Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
NSC1N	Network Science Minor	Network Science Minor	Network Science Minor	1	4

## 2021 Network Science Minor Tracks

Subject Area	Description
<b>Foundations of Network Science Course</b>	Choose 1 of 1
All cadets minoring in network science must enroll in this class. There are no exceptions.	
MA394	FUNDAMENTALS/NETWORK SCIENCE
<b>AND</b>	
<b>Theory Elective</b>	Choose 1 of 7
You must select one course that deals with the theoretical aspects of network science. MA488 (Special Topics) can count toward NS when Game Theory is the specific subject of the course. Additional courses not listed below can be substituted with the approval of the network science minor's advisor.	
CS385	DESIGN & ANALYS-ALGORITHMS
CY350	NETWORK ENGR & MGT
MA371	LINEAR ALGEBRA
MA372	INTRODUCTION TO DISCRETE MATH
MA461	GRAPH THEORY AND NETWORKS
MA488	SPECIAL TOPICS IN MATHEMATICS
PL384	SOCIOLOGICAL THEORY
<b>AND</b>	
<b>Modeling Elective</b>	Choose 1 of 11
You must select one course that deals with the modeling aspects of network science. Courses other than those listed below can be substituted with the approval of the network science minor's advisor.	
CH375	ADVANCED BIOLOGY
CH385	INTRODUCTION TO CELL BIOLOGY
CH387	HUMAN PHYSIOLOGY
CH388	GENETICS
CS384	DATA STRUCTURES
EM481	SYSTEMS SIMULATION
MA391	MATHEMATICAL MODELING
SE387	DETERMINISTIC MODELS
SE388	STOCHASTIC MODELS
SE485	COMBAT MODELING
SM484	SYSTEM DYNAMICS SIMULATION
<b>AND</b>	
<b>Applications Elective</b>	Choose 1 of 28

You must select one course that deals with applying the principles of network science to real-world problems. MA488 (Special Topics) can count toward NS when Network Modeling for Irregular Warfare is the specific subject of the course. Additional courses not listed below can be substituted with the approval of the network science minor's advisor.

CE350	INFRASTRUCTURE ENGINEERING
CE490	TOPICS IN CIVIL ENGINEERING
CH399	TOPICS IN CHEM/LS/CHMENG
CH479	METHODS & APPS OF BIOTECH
CS484	COMPUTER NETWORKS
CS486	ARTIFICIAL INTELLIGENCE
CY450	CYBER SECURITY ENGINEERING
DS455	COMPARATIVE MILITARY SYSTEMS
EM482	SUPPLY CHAIN ENG & INFO MGMT
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV390B	URBAN GEOGRAPHY
EV398	GEOG INFORMATION SYSTEMS
EV478	MILITARY GEOSPATIAL OPERATIONS
IT384	NETWORK SYSTEM PROG
IT460	CYBER OPERATIONS
MA488	SPECIAL TOPICS IN MATHEMATICS
MG379	LEADING TEAMS
MG390	NEGOTIATION FOR LEADERS
PL383	EXPERIMENTAL SOCIAL PSYCHOLOGY
PL398	LEADERSHIP THEORY & DEVEL
PL475	HUMAN-COMPUTER INTERACTION
SE302	FUNDAMENTALS OF SYSTEMS ENG
SE387	DETERMINISTIC MODELS
SE388	STOCHASTIC MODELS
SS368	ECONOMETRICS I
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS465	TERRORISM: NEW CHALLENGES
XH467	WINNING THE PEACE

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#### AND

#### Integration Elective

Choose 1 of 11

All cadets minoring in network science must complete a one-semester independent study project that satisfies the four modules outlined in the minor's learning outcomes. Specifically, these modules are (1) the formulation of a research question, (2) the formulation and implementation of a research design, (3) the presentation of results from completed research, and (4) the completion of a reflection paper describing the cadet's experience in the minor. See the description of the minor for additional information on these modules. The Director of the West Point Network Science Center and Chair of Network Science will validate-in writing-the Cadet's plan to complete the four modules in accordance with the spirit of Network Science program guidance.

CH489	INDIVIDUAL RESEARCH I
CS489	ADV IND STUDY COMPUTER SCI
EV489A	ADVANCED INDIVIDUAL STUDY I
MA489	ADV INDIV STUDY IN MATH
MA491	RESEARCH SEMNR-APPLD MATH
NE489	ADV IND STDY NUCLEAR ENGNRG
PH489	ADV INDIV STUDY IN PHYSICS
PL497	SEMINAR IN BEHAVIORAL SCI
PL498	ADV STUDY-BEHAVIOR SCI
SE489	AD IND STY IN SYS ENG/ENG MGMT
SE490	AD TOPICS IN SYS ENG/ENG MGMT

## 2021 Operations Research Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
ORE1	Operations Research	Operations Research Major	Operations Research	11	5

## 2021 Operations Research Major Tracks

Subject Area	Description
<b>Required Courses</b>	Choose 9 of 9
MA371	LINEAR ALGEBRA
MA376	APPLIED STATISTICS
MA381	NONLINEAR OPTIMIZATION
MA476	MATHEMATICAL STATISTICS
MA481	LINEAR OPTIMIZATION
SE301	FNDTN ENGIN DSGN & SYS MGMT
SE385	DECISION ANALYSIS
SE387	DETERMINISTIC MODELS
SE388	STOCHASTIC MODELS
<b>AND</b>	
<b>Discipline Electives</b>	Choose 2 of 29
CS384	DATA STRUCTURES
CS486	ARTIFICIAL INTELLIGENCE
EM381	ENGINEERING ECONOMY
EM411	PROJECT MANAGEMENT
EM420	PRODUCTION OPERATIONS MGMT
EM481	SYSTEMS SIMULATION
EM482	SUPPLY CHAIN ENG & INFO MGMT
MA372	INTRODUCTION TO DISCRETE MATH
MA383	FOUNDATIONS OF MATH
MA386	INTRO TO NUMERICAL ANALYSIS
MA387	MATHEMATICAL ANALYSIS I
MA388	SABERMETRICS
MA391	MATHEMATICAL MODELING
MA394	FUNDAMENTALS/NETWORK SCIENCE
MA461	GRAPH THEORY AND NETWORKS
MA462	COMBINATORICS
MA488	SPECIAL TOPICS IN MATHEMATICS
MA489	ADV INDIV STUDY IN MATH
MA491	RESEARCH SEMNR-APPLD MATH
SE370	COMPUTER AIDED SYSTEMS ENG
SE485	COMBAT MODELING
SE489	AD IND STY IN SYS ENG/ENG MGMT
SE490	AD TOPICS IN SYS ENG/ENG MGMT
SE491	RSRCH PROJ IN SYS ENG/ENG MGMT
SM440	COMPLEX SYSTEMS ARCHITECTURE
SM484	SYSTEM DYNAMICS SIMULATION
SS382	MICROECONOMICS
SS388	MACROECONOMICS

SS469	ECONOMETRICS II
<b>AND</b>	
<b>Complementary Support Course - Required</b>	Choose 1 of 2
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>AND</b>	
<b>Complementary Support Course - Simulation Elective</b>	Choose 1 of 2
EM481	SYSTEMS SIMULATION
SE485	COMBAT MODELING
<b>AND</b>	
<b>Complementary Support Course - Elective</b>	Choose 1 of 17
CS384	DATA STRUCTURES
CS486	ARTIFICIAL INTELLIGENCE
EM381	ENGINEERING ECONOMY
EM411	PROJECT MANAGEMENT
EM420	PRODUCTION OPERATIONS MGMT
EM481	SYSTEMS SIMULATION
EM482	SUPPLY CHAIN ENG & INFO MGMT
SE370	COMPUTER AIDED SYSTEMS ENG
SE485	COMBAT MODELING
SE489	AD IND STY IN SYS ENG/ENG MGMT
SE490	AD TOPICS IN SYS ENG/ENG MGMT
SE491	RSRCH PROJ IN SYS ENG/ENG MGMT
SM440	COMPLEX SYSTEMS ARCHITECTURE
SM484	SYSTEM DYNAMICS SIMULATION
SS382	MICROECONOMICS
SS388	MACROECONOMICS
SS469	ECONOMETRICS II
<b>AND</b>	
<b>Integrative Experience for the Major</b>	Choose 2 of 2
SE402	SYSTEMS DESIGN & MANAGEMENT I
SE403	SYSTEMS DESIGN & MANAGEMENT II
<b>AND</b>	
<b>Science Depth</b>	
Cadets in this major may choose any one of the following authorized courses to satisfy the Science Depth requirement.	
CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II
<b>STEM Depth</b>	
Cadets in this major must take MA205 to satisfy the STEM Depth requirement.	
MA205	CALCULUS II
<b>AND</b>	
<b>Curriculum Requirements</b>	
This section describes how cadets in this major satisfy various curriculum requirements.	
<b>IT/CYBER Requirement</b>	
Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.	
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>Core Engineering Sequence</b>	

Cadets in this major have embedded engineering courses that enable it to satisfy the core engineering sequence requirement.

#### **Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of MA371.

MA371

LINEAR ALGEBRA

## **2021 Operations Research Major w/ Honors Curriculum**

<b>Code</b>	<b>Short Description</b>	<b>Description</b>	<b>Transcript Description</b>	<b>Req Crse Cnt</b>	<b>Opt Crse Cnt</b>
ORE1H	Operations Research w/ Honors	Operations Research Major w/ Honors	Operations Research w/ Honors	2	0

## **2021 Operations Research Major w/ Honors Tracks**

<b>Subject Area</b>	<b>Description</b>
<b>Required Courses</b>	Choose 2 of 2
Operations Research with Honors majors will add the two-course sequence of MA498 and MA499.	
MA498	SR THESIS I: RSCRCH & PROPOSAL
MA499	SR THESIS II: PAPER & DEFENSE
<b>AND</b>	
<b>Grade Requirements</b>	
Complete the 42 required courses of the major as shown above, and attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major to be awarded the Operations Research with Honors Degree.	



## Department of Physics and Nuclear Engineering

### 2021 Nuclear Engineering Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
NEN1	Nuclear Engineering	Nuclear Engineering Major	Nuclear Engineering	17	1

### 2021 Nuclear Engineering Major Tracks

Subject Area	Description
<b>Required Courses</b>	Choose 12 of 12
MC300	FUND OF ENGR MECH AND DESIGN
MC311	THERMAL-FLUID SYSTEMS I
MC364	MECHANICS OF MATERIALS
NE300	FUNDAMENTALS OF NUCLEAR ENGR
NE350	RADIOLOGICAL ENGR DESIGN
NE355	NUCLEAR REACTOR ENGINEERING
NE361	COMPUTATIONAL DESIGN IN NE
NE400	NUCLEAR ENGINEERING SEMINAR
NE450	NUCLEAR WEAPONS EFFECTS
NE452	INSTRUMENTATION AND SHIELDING
NE474	RADIOLOGICAL SAFETY
PH365	MODERN PHYSICS
<b>AND</b>	
<b>Enrichment Electives</b>	Choose 1 of 15
CH362	MASS & ENERGY BALANCES
CH485	HEAT AND MASS TRANSFER
EE377	ELECTRICAL POWER ENGNRNG
EM384	ANYL METH FOR ENGR MANAGEMENT
EM411	PROJECT MANAGEMENT
EV385	INTRO TO ENVIRON ENGR
MC312	THERMAL-FLUID SYSTEMS II
MC380	ENGINEERING MATERIALS
ME370	COMPUTER AIDED DESIGN
ME403	MANUFACTURING/MACHINE COMP DSN
ME472	ENERGY CONVERSION SYSTEMS
MG382	HUMAN RESOURCE MANAGEMENT
PL394	ANTHROPOMETRICS & BIOMECHANICS
PL479	LEADING ORGNZS THRU CHANGE
XE442	ALTERNATIVE ENERGY ENGINEERING
<b>AND</b>	
<b>Complementary Support Courses</b>	Choose 3 of 4
For the math requirement, a cadet should take MA364 but may substitute MA365 if qualified.	
EE301	FUNDAMENTALS OF ELEC ENGIN
MA364	ENGINEERING MATHEMATICS
MA365	ADV MATH FOR ENGRS/SCIENTISTS
ME480	HEAT TRANSFER
<b>AND</b>	

**Integrative Experience for the Major**

Choose 2 of 2

NE495

ADV NUC SYSTEM DESIGN PROJ I

NE496

ADV NUC SYSTEM DESIGN PROJ II

**AND****Science Depth**

Cadets in this major must take PH206 to satisfy the Science Depth requirement.

PH206

PHYSICS II

**STEM Depth**

Cadets in this major must take MA205 to satisfy the STEM Depth requirement.

MA205

CALCULUS II

**AND****Curriculum Requirements****IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum, EE301 and NE361.

EE301

FUNDAMENTALS OF ELEC ENGIN

NE361

COMPUTATIONAL DESIGN IN NE

**Core Engineering Sequence**

Cadets in this major will satisfy the core engineering requirement as an ABET accredited engineering major.

**Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and several other courses in the major.

NE350

RADIOLOGICAL ENGR DESIGN

NE400

NUCLEAR ENGINEERING SEMINAR

NE495

ADV NUC SYSTEM DESIGN PROJ I

NE496

ADV NUC SYSTEM DESIGN PROJ II

**2021 Nuclear Engineering Major w/ Honors Curriculum**

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
NEN1H	Nuclear Engineering w/ Honors	Nuclear Engineering Major w/ Honors	Nuclear Engineering w/ Honors	1	0

**2021 Nuclear Engineering Major w/ Honors Tracks**

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
NE489	ADV IND STDY NUCLEAR ENGNRG
<b>AND</b>	
<b>Research/Writing Requirement</b>	
Cadets must demonstrate excellence by writing a paper based upon the results of the NE489, an AIAD, or their integrative experience that is suitable for submission to an undergraduate level journal. Present this paper at, for example, USMA Project's Day, a PaNE colloquium, or an ANS Student Conference. The Head of the Department of Physics and Nuclear Engineering will determine whether the quality of the work completed is sufficient to merit successful completion of the honors program.	
<b>AND</b>	

**Grade Requirement**

Attain a minimum APSC of 3.0 in the core curriculum and 3.5 in the major.

## 2021 Nuclear Engineering Science Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
NES0	Nuclear Engineering Science	Nuclear Engineering Science Major	Nuclear Engineering Science	14	0

### 2021 Nuclear Engineering Science Major Tracks

Subject Area	Description
<b>Required Courses</b>	Choose 14 of 15
	Some cadets may qualify for MA365 to fulfill the math requirement.
EE301	FUNDAMENTALS OF ELEC ENGIN
MA364	ENGINEERING MATHEMATICS
MA365	ADV MATH FOR ENGRS/SCIENTISTS
MC300	FUND OF ENGR MECH AND DESIGN
MC311	THERMAL-FLUID SYSTEMS I
ME370	COMPUTER AIDED DESIGN
NE300	FUNDAMENTALS OF NUCLEAR ENGR
NE350	RADIOLOGICAL ENGR DESIGN
NE355	NUCLEAR REACTOR ENGINEERING
NE450	NUCLEAR WEAPONS EFFECTS
NE452	INSTRUMENTATION AND SHIELDING
NE474	RADIOLOGICAL SAFETY
NE495	ADV NUC SYSTEM DESIGN PROJ I
NE496	ADV NUC SYSTEM DESIGN PROJ II
PH365	MODERN PHYSICS

## 2021 Nuclear Science Minor Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
NSM0N	Nuclear Science Minor	Nuclear Science Minor	Nuclear Science Minor	3	3

### 2021 Nuclear Science Minor Tracks

Subject Area	Description
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Cadets enrolled in the minor must take four courses: NE300, NE355, NE452, and either NE361 or NE474 (no course substitution authorized). Two courses may be substituted for NE350, NE450, and either NE361 or NE474 at the discretion of the Head of the Department of Physics and Nuclear Engineering. Course substitutes must include significant content of basic science (physical, biological, and chemical), mathematics, or engineering science and engineering topics.

Choose 3 of 3

(no substitution)

NE300	FUNDAMENTALS OF NUCLEAR ENGR
NE355	NUCLEAR REACTOR ENGINEERING
NE452	INSTRUMENTATION AND SHIELDING

**AND**

Choose 1 of 2

(no substitution)

NE361	COMPUTATIONAL DESIGN IN NE
NE474	RADIOLOGICAL SAFETY

**AND**

Choose 2 of 3

For Cadets who chose NE474 above: (course substitution at the discretion of the Head, D/PaNE)

NE350	RADIOLOGICAL ENGR DESIGN
NE361	COMPUTATIONAL DESIGN IN NE
NE450	NUCLEAR WEAPONS EFFECTS

**OR**

Choose 2 of 3

For Cadets who chose NE361 rather than NE474: (course substitution at the discretion of the Head, D/PaNE)

NE350	RADIOLOGICAL ENGR DESIGN
NE450	NUCLEAR WEAPONS EFFECTS
NE474	RADIOLOGICAL SAFETY

## 2021 Photonics Minor Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
PHT0N	Photonics Minor	Photonics Minor	Photonics Minor	4	2

## 2021 Photonics Minor Tracks

Subject Area	Description
<b>Required Courses</b>	Choose 4 of 4
EE362	INTRODUCTION TO ELECTRONICS
EE483	PHOTONICS ENGINEERING
PH384	APPLIED OPTICS
PH485	LASER PHYSICS
<b>AND</b>	
<b>Required Course</b>	Choose 1 of 2
Research project must be optics or photonics related.	
PH365	MODERN PHYSICS
PH489	ADV INDIV STUDY IN PHYSICS
<b>AND</b>	

<b>Required Course</b>	Choose 1 of 2
Research project must be optics or photonics related.	
EE480	OPTICAL FIBER COMMUNICATIONS
EE489	ADV IND STUDY IN ELECT ENGR

## 2021 Physics Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
PHY1	Physics	Physics Major	Physics	14	0

## 2021 Physics Major Tracks

Subject Area	Description
<b>Required Courses</b>	Choose 10 of 10
PH365	MODERN PHYSICS
PH381	INTRMED CLASSICAL MECHANICS
PH382	INTERMEDIATE ELECTRODYNAMICS
PH384	APPLIED OPTICS
PH481	STATISTICAL PHYSICS
PH482	ADVANCED CLASSICAL MECHAN
PH484	INTERMEDIATE QUANTUM MECHANICS
PH485	LASER PHYSICS
PH486	EXPERIMENTAL PHYSICS
PH487	ADVANCED QUANTUM MECHANICS
<b>AND</b>	
<b>Complementary Support Courses</b>	Choose 3 of 4
The following courses provide foundational math and applied science support for cadets in the physics major. Most cadets will take MA364 to satisfy the Math CSC requirement, but some cadets may qualify for MA365.	
EE301	FUNDAMENTALS OF ELEC ENGIN
MA364	ENGINEERING MATHEMATICS
MA365	ADV MATH FOR ENGRS/SCIENTISTS
XE383	ELECTROMAGNETIC WAVES
<b>AND</b>	
<b>Integrative Experience for the Major</b>	Choose 1 of 1
PH456	SCIENCE AND POLICY
<b>AND</b>	
<b>Science Depth</b>	
Cadets in this major must take PH206 or PH256 to satisfy the Science Depth requirement.	
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II
<b>STEM Depth</b>	
Cadets in this major must take MA205 or MA255 to satisfy the STEM Depth requirement.	
MA205	CALCULUS II
MA255	ADV MULTIVARIABLE CALCULUS
<b>AND</b>	

**Curriculum Requirements**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum, EE301 and PH456.

EE301

FUNDAMENTALS OF ELEC ENGIN

PH456

SCIENCE AND POLICY

**Core Engineering Sequence**

Cadets in this major can choose any approved three-course Core Engineering Sequence.

**Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum, PH456 and PH486.

PH456

SCIENCE AND POLICY

PH486

EXPERIMENTAL PHYSICS

**2021 Physics Major w/ Honors Curriculum**

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
PHY1H	Physics w/ Honors	Physics Major w/ Honors	Physics w/ Honors	1	1

**2021 Physics Major w/ Honors Tracks**

Subject Area	Description
<b>Honors Program</b>	
The honors program in physics entails the completion of two courses beyond the 14-course major. An essential component of this program is cadet participation in physics research.	
<b>Research Requirement</b>	Choose 1 of 1
PH489	ADV INDIV STUDY IN PHYSICS
<b>AND</b>	
<b>Courses</b>	Choose 1 of 13
Complete one course from the following list.	
MA371	LINEAR ALGEBRA
MA376	APPLIED STATISTICS
MA385	CHAOS AND FRACTALS
MA386	INTRO TO NUMERICAL ANALYSIS
MA396	NUM METH SOLUTIONS DIFF EQNS
MA476	MATHEMATICAL STATISTICS
MA484	PARTIAL DIFF EQUATIONS
MA485	APPLIED COMPLEX VARIABLES
NE474	RADIOLOGICAL SAFETY
PH472	SPACE AND ASTROPHYSICS
PH489A	ADV INDIV STUDY IN PHYSICS
PH495	SPECIAL TOPICS IN PHYSICS
SA473	INTRODUCTION TO ASTRONAUTICS
<b>AND</b>	
<b>Grade Requirements</b>	
Complete the requirements of the major as shown above, and attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.	

## 2021 Space Science Minor Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
SPA0N	Space Science Minor	Space Science Minor	Space Science Minor	3	2

## 2021 Space Science Minor Tracks

Subject Area	Description
<b>Required Space Science Courses</b>	Choose 3 of 3
SP471	ASTRONAUTICS
SP472	SPACE PHYSICS
SP473	ASTRONOMY
<b>AND</b>	
<b>Required Space Science Related Discipline Electives</b>	
Choose one of the following Space and Missile Defense (SMD) critical areas of interest; Space Science, Missile Defense, Directed Energy, Cyber Operations, and Policy Development from which to select your two electives for this minor. These related discipline electives are further grouped by root electives that support areas of interest that are inherent in particular majors. These groupings allow the student to synthesize and ponder how to apply these respective electives to SMD critical areas of interest as well as space exploration. Cadets choosing this minor must meet all prerequisites for the courses chosen. Cadets majoring in Space Science are not eligible for this minor.	
<b>Space Science: Biology, Chemistry, Kinesiology</b>	Choose 2 of 10
CH275	BIOLOGY
CH375	ADVANCED BIOLOGY
CH383	ORGANIC CHEMISTRY I
CH384	ORGANIC CHEMISTRY II
CH387	HUMAN PHYSIOLOGY
CH457	MICROBIOLOGY
KN355	FUNCTIONAL ANATOMY
KN360	BIOMECHANICS OF HUMAN MOVEMENT
KN460	EXERCISE PHYSIOLOGY
KN465	MOTOR CONTROL AND LEARNING
<b>OR</b>	
<b>Space Science: Electronics, Signals, Fields, Communications, and Photonics</b>	Choose 2 of 6
EE362	INTRODUCTION TO ELECTRONICS
EE381	SIGNALS AND SYSTEMS
EE383	ELECTROMAGN FIELDS & WAVES
EE482	WIRELESS COMM SYS ENGINEERING
EE483	PHOTONICS ENGINEERING
XE383	ELECTROMAGNETIC WAVES
<b>OR</b>	
<b>Space Science: Remote sensing, Geology, Hydrology, and Meteorology</b>	Choose 2 of 7

EV377	REMOTE SENSING
EV387	METEOROLOGY
EV388A	PHYSICAL GEOLOGY
EV388B	GEOMORPHOLOGY
EV394	HYDROGEOLOGY/HYDRAULIC SYSTEMS
EV477	ADVANCED REMOTE SENSING
EV478	MILITARY GEOSPATIAL OPERATIONS
<b>OR</b>	
<b>Space Science: Systems Engineering, Design, and Management</b>	Choose 2 of 4
EM411	PROJECT MANAGEMENT
SE301	FNDTN ENGIN DSGN & SYS MGMT
SE302	FUNDAMENTALS OF SYSTEMS ENG
SE375	STATISTICS FOR ENGINEERS
<b>OR</b>	
<b>Missile Defense: Dynamics, Controls, and Thermal/Fluid Systems</b>	Choose 2 of 7
MC306	DYNAMICS
MC311	THERMAL-FLUID SYSTEMS I
MC312	THERMAL-FLUID SYSTEMS II
MC364	MECHANICS OF MATERIALS
MC486	VIBRATION ENGINEERING
ME472	ENERGY CONVERSION SYSTEMS
ME480	HEAT TRANSFER
<b>OR</b>	
<b>Missile Defense: Nuclear Science and Radiation</b>	Choose 2 of 4
NE300	FUNDAMENTALS OF NUCLEAR ENGR
NE350	RADIOLOGICAL ENGR DESIGN
NE450	NUCLEAR WEAPONS EFFECTS
NE452	INSTRUMENTATION AND SHIELDING
<b>OR</b>	
<b>Directed Energy: Applied Physics and Astrophysics</b>	Choose 2 of 6
PH365	MODERN PHYSICS
PH381	INTRMED CLASSICAL MECHANICS
PH382	INTERMEDIATE ELECTRODYNAMICS
PH384	APPLIED OPTICS
PH485	LASER PHYSICS
SP474	ASTROPHYSICS
<b>OR</b>	
<b>Cyber Operations: Cyber and Network Engineering</b>	Choose 2 of 3
CY300	PROGRAMMING FUNDAMENTALS
CY350	NETWORK ENGR & MGT
CY450	CYBER SECURITY ENGINEERING
<b>OR</b>	
<b>Policy Development: National Strategy, Policy, and Law</b>	Choose 2 of 4
DS370	STRATEGY AND POLICY
LW482	NATIONAL SECURITY LAW
SS477	ECONOMICS OF NATIONAL SECURITY
SS483	NATIONAL SECURITY SEMINAR



## 2021 Space Science Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
SSC0	Space Science	Space Science Major	Space Science	12	1

## 2021 Space Science Major Tracks

Subject Area	Description
<b>Required Space Science Courses</b>	Choose 8 of 8
EE301	FUNDAMENTALS OF ELEC ENGIN
PH382	INTERMEDIATE ELECTRODYNAMICS
PH384	APPLIED OPTICS
PH485	LASER PHYSICS
SP471	ASTRONAUTICS
SP472	SPACE PHYSICS
SP473	ASTRONOMY
SP474	ASTROPHYSICS
<b>AND</b>	
<b>Required Space Science Related Electives</b>	Choose 1 of 2
PH365	MODERN PHYSICS
PH381	INTRMED CLASSICAL MECHANICS
<b>AND</b>	
<b>Complementary Support Courses</b>	Choose 3 of 5
Some cadets may qualify for MA365 to fulfill their Math CSC requirement. Cadets can take either EV477 or EV478 for the third CSC course.	
EV377	REMOTE SENSING
EV477	ADVANCED REMOTE SENSING
EV478	MILITARY GEOSPATIAL OPERATIONS
MA364	ENGINEERING MATHEMATICS
MA365	ADV MATH FOR ENGRS/SCIENTISTS
<b>AND</b>	
<b>Integrative Experience</b>	Choose 1 of 1
PH456	SCIENCE AND POLICY
<b>AND</b>	
<b>Science Depth</b>	
Cadets in this major must take PH206 to satisfy the Science Depth requirement.	
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II
<b>STEM Depth</b>	
Cadets in this major must take MA205 or MA255 to satisfy the STEM Depth requirement.	
MA205	CALCULUS II
MA255	ADV MULTIVARIABLE CALCULUS
<b>AND</b>	
<b>Curriculum Requirements</b>	
This section describes how cadets in this major satisfy various curriculum requirements.	

**IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum, EE301 and PH456.

EE301

FUNDAMENTALS OF ELEC ENGIN

PH456

SCIENCE AND POLICY

**Core Engineering Sequence**

Cadets in this major may choose any approved three-course Core Engineering Sequence.

**Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and PH456.

PH456

SCIENCE AND POLICY

## 2021 Space Science Major w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
SSC0H	Space Science w/ Honors	Space Science Major w/ Honors	Space Science w/ Honors	1	1

## 2021 Space Science Major w/ Honors Tracks

Subject Area	Description
<b>Required Courses</b>	Choose 1 of 1
PH489	ADV INDIV STUDY IN PHYSICS
<b>AND</b>	
<b>Additional Physics Elective</b>	Choose 1 of 6
PH481	STATISTICAL PHYSICS
PH482	ADVANCED CLASSICAL MECHAN
PH484	INTERMEDIATE QUANTUM MECHANICS
PH487	ADVANCED QUANTUM MECHANICS
PH489A	ADV INDIV STUDY IN PHYSICS
XE383	ELECTROMAGNETIC WAVES
<b>AND</b>	
<b>Grade Requirements</b>	
Complete the requirements of the major as shown above, and attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.	

## Department of Social Sciences

### 2021 Economics Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
ECN2	Economics	Economics Major	Economics	6	7

### 2021 Economics Major Tracks

Subject Area	Description
<b>Required Courses</b>	Choose 3 of 3
SS368	ECONOMETRICS I
SS382	MICROECONOMICS
SS388	MACROECONOMICS
<b>AND</b>	
<b>Integrative Course</b>	Choose 1 of 3
SS380	MANPOWER-LABOR ECONOMICS
SS387	PUBLIC FINANCE
SS484	INTERNATIONAL ECONOMICS
<b>AND</b>	
<b>Economics Electives</b>	Choose 5 of 16
SS364	GAME THEORY
SS380	MANPOWER-LABOR ECONOMICS
SS385	HISTORY OF ECONOMICS
SS387	PUBLIC FINANCE
SS390	BEHAVIORAL ECONOMICS
SS394	FINANCIAL STATEMENT ANALYSIS
SS461	INDUSTRIAL ORGANIZATION
SS462	ECON OF STABILIZATION & GROWTH
SS463	INVESTMENTS THEORY & APPL
SS469	ECONOMETRICS II
SS470	MONEY AND BANKING
SS484	INTERNATIONAL ECONOMICS
SS487	INT'L POLITICAL ECONOMY
SS490D	COLLOQUIUM (ECONOMICS)
SS494	PRINCIPLES OF FINANCE
SS497	ISSUES IN MICROECONOMIC THEORY
<b>AND</b>	
<b>Complementary Support Courses - Foundation</b>	Choose 2 of 3
MA205	CALCULUS II
MA255	ADV MULTIVARIABLE CALCULUS
MA367	MATH FOR THE SOCIAL SCIENCES
<b>AND</b>	
<b>Complementary Support Course - Elective</b>	Choose 1 of 50
EM381	ENGINEERING ECONOMY
EM420	PRODUCTION OPERATIONS MGMT
EV303	FOUNDATIONS IN GEOGRAPHY

EV365	GEOGRAPHY OF GLOBAL CULTURES
EV371	GEOGRAPHY OF RUSSIA
EV372	GEOGRAPHY OF ASIA
EV373	GEOGRAPHY OF LATIN AMERICA
EV375	GEOGRAPHY OF AFRICA
EV376	GEOGRAPHY OF THE MIDDLE EAST
EV384	GEOGRAPHY OF NORTH AMERICA
EV386	GEOGRAPHY OF EUROPE
EV390B	URBAN GEOGRAPHY
EV391A	LAND USE PLAN & MGT
HI342	THE BRITISH ISLES SINCE 1688
HI344	MODERN DIPLOMACY
HI364	MODERN WESTERN EUROPE
HI367	IMPERIAL AND SOVIET RUSSIA
HI372	US FGN RELATIONS SINCE 1898
HI396	MAKING OF MODERN AMERICA
LW488	BUSINESS LAW
LX300	3RD SEMESTER FOREIGN LANG
MA371	LINEAR ALGEBRA
MA376	APPLIED STATISTICS
MA381	NONLINEAR OPTIMIZATION
MA387	MATHEMATICAL ANALYSIS I
MA476	MATHEMATICAL STATISTICS
MA481	LINEAR OPTIMIZATION
MA490	APP PROB FROM MATH, SCI & ENGR
MA493E	TOPICS IN ANALYSIS
MG380	MARKETING
MG390	NEGOTIATION FOR LEADERS
MG420	OPERATIONS MANAGEMENT
PL373	LIFE CYCLE & HUMAN DEVEL
PL383	EXPERIMENTAL SOCIAL PSYCHOLOGY
PL386	EXPERIMENTAL PSYCHOLOGY
PL396	SNA FOR PUBLIC POLICY
PY350	PHILOSOPHY OF SCIENCE
SE385	DECISION ANALYSIS
SE387	DETERMINISTIC MODELS
SE388	STOCHASTIC MODELS
SS376	AMERICAN POLITICAL DEVELOPMENT
SS386	POLITICAL THOUGHT
SS464	HOMELAND SECURITY
SS465	TERRORISM: NEW CHALLENGES
SS466	COMBATING TERRORISM
SS473	AMERICAN FOREIGN POLICY
SS475	DEMOCRATIZATION
SS480	PUBLIC POLICYMAKING PROCESS
SS481	POLITICS OF DEFENSE POLICY
SS483	NATIONAL SECURITY SEMINAR

**AND****Integrative Experience for the Major**

Choose 1 of 1

SS477

ECONOMICS OF NATIONAL  
SECURITY**AND****Science Depth**

Cadets in this major may take any approved Science Depth course.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II
<b>STEM Depth</b>	
Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.	
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>AND</b>	
<b>Curriculum Requirements</b>	
This section describes how cadets in this major satisfy various curriculum requirements.	
<b>IT/CYBER Requirement</b>	
Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and IT305/355.	
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>Core Engineering Sequence</b>	
Cadets in this major can choose any approved Core Engineering Sequence.	
<b>Writing-in-the-Major</b>	
Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and several courses in the major including SS477.	
SS477	ECONOMICS OF NATIONAL SECURITY

## 2021 Economics Major w/ Thesis (Honors) Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
ECN2H	Economics w/ Thesis (Honors)	Economics Major w/ Thesis (Honors)	Economics w/ Thesis (Honors)	1	1

## 2021 Economics Major w/ Thesis (Honors) Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
The Economics Honors Program will consist of a two-course sequence culminating in the cadet writing a thesis and defending it in front of a thesis committee. The first course will be an additional 300- or 400-level economics elective or Complementary Support Course relevant to the cadet's desired thesis topic. The second course will be an existing three-credit course, SS498 Senior Thesis in the Social Sciences, taken in the spring of the first class year when the honors cadets will finish writing and defend their theses.	
SS498	SENIOR THESIS: SOCIAL SCIENCES
<b>AND</b>	
<b>Grade Requirement</b>	
Complete the requirements of the major as shown above, attain a minimum APSC of 3.0 in the core curriculum and a 3.5 in the major.	

### 2021 Economics Major w/ Thesis Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
ECN2T	Economics w/ Thesis	Economics Major w/ Thesis	Economics w/ Thesis	1	0

### 2021 Economics Major w/ Thesis Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
SS498	SENIOR THESIS: SOCIAL SCIENCES

### 2021 Grand Strategy Minor Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
GST1N	Grand Strategy Minor	Grand Strategy Minor	Grand Strategy Minor	2	3

### 2021 Grand Strategy Minor Tracks

Subject Area	Description
<b>Required Foundational Course</b>	Choose 1 of 1
SS457	ADV STUDIES IN GRAND STRATEGY
<b>AND</b>	
<b>Required Applied Course</b>	Choose 1 of 1
SS458	TOPICS IN GRAND STRATEGY
<b>AND</b>	
<b>Grand Strategy Core Capstone Courses</b>	Choose 1 of 11
SS378	ADV INTL RELATIONS THEORY
SS478	DIST PROF OF SECURITY STUD SEM
SS480	PUBLIC POLICYMAKING PROCESS
SS481	POLITICS OF DEFENSE POLICY
SS483	NATIONAL SECURITY SEMINAR
SS486	INTERNATIONAL SECURITY SEMINAR
SS489	ADV INDIV STUDY IN SOC SCI
SS490A	COLLOQUIUM (AMER POLITICS)
SS490B	COLLOQUIUM (COMP POLITICS)
SS490C	COLLOQUIUM (INTER RELATIONS)
XH397	GRAND STRATEGY FIELD STUDY
<b>AND</b>	

<b>Domestic Sources of Grand Strategy</b>	Choose 2 of 11
LW474	LAW OF ARMED CONFLICT
LW482	NATIONAL SECURITY LAW
PL482	ARMED FORCES AND SOCIETY
SS373	THE AMERICAN PRESIDENCY
SS379	LEGISLATIVE POLITICS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS386	POLITICAL THOUGHT
SS468	POLITICAL PARTICIPATION
SS472	THE AM STATE & THE SOLDIER
SS479	INTERNATIONAL ORGANIZATION
SS480	PUBLIC POLICYMAKING PROCESS
<b>OR</b>	
<b>Political Economy Track</b>	Choose 2 of 10
SS364	GAME THEORY
SS380	MANPOWER-LABOR ECONOMICS
SS385	HISTORY OF ECONOMICS
SS390	BEHAVIORAL ECONOMICS
SS461	INDUSTRIAL ORGANIZATION
SS462	ECON OF STABILIZATION & GROWTH
SS477	ECONOMICS OF NATIONAL SECURITY
SS484	INTERNATIONAL ECONOMICS
SS487	INT'L POLITICAL ECONOMY
SS490D	COLLOQUIUM (ECONOMICS)
<b>OR</b>	
<b>Non-Traditional Challenges Track</b>	Choose 2 of 10
DS360	SP OPNS/LOW-INTENSITY CONFLICT
DS460	INSURGENCY & COUNTERINSURGENCY
EV487	ENVIRONMENTAL SECURITY
HI381	HISTORY OF IRREGULAR WARFARE
IT460	CYBER POLICY, STRATEGY & OPNS
SS464	HOMELAND SECURITY
SS465	TERRORISM: NEW CHALLENGES
SS466	COMBATING TERRORISM
SS476	CONFLICT AND NEGOTIATION
XH467	WINNING THE PEACE
<b>OR</b>	
<b>Military History and Strategy Track</b>	Choose 2 of 18
DS320	LANDPOWER
DS345	MILITARY INNOVATION
DS370	STRATEGY AND POLICY
EV482	MILITARY GEOGRAPHY
HI338	WARFARE IN AGE OF REVOLUTIONS
HI344	MODERN DIPLOMACY
HI355	WARFARE-AGE OF INDUSTRIALIZTN
HI356	WAR AT SEA AND IN THE AIR
HI357	WARFARE SINCE 1945
HI358	STRATEGY, POLICY & GENERALSHIP
HI359	ERA OF THE SECOND WORLD WAR
HI372	US FGN RELATIONS SINCE 1898
HI385	WAR & ITS THEORISTS
HI498	COLLOQUIUM IN HISTORY
MG421	STRATEGIC MANAGEMENT
SS473	AMERICAN FOREIGN POLICY
SS483	NATIONAL SECURITY SEMINAR

SS486	INTERNATIONAL SECURITY SEMINAR
<b>OR</b>	
<b>Science, Technology, and Design Track</b>	Choose 2 of 19
CE493	CIV ENG CAPSTONE DESIGN I
CE494	CIV ENG CAPSTONE DESIGN II
CH402	CHEM ENG PROCESS DESIGN
CY450	CYBER SECURITY ENGINEERING
DS345	MILITARY INNOVATION
EV490	ENVIRON ENG DESIGN
EV491	ADV ENVIRON ENG DESIGN
HI362	POLITICS/SOC-EARLY MOD EURO
IT460	CYBER POLICY, STRATEGY & OPNS
MA490	APP PROB FROM MATH, SCI & ENGR
ME404	MECHANICAL ENGINEERING DESIGN
ME496	MECHANICAL SYSTEM DESIGN
NE495	ADV NUC SYSTEM DESIGN PROJ I
NE496	ADV NUC SYSTEM DESIGN PROJ II
PH456	SCIENCE AND POLICY
PH489	ADV INDIV STUDY IN PHYSICS
XE401	INTEGRATIVE SYSTEM DESIGN I
XE402	INTEGRATIVE SYSTEM DESIGN II
XE492	DISRUPTIVE INNOVATIONS
<b>OR</b>	
<b>East Asia Track</b>	Choose 2 of 11
DS455	COMPARATIVE DEFENSE POLICY
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV372	GEOGRAPHY OF ASIA
HI337	CHINA-C. KINGDOM TO COMM RULE
HI346	MODERN SOUTH ASIA
HI347	ASIAN WARFARE AND POLITICS
LC483	CHINESE CIVILIZATION I
LC484	CHINESE CIVILIZATION II
PY369	EASTERN THOUGHT
SS372	POLITICS AND GOV OF CHINA
SS374	POL & GOV OF KOREAS & JAPAN
<b>OR</b>	
<b>Europe &amp; Russia Track</b>	Choose 2 of 19
DS455	COMPARATIVE DEFENSE POLICY
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV371	GEOGRAPHY OF RUSSIA
EV386	GEOGRAPHY OF EUROPE
HI342	THE BRITISH ISLES SINCE 1688
HI343	MODERN GERMANY
HI361	MEDIEVAL EUROPE
HI364	MODERN WESTERN EUROPE
HI367	IMPERIAL AND SOVIET RUSSIA
HI368	MOD CENTRAL & E. EUR, 1896-1989
LF483	FRENCH CIVILIZATION I
LF484	FRENCH CIVILIZATION II
LG483	GERMAN CIVILIZATION I
LG484	GERMAN CIVILIZATION II
LG492	20TH & 21ST CENTURY GERMANY
LR483	RUSSIAN CIV I
LR484	RUSSIAN CIV II
SS375	GOV & POL RUSSIA & NEIGHBORS



SS377	POLITICS & GOV OF EUROPE
<b>OR</b>	
<b>Middle East &amp; Africa Track</b>	Choose 2 of 12
DS455	COMPARATIVE DEFENSE POLICY
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV375	GEOGRAPHY OF AFRICA
EV376	GEOGRAPHY OF THE MIDDLE EAST
HI339	THE MODERN MIDDLE EAST
HI345	MODERN AFRICA
HI349	THE MIDDLE EAST TO 1798
LA483	ARAB CIVILIZATION I
LA484	ARAB CIVILIZATION II
SS383	POLITICS & GOVT-MIDDLE EAST
SS475	DEMOCRATIZATION
SS485	GOV & POLITICS SUB-SAHARAN AFR
<b>OR</b>	
<b>Latin America Track</b>	Choose 2 of 8
DS455	COMPARATIVE DEFENSE POLICY
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV373	GEOGRAPHY OF LATIN AMERICA
HI348	MODERN LATIN AMERICA
LP484	PORTUGUESE CIVILIZATION II
LS484	SPANISH AMERICAN CIV AND CULT
SS384	POLITICS & GOVT-LATIN AMER
SS475	DEMOCRATIZATION

### 2021 Political Science Major: American Politics Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
PAP2	Political Science: American Politics	Political Science Major: American Politics	Political Science: American Politics	5	8

### 2021 Political Science Major: American Politics Tracks

Subject Area	Description
<b>Required Courses</b>	Choose 4 of 4
SS360	POL SCI RESEARCH METHODS
SS366	COMPARATIVE POLITICS
SS376	AMERICAN POLITICAL DEVELOPMENT
SS386	POLITICAL THOUGHT
<b>AND</b>	
<b>American Politics Electives</b>	Choose 4 of 13
SS370	MASS MEDIA & AMER POLITICS
SS373	THE AMERICAN PRESIDENCY
SS379	LEGISLATIVE POLITICS
SS392	POLITICS-RACE,GENDER,SEXUALITY
SS464	HOMELAND SECURITY
SS465	TERRORISM: NEW CHALLENGES

SS466	COMBATING TERRORISM
SS468	POLITICAL PARTICIPATION
SS472	THE AM STATE & THE SOLDIER
SS473	AMERICAN FOREIGN POLICY
SS481	POLITICS OF DEFENSE POLICY
SS490A	COLLOQUIUM (AMER POLITICS)
SS493	SENIOR STUDIES - AMER POLITICS

**AND****International Relations and  
Comparative Politics Elective**

Choose 1 of 19

SS372	POLITICS AND GOV OF CHINA
SS374	POL & GOV OF KOREAS & JAPAN
SS375	GOV & POL RUSSIA & NEIGHBORS
SS377	POLITICS & GOV OF EUROPE
SS378	ADV INTL RELATIONS THEORY
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS383	POLITICS & GOVT-MIDDLE EAST
SS384	POLITICS & GOVT-LATIN AMER
SS457	ADV STUDIES IN GRAND STRATEGY
SS475	DEMOCRATIZATION
SS476	CONFLICT AND NEGOTIATION
SS478	DIST PROF OF SECURITY STUD SEM
SS483	NATIONAL SECURITY SEMINAR
SS485	GOV & POLITICS SUB-SAHARAN AFR
SS486	INTERNATIONAL SECURITY SEMINAR
SS487	INT'L POLITICAL ECONOMY
SS490C	COLLOQUIUM (INTER RELATIONS)
XH397	GRAND STRATEGY FIELD STUDY
XH467	WINNING THE PEACE

**AND****Complementary Support Courses**

Courses are grouped by suggested topic areas.

**American Studies**

Choose 3 of 6

EN321	AMERICAN LITERATURE I
EN322	AMERICAN LITERATURE II
HI372	US FGN RELATIONS SINCE 1898
HI396	MAKING OF MODERN AMERICA
HI397	COLD WAR AMERICA
HI398	SOCIETY & CULTURE IN AMER HIST

**OR****Criminal Justice**

Choose 3 of 6

LW472	CRIMINAL LAW
LW475	ADV CONSTITUTIONAL LAW SEM
PL377	SOCIAL INEQUALITY
PL393	CRIMINOLOGY-CRIM JUST SYSTM
PY305	LOGICAL REASONING
PY355	PHILOSOPHY OF MIND

**OR****Development**

Choose 3 of 10

EV300	ENVIRONMENTAL SCIENCE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV390B	URBAN GEOGRAPHY
EV391A	LAND USE PLAN & MGT
EV482	MILITARY GEOGRAPHY
EV486	ENVIRONMENT AND DEVELOPMENT

EV487	ENVIRONMENTAL SECURITY
LW473	ENVIRONMENTAL LAW
PL377	SOCIAL INEQUALITY
SS462	ECON OF STABILIZATION & GROWTH
<b>OR</b>	
<b>Economics</b>	Choose 3 of 11
MA367	MATH FOR THE SOCIAL SCIENCES
PL396	SNA FOR PUBLIC POLICY
SS364	GAME THEORY
SS368	ECONOMETRICS I
SS380	MANPOWER-LABOR ECONOMICS
SS382	MICROECONOMICS
SS385	HISTORY OF ECONOMICS
SS387	PUBLIC FINANCE
SS462	ECON OF STABILIZATION & GROWTH
SS469	ECONOMETRICS II
SS477	ECONOMICS OF NATIONAL SECURITY
<b>OR</b>	
<b>Finance</b>	Choose 3 of 7
MA367	MATH FOR THE SOCIAL SCIENCES
PL396	SNA FOR PUBLIC POLICY
SS368	ECONOMETRICS I
SS388	MACROECONOMICS
SS394	FINANCIAL STATEMENT ANALYSIS
SS470	MONEY AND BANKING
SS494	PRINCIPLES OF FINANCE
<b>OR</b>	
<b>Law and Politics</b>	Choose 3 of 6
LW472	CRIMINAL LAW
LW473	ENVIRONMENTAL LAW
LW475	ADV CONSTITUTIONAL LAW SEM
LW481	INTERNATIONAL LAW
LW482	NATIONAL SECURITY LAW
PL393	CRIMINOLOGY-CRIM JUST SYSTM
<b>OR</b>	
<b>Leadership and Management</b>	Choose 3 of 10
HI344	MODERN DIPLOMACY
HI358	STRATEGY, POLICY & GENERALSHIP
MG381	INTRODUCTION TO MANAGEMENT
MG382	HUMAN RESOURCE MANAGEMENT
MG390	NEGOTIATION FOR LEADERS
MG421	STRATEGIC MANAGEMENT
MG472	INTERNATIONAL MANAGEMENT
PL398	LEADERSHIP THEORY & DEVEL
PL479	LEADING ORGNZS THRU CHANGE
PY325	MILITARY ETHICS
<b>OR</b>	
<b>Methods</b>	Choose 3 of 6
MA376	APPLIED STATISTICS
PL361	RESEARCH METHODS I
PL396	SNA FOR PUBLIC POLICY
SS364	GAME THEORY
SS368	ECONOMETRICS I
SS469	ECONOMETRICS II
<b>OR</b>	

<b>Policy</b>	Choose 3 of 5
HI358	STRATEGY, POLICY & GENERALSHIP
MA394	FUNDAMENTALS/NETWORK SCIENCE
PL396	SNA FOR PUBLIC POLICY
PY330	POLITICAL PHILOSOPHY
SS387	PUBLIC FINANCE
<b>OR</b>	
<b>Political Behavior</b>	Choose 3 of 10
EV390B	URBAN GEOGRAPHY
HI398	SOCIETY & CULTURE IN AMER HIST
MA394	FUNDAMENTALS/NETWORK SCIENCE
PL361	RESEARCH METHODS I
PL372	SOCIOLOGY OF THE FAMILY
PL383	EXPERIMENTAL SOCIAL PSYCHOLOGY
PL398	LEADERSHIP THEORY & DEVEL
PY355	PHILOSOPHY OF MIND
SS364	GAME THEORY
SS380	MANPOWER-LABOR ECONOMICS
<b>OR</b>	
<b>Political Theory</b>	Choose 3 of 18
EN353	WAR LITERATURE
EN370	SHAKESPEARE
HI365	THE ANCIENT WORLD
HI385	WAR & ITS THEORISTS
HI391	WORLD RELIGIONS
LW475	ADV CONSTITUTIONAL LAW SEM
PY305	LOGICAL REASONING
PY310	REALITY AND KNOWLEDGE
PY325	MILITARY ETHICS
PY330	POLITICAL PHILOSOPHY
PY345	PHILOSOPHY OF RELIGION
PY350	PHILOSOPHY OF SCIENCE
PY355	PHILOSOPHY OF MIND
PY360	ANCIENT PHILOSOPHY
PY369	EASTERN THOUGHT
PY370	17TH & 18TH CENTURY PHILOSOPHY
PY375	KANT & 19TH CENTURY PHILOSOPHY
PY380	20TH CENTURY PHILOSOPHY
<b>OR</b>	
<b>Security Studies</b>	Choose 3 of 4
EV487	ENVIRONMENTAL SECURITY
LW482	NATIONAL SECURITY LAW
PL396	SNA FOR PUBLIC POLICY
SS477	ECONOMICS OF NATIONAL SECURITY
<b>OR</b>	
<b>Strategy and Statecraft</b>	Choose 3 of 12
DS345	MILITARY INNOVATION
DS370	STRATEGY AND POLICY
DS455	COMPARATIVE DEFENSE POLICY
DS490	SPECIAL TOPICS: STRAT STUDIES
EN353	WAR LITERATURE
HI344	MODERN DIPLOMACY
HI358	STRATEGY, POLICY & GENERALSHIP
MG390	NEGOTIATION FOR LEADERS
MG421	STRATEGIC MANAGEMENT

PY305	LOGICAL REASONING
PY325	MILITARY ETHICS
SS364	GAME THEORY
<b>AND</b>	
<b>Integrative Experience for the Major</b>	Choose 1 of 1
SS480	PUBLIC POLICYMAKING PROCESS
<b>AND</b>	
<b>Science Depth</b>	
Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.	
CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II
<b>STEM Depth</b>	
Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.	
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>AND</b>	
<b>Curriculum Requirements</b>	
This section describes how cadets in this major satisfy various curriculum requirements.	
<b>IT/CYBER Requirement</b>	
Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.	
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>Core Engineering Sequence</b>	
Cadets in this major may choose any authorized engineering sequence.	
<b>Writing-in-the-Major</b>	
Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of SS366.	
SS366	COMPARATIVE POLITICS

## 2021 Political Science Major: American Politics w/ Thesis (Honors) Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
PAP2H	Political Sci: Am Politics w/ Thesis (Honors)	Political Science Major: American Politics w/ Thesis (Honors)	Political Sci: Am Pol w/ Thesis (Honors)	1	1

## 2021 Political Science Major: American Politics w/ Thesis (Honors) Tracks

Subject Area	Description
<b>Program Requirements</b>	
The Political Science Honors Program, available to cadets concentrating in American Politics, Comparative Politics and International Relations, will consist of a two-course sequence, in addition to the requirements of the major, culminating in the cadet writing a thesis and defending it in front of a thesis committee.	

Cadets aspiring to graduate with a Political Science major with Honors will take an additional elective course to increase the depth of study in their major. They will then take the integrative experience (SS480, SS483 or SS486) in the fall of their Firstie year as part of a two-course thesis sequence, rather than the spring semester when cadets enrolled in the regular political science majors will normally take it. Both semesters of the integrative experience will include the same in-depth study of topics relevant to each political science major; only the analytical requirements will differ between semesters. In the spring semester, political science students will write and present an in-depth research paper that brings together theoretical perspectives acquired during their earlier studies. In the fall semester, political science honors students will complete the literature review, a full sentence outline with annotated bibliography, and introductory chapter of their theses, present their preliminary findings to their class, and finalize the selection of a three-member thesis committee.

Choose 1 of 1

Honors students will continue work on their theses in SS498 Senior Thesis in the Social Sciences, taken in the spring of the first class year when they will finish writing and defend their theses. SS498 Senior Thesis in the Social Sciences consists of independent study and weekly meetings between individual cadets and their thesis advisors. Cadets will be responsible for coordinating meetings with their advisor. Course requirements will include a 30-50 page thesis submitted NLT lesson 35, and a defense of the thesis before their entire committee during the final two weeks of classes. Upon completion of the thesis and defense, the thesis committee recommends a final grade to the thesis advisor.

SS498

SENIOR THESIS: SOCIAL SCIENCES

AND

#### Grade Requirements

Complete the requirements of the major as shown above, and attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

## 2021 Political Science Major: American Politics w/ Thesis Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
PAP2T	Political Science: American Politics w/ Thesis	Political Science Major: American Politics w/ Thesis	Political Sci: American Politics w/ Thesis	1	0

### 2021 Political Science Major: American Politics w/ Thesis Tracks

Subject Area	Description
Required Course	Choose 1 of 1
SS498	SENIOR THESIS: SOCIAL SCIENCES

## 2021 International Affairs Major - Foreign Policy and Security Studies Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
PIF0	International Affairs - FP & Security Studies	International Affairs Major - Foreign Policy and Security Studies	International Affairs	5	8

## 2021 International Affairs Major - Foreign Policy and Security Studies Tracks

Subject Area	Description
<b>Required Courses</b>	Choose 3 of 3
SS360	POL SCI RESEARCH METHODS
SS366	COMPARATIVE POLITICS
SS386	POLITICAL THOUGHT
<b>AND</b>	
<b>Thematic Track Gateway Courses</b>	Choose 2 of 2
Cadets in the Foreign Policy and Security Studies Track must take these two Thematic Gateway courses.	
SS395	INTERNATIONAL SECURITY
SS483	NATIONAL SECURITY SEMINAR
<b>AND</b>	
<b>Thematic Track Elective</b>	Choose 1 of 23
Cadets in the Foreign Policy and Security Studies Track must choose one thematic track elective from this list.	
IT460	CYBER POLICY, STRATEGY & OPNS
SS372	POLITICS OF CHINA
SS374	POLITICS OF NORTHEAST ASIA
SS375	POL OF THE POST-SOVIET STATES
SS377	POLITICS OF EUROPE
SS383	POLITICS OF THE MIDDLE EAST
SS384	POLITICS OF LATIN AMERICA
SS399	SOCSCI INTERNSHIP/PRACTCAL EXP
SS457	GRAND STRATEGY
SS458	TOPICS IN GRAND STRATEGY
SS464	HOMELAND SECURITY
SS465	TERRORISM: NEW CHALLENGES
SS466	COMBATING TERRORISM
SS472	THE AM STATE & THE SOLDIER
SS473	AMERICAN FOREIGN POLICY
SS476	CONFLICT AND NEGOTIATION
SS478	DIST PROF OF SECURITY STUD SEM
SS479	INTERNATIONAL ORGANIZATION
SS485	GOV & POLITICS SUB-SAHARAN AFR
SS486	STATE BUILDING
SS487	INT'L POLITICAL ECONOMY
SS490B	COLLOQUIUM (COMP POLITICS)
SS490C	COLLOQUIUM (INTER RELATIONS)
<b>AND</b>	
<b>Thematic Breadth Requirement</b>	Choose 1 of 2
Cadets in the Foreign Policy and Security Studies Track must select one course from the list of Thematic Track Gateway Courses from outside of their Thematic Track.	
SS475	COMP POLITICAL INSTITUTIONS
SS487	INT'L POLITICAL ECONOMY
<b>AND</b>	
<b>Regional Breadth Requirement</b>	Choose 1 of 7
SS372	POLITICS OF CHINA
SS374	POLITICS OF NORTHEAST ASIA
SS375	POL OF THE POST-SOVIET STATES
SS377	POLITICS OF EUROPE
SS383	POLITICS OF THE MIDDLE EAST
SS384	POLITICS OF LATIN AMERICA

SS485	GOV & POLITICS SUB-SAHARAN AFR
<b>AND</b>	
<b>American Politics Elective</b>	Choose 1 of 11
SS370	MASS MEDIA & AMER POLITICS
SS373	THE AMERICAN PRESIDENCY
SS376	AMERICAN POLITICAL DEVELOPMENT
SS379	LEGISLATIVE POLITICS
SS392	POLITICS-RACE,GENDER,SEXUALITY
SS464	HOMELAND SECURITY
SS468	POLITICAL PARTICIPATION
SS472	THE AM STATE & THE SOLDIER
SS480	PUBLIC POLICYMAKING PROCESS
SS481	POLITICS OF DEFENSE POLICY
SS490A	COLLOQUIUM (AMER POLITICS)

**AND****Complementary Support Courses**

All majors will choose three classes from beyond the discipline of political science as their complementary support courses. Cadets can request courses not in these groupings based on approval of the DAC or Program Director.

Cadets should be aware that some of these courses have prerequisites that may be difficult to attain, some courses are only offered at certain times, and course prerequisites may change. If cadets do not meet the prerequisite requirements but still would like to take the course, they are responsible to meet with the course director to see if taking the course will still be feasible.

**CSC-Foreign Language** Choose 3 of 24

Take three upper division courses in the same language (typically LX371, LX372, and LX475)

LA371	INTENSIVE INTERMEDIATE ARABIC
LA372	ARABIC FOR ORAL & WRITTEN COMM
LA475	ARABIC RDG/WRTG THRU MEDIA
LC371	INTENSIVE INTERMEDIATE CHINESE
LC372	CHINESE FOR ORAL & WRIT COMM
LC475	CHINESE RDG/WRTG THRU MEDIA
LF371	INTENSIVE INTERMEDIATE FRENCH
LF372	FRENCH FOR ORAL & WRITTEN COMM
LF475	FRENCH RDG/WRTG THRU MEDIA
LG371	INTENSIVE INTERMEDIATE GERMAN
LG372	GERMAN FOR ORAL & WRITTEN COMM
LG475	GERMAN RDG/WRTG THRU MEDIA
LP371	INTENSIVE INTERMED. PORTUGUESE
LP372	PORTUGUESE FOR ORAL/WRIT COMM
LP475	PORTUGUESE RDG/WRTG THRU MEDIA
LR371	INTENSIVE INTERMEDIATE RUSSIAN
LR372	RUSSIAN FOR ORAL & WRIT COMM
LR475	RUSSIAN RDG/WRTG THRU MEDIA
LS371	INTENSIVE INTERMEDIATE SPANISH
LS372	SPANISH FOR ORAL & WRIT COMM
LS475	SPANISH RDG/WRTG THRU MEDIA
LZ371	INTENSIVE INTERMEDIATE PERSIAN
LZ372	PERSIAN FOR ORAL & WRIT COMM
LZ475	PERSIAN RDG/WRTG THRU MEDIA

**OR****CSC-Regional Studies: Europe** Choose 3 of 11

LX300/LX400 = an additional language course in French, German, Portuguese, Spanish, or Russian.

EV365	GEOGRAPHY OF GLOBAL CULTURES
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EV371	GEOGRAPHY OF RUSSIA
EV386	GEOGRAPHY OF EUROPE
HI342	THE BRITISH ISLES SINCE 1688
HI343	MODERN GERMANY
HI361	MEDIEVAL EUROPE
HI364	MODERN WESTERN EUROPE
HI367	IMPERIAL AND SOVIET RUSSIA
HI368	MOD CENTRAL & E. EUR, 1896-1989
LX300	3RD SEMESTER FOREIGN LANG
LX400	4TH SEMESTER FOREIGN LANG

**OR****CSC-Regional Studies: Asia**

Choose 3 of 6

LX300 = an additional language course in Chinese.

EV365	GEOGRAPHY OF GLOBAL CULTURES
EV372	GEOGRAPHY OF ASIA
HI337	CHINA-C. KINGDOM TO COMM RULE
HI346	MODERN SOUTH ASIA
HI347	ASIAN WARFARE AND POLITICS
LX300	3RD SEMESTER FOREIGN LANG

**OR****CSC-Regional Studies: Middle East and Africa**

Choose 3 of 7

LX300 = an additional language course in Arabic, Hebrew or Persian.

EV365	GEOGRAPHY OF GLOBAL CULTURES
EV375	GEOGRAPHY OF AFRICA
EV376	GEOGRAPHY OF THE MIDDLE EAST
HI339	THE MODERN MIDDLE EAST
HI345	MODERN AFRICA
HI349	THE MIDDLE EAST TO 1798
LX300	3RD SEMESTER FOREIGN LANG

**OR****CSC-Regional Studies: The Americas**

Choose 3 of 8

LX300 = an additional language course in Spanish or Portuguese.

EV365	GEOGRAPHY OF GLOBAL CULTURES
EV373	GEOGRAPHY OF LATIN AMERICA
EV384	GEOGRAPHY OF NORTH AMERICA
HI348	MODERN LATIN AMERICA
HI372	US FGN RELATIONS SINCE 1898
HI396	MAKING OF MODERN AMERICA
HI397	COLD WAR AMERICA
LX300	3RD SEMESTER FOREIGN LANG

**OR****CSC-Law**

Choose 3 of 7

LW410	COMPARATIVE LEGAL SYSTEMS
LW462	CYBER LAW
LW473	ENVIRONMENTAL LAW
LW474	LAW OF ARMED CONFLICT
LW475	ADV CONSTITUTIONAL LAW SEM
LW481	INTERNATIONAL LAW
LW482	NATIONAL SECURITY LAW

**OR****CSC-Strategic Studies**

Choose 3 of 21

DS320	LANDPOWER
DS345	MILITARY INNOVATION
DS360	SP OPNS/LOW-INTENSITY CONFLICT
DS370	STRATEGY AND POLICY

DS460	INSURGENCY & COUNTERINSURGENCY
DS475	STRATEGIC DECISION MAKING
DS485	SEA AND AIR POWER
EV482	MILITARY GEOGRAPHY
HI338	WARFARE IN AGE OF REVOLUTIONS
HI347	ASIAN WARFARE AND POLITICS
HI355	WARFARE-AGE OF INDUSTRIALIZTN
HI356	WAR AT SEA AND IN THE AIR
HI357	WARFARE SINCE 1945
HI358	STRATEGY, POLICY & GENERALSHIP
HI359	ERA OF THE SECOND WORLD WAR
HI370	ANCIENT & MEDIEVAL WARFARE
HI376	EARLY MODERN WARFARE
HI381	HISTORY OF IRREGULAR WARFARE
HI385	WAR & ITS THEORISTS
PL471	LEADERSHIP IN COMBAT
XH397	GRAND STRATEGY FIELD STUDY

**OR****CSC-United States Foreign Policy**

Choose 3 of 9

HI340	COLONIAL AMERICA
HI369	AMERICAN FRONTIERS
HI372	US FGN RELATIONS SINCE 1898
HI390	EARLY NATIONAL AMERICA
HI394	REVOLUTIONARY AMERICA
HI395	HIST OF CIVIL WAR AMERICA
HI396	MAKING OF MODERN AMERICA
HI397	COLD WAR AMERICA
HI398	SOCIETY & CULTURE IN AMER HIST

**OR****CSC-Culture and Philosophy**

Choose 3 of 10

EN344	CRITICISM
HI391	WORLD RELIGIONS
LW461	CIVIL RIGHTS AND THE LAW
PL372	SOCIOLOGY OF THE FAMILY
PL377	SOCIAL INEQUALITY
PL383	EXPERIMENTAL SOCIAL PSYCHOLOGY
PL384	SOCIOLOGICAL THEORY
PY305	LOGICAL REASONING
PY326	CYBER ETHICS
PY350	PHILOSOPHY OF SCIENCE

**OR****CSC-Research Methods: General Track**

Choose 3 of 7

For the Design Requirement, you must select 2 courses from DS495, EV367, PL361, PL363. For the Formal Theory Requirement, you must select 1 course from MA383, PY305, SS364. Note that the prerequisite requirements for some of these courses may make this a difficult option for some cadets.

DS495	RESEARCH METHODS STRAT STUDIES
EV367	GEOGRAPHIC RESEARCH METHODS
MA383	FOUNDATIONS OF MATH
PL361	RESEARCH METHODS I
PL363	QUALITATIVE RESEARCH METHODS
PY305	LOGICAL REASONING
SS364	GAME THEORY

**OR**

**CSC-Research Methods:  
Quantitative Focus Track**

Choose 3 of 7

For the Quantitative Focus Track, you must select MA205 and MA367 and choose 1 of EV365, MA376, MA391, PL462, SS468. Note that the prerequisite requirements for some of these courses may make this a difficult option for some cadets.

EV367	GEOGRAPHIC RESEARCH METHODS
MA205	CALCULUS II
MA367	MATH FOR THE SOCIAL SCIENCES
MA376	APPLIED STATISTICS
MA391	MATHEMATICAL MODELING
PL462	EXPERIMENTAL APP IN PSYCHOLOGY
SS468	POLITICAL PARTICIPATION

**OR****CSC-Economics and Finance**

Choose 3 of 17

Cadets in this CSC track must select SS388 and any two of the remaining courses listed.

SS364	GAME THEORY
SS368	ECONOMETRICS I
SS380	MANPOWER-LABOR ECONOMICS
SS382	MICROECONOMICS
SS385	HISTORY OF ECONOMICS
SS387	PUBLIC FINANCE
SS388	MACROECONOMICS
SS390	BEHAVIORAL ECONOMICS
SS394	FINANCIAL STATEMENT ANALYSIS
SS461	INDUSTRIAL ORGANIZATION
SS462	ECON OF STABILIZATION & GROWTH
SS463	INVESTMENTS THEORY & APPL
SS469	ECONOMETRICS II
SS470	MONEY AND BANKING
SS484	INTERNATIONAL ECONOMICS
SS494	PRINCIPLES OF FINANCE
SS497	ISSUES IN MICROECONOMIC THEORY

**AND****Capstone Requirement -  
Integrative Experience for the  
Major**

Choose 1 of 3

Only cadets in the Thesis major can select SS498 to fulfill this requirement.

SS491	SENIOR PROJECT
SS495	SENIOR FACULTY COLLOQUIUM
SS498	SENIOR THESIS: SOCIAL SCIENCES

**AND****Science Depth**

Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II

**STEM Depth**

Cadets in this major must take CY305/CY355 to satisfy the STEM Depth Requirement.

CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING

**AND****Curriculum Requirements**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305

CYBER FOUNDATIONS

CY355

CYBER FOUNDATIONS - COMPUTING

### Core Engineering Sequence

Cadets in this major may select any Core Engineering Sequence. This sequence is selected in the fall semester of their third class year.

### Writing-in-the-Major

Cadets who select the Security Studies and Foreign Policy track of the International Affairs major will satisfy the West Point Writing Program requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of SS395 International Security. Cadets who select the Institutions, Governance, and Development track of the IA major will satisfy the West Point Writing Program requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of SS487 International Political Economy.

SS395

INTERNATIONAL SECURITY

## 2021 International Affairs Major - Institutions, Governance, and Development Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
PII0	International Affairs - Inst, Gov, & Development	International Affairs Major - Institutions, Governance, and Development	International Affairs	5	8

## 2021 International Affairs Major - Institutions, Governance, and Development Tracks

Subject Area	Description
<b>Required Courses</b>	Choose 3 of 3
SS360	POL SCI RESEARCH METHODS
SS366	COMPARATIVE POLITICS
SS386	POLITICAL THOUGHT
<b>AND</b>	
<b>Thematic Track Gateway Courses</b>	Choose 2 of 2
Cadets in the Institutions, Governance, and Development Track must take these two Thematic Gateway courses.	
SS475	COMP POLITICAL INSTITUTIONS
SS487	INT'L POLITICAL ECONOMY
<b>AND</b>	
<b>Thematic Track Elective</b>	Choose 1 of 20
Cadets in the Institutions, Governance, and Development must choose one thematic track elective from this list.	
SS372	POLITICS OF CHINA
SS374	POLITICS OF NORTHEAST ASIA
SS375	POL OF THE POST-SOVIET STATES
SS377	POLITICS OF EUROPE
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS383	POLITICS OF THE MIDDLE EAST
SS384	POLITICS OF LATIN AMERICA
SS385	HISTORY OF ECONOMICS
SS399	SOCSCI INTERNSHIP/PRACTCAL EXP
SS458	TOPICS IN GRAND STRATEGY

SS462	ECON OF STABILIZATION & GROWTH
SS473	AMERICAN FOREIGN POLICY
SS476	CONFLICT AND NEGOTIATION
SS477	ECONOMICS OF NATIONAL SECURITY
SS478	DIST PROF OF SECURITY STUD SEM
SS479	INTERNATIONAL ORGANIZATION
SS483	NATIONAL SECURITY SEMINAR
SS486	STATE BUILDING
SS490B	COLLOQUIUM (COMP POLITICS)
SS490C	COLLOQUIUM (INTER RELATIONS)

**AND****Thematic Breadth Requirement** Choose 1 of 2

Cadets in the Institutions, Governance, and Development must select one course from the list of Thematic Track Gateway Courses from outside of their Thematic Track.

SS395	INTERNATIONAL SECURITY
SS483	NATIONAL SECURITY SEMINAR

**AND****Regional Breadth Requirement** Choose 1 of 7

SS372	POLITICS OF CHINA
SS374	POLITICS OF NORTHEAST ASIA
SS375	POL OF THE POST-SOVIET STATES
SS377	POLITICS OF EUROPE
SS383	POLITICS OF THE MIDDLE EAST
SS384	POLITICS OF LATIN AMERICA
SS485	GOV & POLITICS SUB-SAHARAN AFR

**AND****American Politics Elective** Choose 1 of 11

SS370	MASS MEDIA & AMER POLITICS
SS373	THE AMERICAN PRESIDENCY
SS376	AMERICAN POLITICAL DEVELOPMENT
SS379	LEGISLATIVE POLITICS
SS392	POLITICS-RACE,GENDER,SEXUALITY
SS464	HOMELAND SECURITY
SS468	POLITICAL PARTICIPATION
SS472	THE AM STATE & THE SOLDIER
SS480	PUBLIC POLICYMAKING PROCESS
SS481	POLITICS OF DEFENSE POLICY
SS490A	COLLOQUIUM (AMER POLITICS)

**AND****Complementary Support Courses**

All majors will choose three classes from beyond the discipline of political science as their complementary support courses. Cadets can request courses not in these groupings based on approval of the DAC or Program Director.

Cadets should be aware that some of these courses have prerequisites that may be difficult to attain, some courses are only offered at certain times, and course prerequisites may change. If cadets do not meet the prerequisite requirements but still would like to take the course, they are responsible to meet with the course director to see if taking the course will still be feasible.

**CSC-Foreign Language** Choose 3 of 24

Take three upper division courses in the same language (typically LX371, LX372, and LX475)

LA371	INTENSIVE INTERMEDIATE ARABIC
LA372	ARABIC FOR ORAL & WRITTEN COMM
LA475	ARABIC RDG/WRTG THRU MEDIA
LC371	INTENSIVE INTERMEDIATE CHINESE
LC372	CHINESE FOR ORAL & WRIT COMM

LC475	CHINESE RDG/WRTG THRU MEDIA
LF371	INTENSIVE INTERMEDIATE FRENCH
LF372	FRENCH FOR ORAL & WRITTEN COMM
LF475	FRENCH RDG/WRTG THRU MEDIA
LG371	INTENSIVE INTERMEDIATE GERMAN
LG372	GERMAN FOR ORAL & WRITTEN COMM
LG475	GERMAN RDG/WRTG THRU MEDIA
LP371	INTENSIVE INTERMED. PORTUGUESE
LP372	PORTUGUESE FOR ORAL/WRIT COMM
LP475	PORTUGUESE RDG/WRTG THRU MEDIA
LR371	INTENSIVE INTERMEDIATE RUSSIAN
LR372	RUSSIAN FOR ORAL & WRIT COMM
LR475	RUSSIAN RDG/WRTG THRU MEDIA
LS371	INTENSIVE INTERMEDIATE SPANISH
LS372	SPANISH FOR ORAL & WRIT COMM
LS475	SPANISH RDG/WRTG THRU MEDIA
LZ371	INTENSIVE INTERMEDIATE PERSIAN
LZ372	PERSIAN FOR ORAL & WRIT COMM
LZ475	PERSIAN RDG/WRTG THRU MEDIA

**OR****CSC-Regional Studies: Europe** Choose 3 of 11

LX300/LX400 = an additional language course in French, German, Portuguese, Spanish, or Russian.

EV365	GEOGRAPHY OF GLOBAL CULTURES
EV371	GEOGRAPHY OF RUSSIA
EV386	GEOGRAPHY OF EUROPE
HI342	THE BRITISH ISLES SINCE 1688
HI343	MODERN GERMANY
HI361	MEDIEVAL EUROPE
HI364	MODERN WESTERN EUROPE
HI367	IMPERIAL AND SOVIET RUSSIA
HI368	MOD CENTRAL & E. EUR, 1896-1989
LX300	3RD SEMESTER FOREIGN LANG
LX400	4TH SEMESTER FOREIGN LANG

**OR****CSC-Regional Studies: Asia** Choose 3 of 6

LX300 = an additional language course in Chinese.

EV365	GEOGRAPHY OF GLOBAL CULTURES
EV372	GEOGRAPHY OF ASIA
HI337	CHINA-C. KINGDOM TO COMM RULE
HI346	MODERN SOUTH ASIA
HI347	ASIAN WARFARE AND POLITICS
LX300	3RD SEMESTER FOREIGN LANG

**OR****CSC-Regional Studies: Middle East and Africa** Choose 3 of 7

LX300 = an additional language course in Arabic, Hebrew or Persian.

EV365	GEOGRAPHY OF GLOBAL CULTURES
EV375	GEOGRAPHY OF AFRICA
EV376	GEOGRAPHY OF THE MIDDLE EAST
HI339	THE MODERN MIDDLE EAST
HI345	MODERN AFRICA
HI349	THE MIDDLE EAST TO 1798
LX300	3RD SEMESTER FOREIGN LANG

**OR****CSC-Regional Studies: The Americas** Choose 3 of 8

LX300 = an additional language course in Spanish or Portuguese.

EV365	GEOGRAPHY OF GLOBAL CULTURES
EV373	GEOGRAPHY OF LATIN AMERICA
EV384	GEOGRAPHY OF NORTH AMERICA
HI348	MODERN LATIN AMERICA
HI372	US FGN RELATIONS SINCE 1898
HI396	MAKING OF MODERN AMERICA
HI397	COLD WAR AMERICA
LX300	3RD SEMESTER FOREIGN LANG

**OR****CSC-Law**

Choose 3 of 7

LW410	COMPARATIVE LEGAL SYSTEMS
LW462	CYBER LAW
LW473	ENVIRONMENTAL LAW
LW474	LAW OF ARMED CONFLICT
LW475	ADV CONSTITUTIONAL LAW SEM
LW481	INTERNATIONAL LAW
LW482	NATIONAL SECURITY LAW

**OR****CSC-Strategic Studies**

Choose 3 of 21

DS320	LANDPOWER
DS345	MILITARY INNOVATION
DS360	SP OPNS/LOW-INTENSITY CONFLICT
DS370	STRATEGY AND POLICY
DS460	INSURGENCY & COUNTERINSURGENCY
DS475	STRATEGIC DECISION MAKING
DS485	SEA AND AIR POWER
EV482	MILITARY GEOGRAPHY
HI338	WARFARE IN AGE OF REVOLUTIONS
HI347	ASIAN WARFARE AND POLITICS
HI355	WARFARE-AGE OF INDUSTRIALIZTN
HI356	WAR AT SEA AND IN THE AIR
HI357	WARFARE SINCE 1945
HI358	STRATEGY, POLICY & GENERALSHIP
HI359	ERA OF THE SECOND WORLD WAR
HI370	ANCIENT & MEDIEVAL WARFARE
HI376	EARLY MODERN WARFARE
HI381	HISTORY OF IRREGULAR WARFARE
HI385	WAR & ITS THEORISTS
PL471	LEADERSHIP IN COMBAT
XH397	GRAND STRATEGY FIELD STUDY

**OR****CSC-United States Foreign Policy**

Choose 3 of 9

HI340	COLONIAL AMERICA
HI369	AMERICAN FRONTIERS
HI372	US FGN RELATIONS SINCE 1898
HI390	EARLY NATIONAL AMERICA
HI394	REVOLUTIONARY AMERICA
HI395	HIST OF CIVIL WAR AMERICA
HI396	MAKING OF MODERN AMERICA
HI397	COLD WAR AMERICA
HI398	SOCIETY & CULTURE IN AMER HIST

**OR****CSC-Culture and Philosophy**

Choose 3 of 10

EN344	CRITICISM
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HI391	WORLD RELIGIONS
LW461	CIVIL RIGHTS AND THE LAW
PL372	SOCIOLOGY OF THE FAMILY
PL377	SOCIAL INEQUALITY
PL383	EXPERIMENTAL SOCIAL PSYCHOLOGY
PL384	SOCIOLOGICAL THEORY
PY305	LOGICAL REASONING
PY326	CYBER ETHICS
PY350	PHILOSOPHY OF SCIENCE
<b>OR</b>	
<b>CSC-Research Methods: General Track</b>	Choose 3 of 7
For the Design Requirement, you must select 2 courses from DS495, EV367, PL361, PL363. For the Formal Theory Requirement, you must select 1 course from MA383, PY305, SS364. Note that the prerequisite requirements for some of these courses may make this a difficult option for some cadets.	
DS495	RESEARCH METHODS STRAT STUDIES
EV367	GEOGRAPHIC RESEARCH METHODS
MA383	FOUNDATIONS OF MATH
PL361	RESEARCH METHODS I
PL363	QUALITATIVE RESEARCH METHODS
PY305	LOGICAL REASONING
SS364	GAME THEORY
<b>OR</b>	
<b>CSC-Research Methods: Quantitative Focus Track</b>	Choose 3 of 7
For the Quantitative Focus Track, you must select MA205 and MA367 and choose 1 of EV365, MA376, MA391, PL462, SS468. Note that the prerequisite requirements for some of these courses may make this a difficult option for some cadets.	
EV367	GEOGRAPHIC RESEARCH METHODS
MA205	CALCULUS II
MA367	MATH FOR THE SOCIAL SCIENCES
MA376	APPLIED STATISTICS
MA391	MATHEMATICAL MODELING
PL462	EXPERIMENTAL APP IN PSYCHOLOGY
SS468	POLITICAL PARTICIPATION
<b>OR</b>	
<b>CSC-Economics and Finance</b>	Choose 3 of 17
Cadets in this CSC track must select SS388 and any two of the remaining courses listed.	
SS364	GAME THEORY
SS368	ECONOMETRICS I
SS380	MANPOWER-LABOR ECONOMICS
SS382	MICROECONOMICS
SS385	HISTORY OF ECONOMICS
SS387	PUBLIC FINANCE
SS388	MACROECONOMICS
SS390	BEHAVIORAL ECONOMICS
SS394	FINANCIAL STATEMENT ANALYSIS
SS461	INDUSTRIAL ORGANIZATION
SS462	ECON OF STABILIZATION & GROWTH
SS463	INVESTMENTS THEORY & APPL
SS469	ECONOMETRICS II
SS470	MONEY AND BANKING
SS484	INTERNATIONAL ECONOMICS
SS494	PRINCIPLES OF FINANCE
SS497	ISSUES IN MICROECONOMIC THEORY
<b>AND</b>	



**Capstone Requirement -  
Integrative Experience for the  
Major**

Choose 1 of 3

Only cadets in the Thesis major can select SS498 to fulfill this requirement.

SS491

SENIOR PROJECT

SS495

SENIOR FACULTY COLLOQUIUM

SS498

SENIOR THESIS: SOCIAL SCIENCES

**AND****Science Depth**

Cadets in this major may choose any of the authorized courses to satisfy the Science Depth requirement.

CH102

GENERAL CHEMISTRY II

CH275

BIOLOGY

PH206

PHYSICS II

PH256

ADVANCED PHYSICS II

**STEM Depth**

Cadets in this major must take CY305/CY355 to satisfy the STEM Depth Requirement.

CY305

CYBER FOUNDATIONS

CY355

CYBER FOUNDATIONS - COMPUTING

**AND****Curriculum Requirements**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305

CYBER FOUNDATIONS

CY355

CYBER FOUNDATIONS - COMPUTING

**Core Engineering Sequence**

Cadets in this major may select any Core Engineering Sequence. This sequence is selected in the fall semester of their third class year.

**Writing-in-the-Major**

Cadets who select the Security Studies and Foreign Policy track of the International Affairs major will satisfy the West Point Writing Program requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of SS395 International Security. Cadets who select the Institutions, Governance, and Development track of the IA major will satisfy the West Point Writing Program requirement by successfully completing the writing requirements in the core curriculum and the writing requirements of SS487 International Political Economy.

SS395

INTERNATIONAL SECURITY

**2021 Terrorism Studies Minor Curriculum**

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
TST1N	Terrorism Studies Minor	Terrorism Studies Minor	Terrorism Studies Minor	2	3

**2021 Terrorism Studies Minor Tracks**

Subject Area	Description
<b>Required Courses</b>	Choose 2 of 2
SS465	TERRORISM: NEW CHALLENGES
SS466	COMBATING TERRORISM

**AND****Subdisciplines**

Select one of the following five tracks. Cadets desiring to concentrate on counter terrorism studies should choose SS464 and 2 CT electives; those desiring to concentrate on terrorism in the Middle East/Africa should choose 1 mandatory course and 2 electives from the Middle East/Africa Track; those desiring to concentrate on terrorism in Asia should choose 1 mandatory course and 2 electives from the Asia Track; those desiring to concentrate on terrorism in Latin America should choose 1 mandatory course and 2 electives from the Latin America Track; and those desiring to concentrate on terrorism in Eurasia should choose 1 mandatory course and 2 electives from the Eurasia Track.

**AND****CT Track**

Choose 3 of 26

SS464 must be one of the 3 courses.

CY450	CYBER SECURITY ENGINEERING
DS360	SP OPNS/LOW-INTENSITY CONFLICT
DS370	STRATEGY AND POLICY
DS399	STRATEGIC STUDIES INTERNSHIP
DS460	COUNTERINSURGENCY OPERATIONS
EV487	ENVIRONMENTAL SECURITY
HI381	HISTORY OF IRREGULAR WARFARE
IT460	CYBER OPERATIONS
LW474	LAW OF ARMED CONFLICT
LW482	NATIONAL SECURITY LAW
MA394	FUNDAMENTALS/NETWORK SCIENCE
NE450	NUCLEAR WEAPONS EFFECTS
PL482	ARMED FORCES AND SOCIETY
SS399	SOCSCI INTERNSHIP/PRACTCAL EXP
SS464	HOMELAND SECURITY
SS473	AMERICAN FOREIGN POLICY
SS476	CONFLICT AND NEGOTIATION
SS477	ECONOMICS OF NATIONAL SECURITY
SS478	DIST PROF OF SECURITY STUD SEM
SS481	AM GRAND STRAT/DEFENSE POLICY
SS483	NATIONAL SECURITY SEMINAR
SS486	INTERNATIONAL SECURITY SEMINAR
SS490A	COLLOQUIUM (AMER POLITICS)
SS490B	COLLOQUIUM (COMP POLITICS)
SS490C	COLLOQUIUM (INTER RELATIONS)
XH467	WINNING THE PEACE

**OR****Middle East/Africa Track**

Choose 3 of 19

One of the three courses must be either HI339, HI345, or SS383.

EV365	GEOGRAPHY OF GLOBAL CULTURES
EV375	GEOGRAPHY OF AFRICA
EV376	GEOGRAPHY OF THE MIDDLE EAST
HI339	THE MODERN MIDDLE EAST
HI345	MODERN AFRICA
HI349	THE MIDDLE EAST TO 1798
LA483	ARAB CIVILIZATION I
LA484	ARAB CIVILIZATION II
LN440A	ARABIC IN CULTURAL CONTEXT
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
SS383	POLITICS & GOVT-MIDDLE EAST
SS399	SOCSCI INTERNSHIP/PRACTCAL EXP
SS475	DEMOCRATIZATION
SS485	POLIT & DEV SUB-SAHARAN AFR

SS490A	COLLOQUIUM (AMER POLITICS)
SS490B	COLLOQUIUM (COMP POLITICS)
SS490C	COLLOQUIUM (INTER RELATIONS)
XH467	WINNING THE PEACE
<b>OR</b>	
<b>Asia Track</b>	Choose 3 of 15
HI346 must be one of the 3 courses.	
EP360	EASTERN ART
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV372	GEOGRAPHY OF ASIA
HI337	CHINA-C. KINGDOM TO COMM RULE
HI346	MODERN SOUTH ASIA
HI347	ASIAN WARFARE AND POLITICS
LC483	CHINESE CIVILIZATION I
LC484	CHINESE CIVILIZATION II
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
PY380	EASTERN THOUGHT
SS372	POLITICS AND GOV OF CHINA
SS374	POL & GOV OF KOREAS & JAPAN
SS399	SOCSCI INTERNSHIP/PRACTCAL EXP
SS490A	COLLOQUIUM (AMER POLITICS)
SS490B	COLLOQUIUM (COMP POLITICS)
SS490C	COLLOQUIUM (INTER RELATIONS)
XH467	WINNING THE PEACE
<b>OR</b>	
<b>Latin America Track</b>	Choose 3 of 14
One of the 3 courses must be either HI348 or SS384.	
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV373	GEOGRAPHY OF LATIN AMERICA
HI348	MODERN LATIN AMERICA
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LP484	PORTUGUESE CIVILIZATION II
LS484	SPANISH AMERICAN CIV AND CULT
SS384	POLITICS & GOVT-LATIN AMER
SS399	SOCSCI INTERNSHIP/PRACTCAL EXP
SS475	DEMOCRATIZATION
SS490A	COLLOQUIUM (AMER POLITICS)
SS490B	COLLOQUIUM (COMP POLITICS)
SS490C	COLLOQUIUM (INTER RELATIONS)
XH467	WINNING THE PEACE
<b>OR</b>	
<b>Eurasia Track</b>	Choose 3 of 24
One of the 3 courses must be either HI364, HI368, or SS377.	
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV371	GEOGRAPHY OF RUSSIA
EV386	GEOGRAPHY OF EUROPE
HI343	MODERN GERMANY
HI361	MEDIEVAL EUROPE
HI364	MODERN WESTERN EUROPE
HI367	IMPERIAL AND SOVIET RUSSIA
HI368	MOD CENTRAL & E. EUR, 1896-1989
LF483	FRENCH CIVILIZATION I
LF484	FRENCH CIVILIZATION II
LG483	GERMAN CIVILIZATION I
LG484	GERMAN CIVILIZATION II

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LG492	20TH & 21ST CENTURY GERMANY
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LR483	RUSSIAN CIV I
LR484	RUSSIAN CIV II
SS375	GOV & POL RUSSIA & NEIGHBORS
SS377	POLITICS & GOV OF EUROPE
SS399	SOCSCI INTERNSHIP/PRACTCAL EXP
SS490A	COLLOQUIUM (AMER POLITICS)
SS490B	COLLOQUIUM (COMP POLITICS)
SS490C	COLLOQUIUM (INTER RELATIONS)
XH467	WINNING THE PEACE

## Department of Systems Engineering

### 2021 Engineering Management Minor Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
EMN0N	Engineering Management Minor	Engineering Management Minor	Engineering Management Minor	2	3

### 2021 Engineering Management Minor Tracks

Subject Area	Description
<b>Required Courses</b>	Choose 2 of 2
EM381	ENGINEERING ECONOMY
EM411	PROJECT MANAGEMENT
<b>AND</b>	
<b>Engineering Design Introductory Course</b>	Choose 1 of 9
CY300	PROGRAMMING FUNDAMENTALS
EE300	FUNDAMENTALS OF DIGITAL LOGIC
EE362	INTRODUCTION TO ELECTRONICS
EV300	ENVIRONMENTAL SCIENCE
EV401	PHYS & CHEM TREATMENT
MC300	FUND OF ENGR MECH AND DESIGN
NE361	COMPUTATIONAL DESIGN IN NE
SE300	INTRO TO SYSTEMS ENGINEERING
SE301	FNDTN ENGIN DSGN & SYS MGMT
<b>AND</b>	
<b>Quantitative Management Methods Course</b>	Choose 1 of 8
CE350	INFRASTRUCTURE ENGINEERING
CE495	TRANSPORTATION ENGINEERING
EM384	ANYL METH FOR ENGR MANAGEMENT
MA364	ENGINEERING MATHEMATICS
MA365	ADV MATH FOR ENGRS/SCIENTISTS
MA367	MATH FOR THE SOCIAL SCIENCES
SE350	SYSTEMS MODELING AND DESIGN
SE387	DETERMINISTIC MODELS
<b>AND</b>	
<b>Engineering Management Elective</b>	Choose 1 of 12
EM420	PRODUCTION OPERATIONS MGMT
EM481	SYSTEMS SIMULATION
EM482	SUPPLY CHAIN ENG & INFO MGMT
MA376	APPLIED STATISTICS
MA391	MATHEMATICAL MODELING
MA394	FUNDAMENTALS/NETWORK SCIENCE
ME370	COMPUTER AIDED DESIGN
SE370	COMPUTER AIDED SYSTEMS ENG
SE375	STATISTICS FOR ENGINEERS
SE385	DECISION ANALYSIS
SE485	COMBAT MODELING

SM484

SYSTEM DYNAMICS SIMULATION

## 2021 Engineering Management Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
ENM1	Engineering Management	Engineering Management Major	Engineering Management	11	6

### 2021 Engineering Management Major Tracks

Subject Area	Description
<b>Required Courses</b>	Choose 9 of 10
For the math requirement, cadets should take MA205 or MA255 if eligible.	
EM381	ENGINEERING ECONOMY
EM384	ANYL METH FOR ENGR MANAGEMENT
EM400	PROFESSIONAL ENGINEERING SEMIN
EM411	PROJECT MANAGEMENT
EM420	PRODUCTION OPERATIONS MGMT
EM482	SUPPLY CHAIN ENG & INFO MGMT
MA205	CALCULUS II
MA255	ADV MULTIVARIABLE CALCULUS
SE301	FNDTN ENGIN DSGN & SYS MGMT
SE375	STATISTICS FOR ENGINEERS
<b>AND</b>	
<b>Decision Science Elective</b>	Choose 1 of 3
SE302	FUNDAMENTALS OF SYSTEMS ENG
SE370	COMPUTER AIDED SYSTEMS ENG
SE385	DECISION ANALYSIS
<b>AND</b>	
<b>Simulation Elective</b>	Choose 1 of 3
EM481	SYSTEMS SIMULATION
SE485	COMBAT MODELING
SM484	SYSTEM DYNAMICS SIMULATION
<b>AND</b>	
<b>Math or Basic Science Elective</b>	Choose 1 of 10
To satisfy this requirement, Cadets can choose other courses containing at least 1 Math or Basic Science credit hour upon Program Director approval.	
CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
MA364	ENGINEERING MATHEMATICS
MA365	ADV MATH FOR ENGRS/SCIENTISTS
MA367	MATH FOR THE SOCIAL SCIENCES
MA371	LINEAR ALGEBRA
MA376	APPLIED STATISTICS
MA386	INTRO TO NUMERICAL ANALYSIS
MA391	MATHEMATICAL MODELING
PH365	MODERN PHYSICS
<b>AND</b>	
<b>Complementary Support Courses</b>	

Choose one of eight CSC tracks below.

**Project Management in Civil Engineering**

Choose 3 of 3

CE350

INFRASTRUCTURE ENGINEERING

CE450

CONSTRUCTION MANAGEMENT

MC300

FUND OF ENGR MECH AND DESIGN

**OR**

**Electrical Engineering**

Choose 3 of 3

EE302

INTRO ELECTRICAL ENGIN

EE360

DIGITAL LOGIC W/ EMBEDDED SYS

EE362

INTRODUCTION TO ELECTRONICS

**OR**

**Engineering Fundamentals**

Choose 3 of 3

EE301

FUNDAMENTALS OF ELEC ENGIN

MC300

FUND OF ENGR MECH AND DESIGN

MC311

THERMAL-FLUID SYSTEMS I

**OR**

**Environmental Engineering**

Choose 3 of 3

EV385

INTRO TO ENVIRON ENGR

EV398

GEOG INFORMATION SYSTEMS

EV481

WATER RESOURCES PLAN & DESIGN

**OR**

**Infrastructure Engineering**

Choose 3 of 3

CE350

INFRASTRUCTURE ENGINEERING

EV385

INTRO TO ENVIRON ENGR

EV398

GEOG INFORMATION SYSTEMS

**OR**

**Nuclear Engineering**

Choose 3 of 3

NE300

FUNDAMENTALS OF NUCLEAR ENGR

NE350

RADIOLOGICAL ENGR DESIGN

NE450

NUCLEAR WEAPONS EFFECTS

**OR**

**Software Fundamentals**

Choose 3 of 3

CS393

DATABASE SYSTEMS

CY300

PROGRAMMING FUNDAMENTALS

IT383

USER INTERFACE DEVELOPMENT

**OR**

**Chemical Engineering**

Choose 3 of 3

CH362

MASS & ENERGY BALANCES

CH363

SEPARATION PROCESSES

CH364

CHEMICAL REACTION ENGINEERING

**AND**

**Integrative Experience for the Major**

Choose 2 of 2

EM402

ENGINEERING MANAGEMENT DSN I

EM403

ENGINEERING MANAGEMENT DSN II

**AND**

**Science Depth**

Cadets in this major must take PH206/256 to satisfy the Science Depth requirement.

PH206

PHYSICS II

PH256

ADVANCED PHYSICS II

**STEM Depth**

Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.

CY305

CYBER FOUNDATIONS

CY355

CYBER FOUNDATIONS - COMPUTING

**AND****Curriculum Requirements**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirements**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305

CYBER FOUNDATIONS

CY355

CYBER FOUNDATIONS - COMPUTING

**Core Engineering Sequence**

Cadets in this major satisfy the core engineering sequence requirement by being an ABET accredited engineering major.

**Writing-in-the-Major**

Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and several courses in the engineering management major including SE401.

**2021 Engineering Management Major w/ Honors Curriculum**

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
ENM1H	Engineering Management w/ Honors	Engineering Management Major w/ Honors	Engineering Management w/ Honors	1	0

**2021 Engineering Management Major w/ Honors Tracks**

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
SE491	RSRCH PROJ IN SYS ENG/ENG MGMT
<b>AND</b>	
<b>Individual Research Requirement</b>	
The individual research requirement consists of a written document, suitable for presentation or publication at an undergraduate conference. The research will be affiliated with SE491. Cadets will choose a topic of interest stemming from an AIAD, capstone project or from some other 400 level course in the major. The Engineering Management Program Director will approve the research topics. Research must reflect individual effort. A faculty member will be assigned to provide supervision and mentorship throughout the research effort. Cadets will complete an abstract and a paper suitable for presentation at an undergraduate conference. The final document will be approved by both the faculty research mentor and the program director.	
<b>AND</b>	
<b>Grade Requirement</b>	
Complete the requirements of the major as shown above and attain a minimum APSC of 3.0 in the core curriculum and 3.5 in the major. (SE301, EM384, and EM411 will count as CES courses against core curriculum APSC Calculation).	

**2021 Systems and Decision Sciences Major Curriculum**



Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
SDS0	Systems and Decision Sciences	Systems and Decision Sciences Major	Systems and Decision Sciences	9	7

### 2021 Systems and Decision Sciences Major Tracks

Subject Area	Description
<b>Required Courses</b>	Choose 7 of 7
EM381	ENGINEERING ECONOMY
EM384	ANYL METH FOR ENGR MANAGEMENT
EM411	PROJECT MANAGEMENT
SE301	FNDTN ENGIN DSGN & SYS MGMT
SE370	COMPUTER AIDED SYSTEMS ENG
SE385	DECISION ANALYSIS
SM484	SYSTEM DYNAMICS SIMULATION
<b>AND</b>	
<b>Math Elective</b>	Choose 1 of 10
MA205	CALCULUS II
MA255	ADV MULTIVARIABLE CALCULUS
MA363	VECTOR CALCULUS AND ODE
MA371	LINEAR ALGEBRA
MA372	INTRODUCTION TO DISCRETE MATH
MA391	MATHEMATICAL MODELING
MA394	FUNDAMENTALS/NETWORK SCIENCE
MA462	COMBINATORICS
MA464	APPLIED ALGEBRA W/ CRYPTOLOGY
SE375	STATISTICS FOR ENGINEERS
<b>AND</b>	
<b>Areas of Concentration</b>	
Choose one of the following areas of concentration/tracks and courses not already taken above or below:	
<b>Personnel Management</b>	Choose 3 of 4
MG382	HUMAN RESOURCE MANAGEMENT
MG472	INTERNATIONAL MANAGEMENT
PL392	COGNITIVE PSYCHOLOGY
PL398	LEADERSHIP THEORY & DEVEL
<b>OR</b>	
<b>Project Management</b>	Choose 3 of 5
EM420	PRODUCTION OPERATIONS MGMT
EM481	SYSTEMS SIMULATION
EV391B	NATURAL HAZARDS AND RISK
LW488	BUSINESS LAW
SE302	FUNDAMENTALS OF SYSTEMS ENG
<b>OR</b>	
<b>Logistics Management</b>	Choose 3 of 4
EM420	PRODUCTION OPERATIONS MGMT
EM481	SYSTEMS SIMULATION
EM482	SUPPLY CHAIN ENG & INFO MGMT
EV390B	URBAN GEOGRAPHY
<b>OR</b>	
<b>Systems Defense</b>	Choose 3 of 12
DS345	MILITARY INNOVATION
DS360	SP OPNS/LOW-INTENSITY CONFLICT

DS370	STRATEGY AND POLICY
DS455	COMPARATIVE DEFENSE POLICY
DS460	INSURGENCY & COUNTERINSURGENCY
DS475	STRATEGIC DECISION MAKING
SE485	COMBAT MODELING
SS457	ADV STUDIES IN GRAND STRATEGY
SS464	HOMELAND SECURITY
SS465	TERRORISM: NEW CHALLENGES
SS481	POLITICS OF DEFENSE POLICY
SS483	NATIONAL SECURITY SEMINAR
<b>OR</b>	
<b>Financial Systems</b>	Choose 3 of 7
Cannot take both MG410 and SS494.	
MA476	MATHEMATICAL STATISTICS
MG380	MARKETING
MG410	MANAGERIAL FINANCE
SS368	ECONOMETRICS I
SS385	HISTORY OF ECONOMICS
SS469	ECONOMETRICS II
SS494	PRINCIPLES OF FINANCE
<b>OR</b>	
<b>Cyber Security</b>	Choose 3 of 4
CY300	PROGRAMMING FUNDAMENTALS
CY350	NETWORK ENGR & MGT
CY450	CYBER SECURITY ENGINEERING
IT460	CYBER POLICY, STRATEGY & OPNS
<b>OR</b>	
<b>Management Science</b>	Choose 3 of 3
EM420	PRODUCTION OPERATIONS MGMT
MG380	MARKETING
MG395	FUNDAMENTALS OF ACCOUNTING
<b>OR</b>	
<b>International Affairs</b>	Choose 3 of 32
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV371	GEOGRAPHY OF RUSSIA
EV372	GEOGRAPHY OF ASIA
EV373	GEOGRAPHY OF LATIN AMERICA
EV375	GEOGRAPHY OF AFRICA
EV376	GEOGRAPHY OF THE MIDDLE EAST
EV384	GEOGRAPHY OF NORTH AMERICA
EV386	GEOGRAPHY OF EUROPE
EV390B	URBAN GEOGRAPHY
EV398	GEOG INFORMATION SYSTEMS
HI339	THE MODERN MIDDLE EAST
HI345	MODERN AFRICA
HI346	MODERN SOUTH ASIA
HI347	ASIAN WARFARE AND POLITICS
HI348	MODERN LATIN AMERICA
HI358	STRATEGY, POLICY & GENERALSHIP
HI372	US FGN RELATIONS SINCE 1898
HI381	HISTORY OF IRREGULAR WARFARE
HI398	SOCIETY & CULTURE IN AMER HIST
HI463	RACE, ETHNICITY, NATION
SS366	COMPARATIVE POLITICS
SS372	POLITICS AND GOV OF CHINA
SS374	POL & GOV OF KOREAS & JAPAN

SS375	GOV & POL RUSSIA & NEIGHBORS
SS377	POLITICS & GOV OF EUROPE
SS378	ADV INTL RELATIONS THEORY
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS383	POLITICS & GOVT-MIDDLE EAST
SS384	POLITICS & GOVT-LATIN AMER
SS473	AMERICAN FOREIGN POLICY
SS485	GOV & POLITICS SUB-SAHARAN AFR
SS486	INTERNATIONAL SECURITY SEMINAR

**OR****Mathematical Modeling**

Choose 3 of 6

Note: These courses have MA205 co-requisite.

MA388	SABERMETRICS
MA391	MATHEMATICAL MODELING
MA461	GRAPH THEORY AND NETWORKS
MA462	COMBINATORICS
MA464	APPLIED ALGEBRA W/ CRYPTOLOGY
MA488	SPECIAL TOPICS IN MATHEMATICS

**OR****Student Designed**

Choose 3 of 3

Choose three courses from another math, science or engineering department from across the academy that meet the intent of gaining depth in an area of concentration/track as approved by the SDS Program Director and substituted for SE489, SE490, and SE491. This area of concentration is ideal for Cadets studying medicine, law, or other focus areas.

SE489	AD IND STY IN SYS ENG/ENG MGMT
SE490	AD TOPICS IN SYS ENG/ENG MGMT
SE491	RSRCH PROJ IN SYS ENG/ENG MGMT

**AND****Complementary Support Course - Elective 1**

Choose 1 of 2

MG390	NEGOTIATION FOR LEADERS
SS476	CONFLICT AND NEGOTIATION

**AND****Complementary Support Courses - Electives 2 and 3**

Choose 2 of 6

MG395	FUNDAMENTALS OF ACCOUNTING
MG472	INTERNATIONAL MANAGEMENT
PL479	LEADING ORGNZS THRU CHANGE
PY305	LOGICAL REASONING
SS364	GAME THEORY
SS394	FINANCIAL STATEMENT ANALYSIS

**AND****Integrative Experience for the Major**

Choose 2 of 2

SE402	SYSTEMS DESIGN & MANAGEMENT I
SE403	SYSTEMS DESIGN & MANAGEMENT II

**AND****Science Depth**

Cadets in this major may choose any approved Science Depth course.

CH102	GENERAL CHEMISTRY II
CH275	BIOLOGY
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II

**STEM Depth**

Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.

CY305	CYBER FOUNDATIONS
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CY355	CYBER FOUNDATIONS - COMPUTING
<b>AND</b>	
<b>Curriculum Requirements</b>	
This section describes how cadets in this major satisfy various curriculum requirements.	
<b>IT/CYBER Requirements</b>	
Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.	
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
<b>Core Engineering Sequence</b>	
The SDS major achieves the CES guidelines with existing courses of the major. The courses are SE301, EM384, and SE402.	
EM384	ANYL METH FOR ENGR MANAGEMENT
SE301	FNDTN ENGIN DSGN & SYS MGMT
SE402	SYSTEMS DESIGN & MANAGEMENT I
<b>Writing-in-the-Major</b>	
Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and several courses in the SDS major including SM484.	
SM484	SYSTEM DYNAMICS SIMULATION

## 2021 Systems and Decision Sciences Major w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
SDS0H	Systems and Decision Sciences w/ Honors	Systems and Decision Sciences Major w/ Honors	Systems and Decision Sciences w/ Honors	1	1

## 2021 Systems and Decision Sciences Major w/ Honors Tracks

Subject Area	Description
In addition to courses required for completion of the SDS Major, choose SE491 and one or more of any courses not already taken.	
<b>Elective Course</b>	
Take one additional 300- or 400-level elective course.	
<b>Research Course</b>	Choose 1 of 1
SE491	RSRCH PROJ IN SYS ENG/ENG MGMT
<b>AND</b>	
The individual research requirement consists of a written document, suitable for presentation or publication at an undergraduate conference.	
The research will be affiliated with a 400 level course in the Cadet's major. Cadets will choose a topic of interest stemming from their capstone project or from some other 400 level course in the major. Program directors will approve the research topics.	
Research must reflect individual effort.	
A faculty member will be assigned to provide supervision and mentorship throughout the research effort.	

Cadets will complete an abstract and a paper suitable for presentation at an undergraduate conference. The final document will be approved by both the faculty research mentor and the program director.

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**AND**


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**Grade Requirements**

Complete the requirements of the major shown above, attain an APSC of at least 3.0 in the core curriculum, and at least a 3.5 in the major.

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## 2021 Systems Engineering Minor Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
SEN0N	Systems Engineering Minor	Systems Engineering Minor	Systems Engineering Minor	2	3

### 2021 Systems Engineering Minor Tracks

Subject Area	Description
The Systems Engineering Minor (SEN0N) is available to cadets beginning with the Class of 2019. Cadets enrolled in the Systems Engineering Major (SEN1) are not eligible to take the Systems Engineering Minor.	
<b>Required Courses</b>	Choose 2 of 2
SE302	FUNDAMENTALS OF SYSTEMS ENG
SE370	COMPUTER AIDED SYSTEMS ENG
<b>AND</b>	
<b>Systems Engineering Design Introductory Course</b>	Choose 1 of 2
SE300	INTRO TO SYSTEMS ENGINEERING
SE301	FNDTN ENGIN DSGN & SYS MGMT
<b>AND</b>	
<b>Systems Modeling &amp; Engineering Design Course</b>	Choose 2 of 17
CE493	CIV ENG CAPSTONE DESIGN I
CE494	CIV ENG CAPSTONE DESIGN II
CH402	CHEM ENG PROCESS DESIGN
EM481	SYSTEMS SIMULATION
EV490	ENVIRON ENG DESIGN
EV491	ADV ENVIRON ENG DESIGN
ME404	MECHANICAL ENGINEERING DESIGN
ME496	MECHANICAL SYSTEM DESIGN
NE495	ADV NUC SYSTEM DESIGN PROJ I
NE496	ADV NUC SYSTEM DESIGN PROJ II
SE350	SYSTEMS MODELING AND DESIGN
SE385	DECISION ANALYSIS
SE450	APPLIED SYS DSGN/DECISN MAKING
SE485	COMBAT MODELING
SM484	SYSTEM DYNAMICS SIMULATION
XE401	INTEGRATIVE SYSTEM DESIGN I
XE402	INTEGRATIVE SYSTEM DESIGN II

## 2021 Systems Engineering Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
SEN1	Systems Engineering	Systems Engineering Major	Systems Engineering	12	5

## 2021 Systems Engineering Major Tracks

Subject Area	Description
<b>Required Courses</b>	Choose 9 of 9
EM411	PROJECT MANAGEMENT
SE301	FNDTN ENGIN DSGN & SYS MGMT
SE302	FUNDAMENTALS OF SYSTEMS ENG
SE370	COMPUTER AIDED SYSTEMS ENG
SE375	STATISTICS FOR ENGINEERS
SE385	DECISION ANALYSIS
SE387	DETERMINISTIC MODELS
SE388	STOCHASTIC MODELS
SE400	PROFESSIONAL ENGINEERING SEMIN
<b>AND</b>	
<b>Simulation Elective</b>	Choose 1 of 3
EM481	SYSTEMS SIMULATION
SE485	COMBAT MODELING
SM484	SYSTEM DYNAMICS SIMULATION
<b>AND</b>	
<b>Complementary Support Courses - Elective Tracks</b>	
Choose one of the following elective tracks: General Engineering, Mechanical Robotic Systems, Aeronautical System, Power Energy Systems, Infrastructure Systems, Nuclear Systems, Cyber Security Systems, Digital Communication Systems, Electrical Robotic Systems, Environmental Systems, Geographic Information Systems, Software Systems Development, Artificial Intelligence, Web Application System Development, Electrical Systems, Human Factor Systems, and Student Engineering Systems Design. The elective tracks consist of 5 courses that provide depth in a chosen engineering domain discipline outside the major. Students have the flexibility to design their own Elective Track under the Student Engineering Systems Design Track as long as they fulfill the minimum required Engineering Technology credit-hours.	
<b>Student Engineering Systems Design</b>	Choose 5 of 5
Choose 5 courses, one of which will be either CY305 or EE301 in order to fulfill the IT/Cyber requirements. Another will be MC300. At least 2 of the remaining 3 courses must be outside the department, have an engineering domain theme, and be approved by the Program Director. The designed track must fulfill the minimum amount of Engineering Technology credit-hours.	
<b>OR</b>	
<b>Mechanical Robotic Systems</b>	Choose 5 of 5
EE301	FUNDAMENTALS OF ELEC ENGIN
MC300	FUND OF ENGR MECH AND DESIGN
MC306	DYNAMICS
XE472	DYNAMIC MODELING AND CONTROL
XE475	MECHATRONICS
<b>OR</b>	

**Aeronautical Systems**

Choose 5 of 5

CY305

CYBER FOUNDATIONS

MC300

FUND OF ENGR MECH AND DESIGN

MC311

THERMAL-FLUID SYSTEMS I

MC312

THERMAL-FLUID SYSTEMS II

ME387

INTRO APPLIED AERODYNAMICS

**OR****Infrastructure Systems**

Choose 5 of 5

CE350

INFRASTRUCTURE ENGINEERING

CE450

CONSTRUCTION MANAGEMENT

EE301

FUNDAMENTALS OF ELEC ENGIN

MC300

FUND OF ENGR MECH AND DESIGN

MC311

THERMAL-FLUID SYSTEMS I

**OR****Nuclear Systems**

Choose 5 of 5

CY305

CYBER FOUNDATIONS

MC300

FUND OF ENGR MECH AND DESIGN

MC311

THERMAL-FLUID SYSTEMS I

NE300

FUNDAMENTALS OF NUCLEAR ENGR

NE350

RADIOLOGICAL ENGR DESIGN

**OR****Cyber Security Systems**

Choose 5 of 5

CY300

PROGRAMMING FUNDAMENTALS

CY305

CYBER FOUNDATIONS

CY350

NETWORK ENGR &amp; MGT

CY450

CYBER SECURITY ENGINEERING

MC300

FUND OF ENGR MECH AND DESIGN

**OR****Digital Communication Systems**

Choose 5 of 6

Math option in this track is MA364 or, for a select population, MA365.

EE301

FUNDAMENTALS OF ELEC ENGIN

EE362

INTRODUCTION TO ELECTRONICS

EE381

SIGNALS AND SYSTEMS

EE477

DIGITAL COMMUNICATIONS  
SYSTEMS

MA364

ENGINEERING MATHEMATICS

MA365

ADV MATH FOR ENGRS/SCIENTISTS

**OR****Electrical Robotic Systems**

Choose 5 of 5

EE301

FUNDAMENTALS OF ELEC ENGIN

EE360

DIGITAL LOGIC W/ EMBEDDED SYS

EE375

COMPUTER ARCHITECTURE  
W/MICRO

XE472

DYNAMIC MODELING AND CONTROL

XE475

MECHATRONICS

**OR****Environmental Systems**

Choose 5 of 5

EE301

FUNDAMENTALS OF ELEC ENGIN

EV301

ENV SCIENCE FOR ENGR &amp; SCIEN

EV385

INTRO TO ENVIRON ENGR

EV481

WATER RESOURCES PLAN &amp; DESIGN

MC300

FUND OF ENGR MECH AND DESIGN

**OR****Geographic Information Systems**

Choose 5 of 5

EE301

FUNDAMENTALS OF ELEC ENGIN

EV378	CARTOGRAPHY
EV398	GEOG INFORMATION SYSTEMS
EV498	ADV GEOGRAPHIC INFORMATION SYS
MC300	FUND OF ENGR MECH AND DESIGN
<b>OR</b>	
<b>Software Systems Development</b>	Choose 5 of 5
CS384	DATA STRUCTURES
CS393	DATABASE SYSTEMS
CS403	SOFTWARE TESTING & DEVELOPMENT
CY300	PROGRAMMING FUNDAMENTALS
CY305	CYBER FOUNDATIONS
<b>OR</b>	
<b>Artificial Intelligence</b>	Choose 5 of 5
CS384	DATA STRUCTURES
CS486	ARTIFICIAL INTELLIGENCE
CY300	PROGRAMMING FUNDAMENTALS
EE301	FUNDAMENTALS OF ELEC ENGIN
MC300	FUND OF ENGR MECH AND DESIGN
<b>OR</b>	
<b>Web Application System Development</b>	Choose 5 of 5
CS393	DATABASE SYSTEMS
CY300	PROGRAMMING FUNDAMENTALS
EE301	FUNDAMENTALS OF ELEC ENGIN
IT383	USER INTERFACE DEVELOPMENT
IT394	DISTRIB APPLICATION DEVELOPMNT
<b>OR</b>	
<b>Electrical Systems</b>	Choose 5 of 5
EE301	FUNDAMENTALS OF ELEC ENGIN
EE360	DIGITAL LOGIC W/ EMBEDDED SYS
EE362	INTRODUCTION TO ELECTRONICS
EE450	MILITARY ELECTRONIC SYSTEMS
MC300	FUND OF ENGR MECH AND DESIGN
<b>OR</b>	
<b>Human Factor Systems</b>	Choose 5 of 5
EE301	FUNDAMENTALS OF ELEC ENGIN
MC300	FUND OF ENGR MECH AND DESIGN
PL386	EXPERIMENTAL PSYCHOLOGY
PL394	ANTHROPOMETRICS & BIOMECHANICS
PL485	HUMAN FACTORS ENGINEERING
<b>OR</b>	
<b>General Engineering</b>	Choose 5 of 5
Cadets choosing this track can replace IT460 with any Environmental Considerations Topics class upon PD approval (see DAC counseling form for list). They can also replace EM381 with any Environmental Considerations Topics class with 3 ET credit-hours (see DAC counseling form for list).	
EE301	FUNDAMENTALS OF ELEC ENGIN
EM381	ENGINEERING ECONOMY
IT460	CYBER POLICY, STRATEGY & OPNS
MC300	FUND OF ENGR MECH AND DESIGN
MC311	THERMAL-FLUID SYSTEMS I
<b>OR</b>	
<b>Power Energy Systems</b>	Choose 5 of 5
CY305	CYBER FOUNDATIONS



MC300	FUND OF ENGR MECH AND DESIGN
MC311	THERMAL-FLUID SYSTEMS I
MC312	THERMAL-FLUID SYSTEMS II
ME472	ENERGY CONVERSION SYSTEMS
<b>AND</b>	
<hr/>	
<b>Integrative Experience for the Major</b>	Choose 2 of 2
SE402	SYSTEMS DESIGN & MANAGEMENT I
SE403	SYSTEMS DESIGN & MANAGEMENT II
<b>AND</b>	
<hr/>	
<b>Science Depth</b>	
Cadets in this major must take PH206/256 to satisfy the Science Depth requirement.	
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II
<b>STEM Depth</b>	
Cadets in this major must take MA205 or MA255 to satisfy the STEM Depth requirement.	
MA205	CALCULUS II
MA255	ADV MULTIVARIABLE CALCULUS
<b>AND</b>	
<hr/>	
<b>Curriculum Requirements</b>	
This section describes how cadets in this major satisfy various curriculum requirements.	
<b>IT/CYBER Requirements</b>	
Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355 or the combination of EE301, SE370 and SE400.	
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING
EE301	FUNDAMENTALS OF ELEC ENGIN
SE370	COMPUTER AIDED SYSTEMS ENG
SE400	PROFESSIONAL ENGINEERING SEMIN
<b>Core Engineering Sequence</b>	
Cadets in this major satisfy the core engineering sequence requirement by being an ABET accredited engineering major.	
<b>Writing-in-the-Major</b>	
Cadets in this major will satisfy the Writing Across the Disciplines requirement by successfully completing the writing requirements in the core curriculum and several courses in the engineering management major including SE401.	

## 2021 Systems Engineering Major w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
SEN1H	Systems Engineering w/ Honors	Systems Engineering Major w/ Honors	Systems Engineering w/ Honors	1	0

## 2021 Systems Engineering Major w/ Honors Tracks

Subject Area	Description
<b>Required Course</b>	Choose 1 of 1
SE491	RSRCH PROJ IN SYS ENG/ENG MGMT

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**AND****Individual Research Requirement**

The individual research requirement consists of a written document, suitable for presentation or publication at an undergraduate conference. The research will be affiliated with SE491. Cadets will choose a topic of interest stemming from an AIAD, capstone project or from some other 400 level course in the major. The Engineering Management Program Director will approve the research topics. Research must reflect individual effort. A faculty member will be assigned to provide supervision and mentorship throughout the research effort. Cadets will complete an abstract and a paper suitable for presentation at an undergraduate conference. The final document will be approved by both the faculty research mentor and the program director.

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**AND****Grade Requirement**

Complete the requirements of the major as shown above and attain a minimum APSC of 3.0 in the core curriculum and 3.5 in the major. (SE301, SE387, and SE388 will count as CES courses against core curriculum APSC Calculation).

## Department of Military Instruction

### 2021 Defense and Strategic Studies Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
DSS2	Defense and Strategic Studies	Defense and Strategic Studies Major	Defense and Strategic Studies	4	9

### 2021 Defense and Strategic Studies Major Tracks

Subject Area	Description
<b>Departmental Description</b>	
The Defense & Strategic Studies (DSS) Major is an interdisciplinary major that combines military science, history, economics, political science, geography, leadership, psychology, information technology, ethics, and law to understand the nature of conflict and the role of the military as an instrument of national power. Using a foundation in strategic theory and historical case studies, cadets examine issues relating to the different levels of conflict, military decision-making, defense policy and changes in warfare.	
<b>Required Course - Foundation</b>	Choose 1 of 1
DS320	LANDPOWER
<b>AND</b>	
<b>Required Course - Framework</b>	Choose 1 of 1
DS370	STRATEGY AND POLICY
<b>AND</b>	
<b>Required Course - Synthesis I</b>	Choose 1 of 2
DS350	PERSUASIVE COMMUNICATIONS
LX300	3RD SEMESTER FOREIGN LANG
<b>AND</b>	
<b>Required Course - Synthesis II</b>	Choose 1 of 2
DS345	MILITARY INNOVATION
DS455	COMPARATIVE DEFENSE POLICY
<b>AND</b>	
<b>DSS Tracks</b>	
Choose one of the following three DSS tracks.	
<b>Irregular Warfare Track</b>	Choose 2 of 2
DS360	SP OPNS/LOW-INTENSITY CONFLICT
DS460	INSURGENCY & COUNTERINSURGENCY
<b>OR</b>	
<b>Joint Warfare Track</b>	Choose 2 of 2
DS475	STRATEGIC DECISION MAKING
DS485	SEA AND AIR POWER
<b>OR</b>	
<b>Counter Terrorism Track</b>	Choose 2 of 2
SS465	TERRORISM: NEW CHALLENGES
SS466	COMBATING TERRORISM
<b>AND</b>	
<b>Electives</b>	Choose 2 of 64

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DS345	MILITARY INNOVATION
DS350	PERSUASIVE COMMUNICATIONS
DS360	SP OPNS/LOW-INTENSITY CONFLICT
DS399	STRATEGIC STUDIES INTERNSHIP
DS455	COMPARATIVE DEFENSE POLICY
DS460	INSURGENCY & COUNTERINSURGENCY
DS475	STRATEGIC DECISION MAKING
DS485	SEA AND AIR POWER
DS489	ADV IND STUD-DEF/STRAT STUDIES
DS490	SPECIAL TOPICS: STRAT STUDIES
EP374	THE ARTS OF WAR
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV482	MILITARY GEOGRAPHY
HI338	WARFARE IN AGE OF REVOLUTIONS
HI347	ASIAN WARFARE AND POLITICS
HI355	WARFARE-AGE OF INDUSTRIALIZTN
HI356	WAR AT SEA AND IN THE AIR
HI357	WARFARE SINCE 1945
HI358	STRATEGY, POLICY & GENERALSHIP
HI359	ERA OF THE SECOND WORLD WAR
HI370	ANCIENT & MEDIEVAL WARFARE
HI376	EARLY MODERN WARFARE
HI381	HISTORY OF IRREGULAR WARFARE
HI385	WAR & ITS THEORISTS
HI394	REVOLUTIONARY AMERICA
HI395	HIST OF CIVIL WAR AMERICA
IT460	CYBER POLICY, STRATEGY & OPNS
LA476	MILITARY SPKG/RDG - ARABIC
LC476	MILITARY SPKG/RDG - CHINESE
LF476	MILITARY SPKG/RDG - FRENCH
LG476	MILITARY SPKG/RDG - GERMAN
LP476	MILITARY SPKG/RDG - PORTUGUESE
LR476	MILITARY SPKG/RDG - RUSSIAN
LS476	MILITARY SPKG/RDG - SPANISH
LW474	LAW OF ARMED CONFLICT
LW481	INTERNATIONAL LAW
LW482	NATIONAL SECURITY LAW
LX300	3RD SEMESTER FOREIGN LANG
ME493	WEAPONS ENGINEERING
MG379	LEADING TEAMS
MG390	NEGOTIATION FOR LEADERS
PL387	FOUNDATIONS OF COUNSELING
PL471	LEADERSHIP IN COMBAT
PL482	ARMED FORCES AND SOCIETY
PY325	MILITARY ETHICS
SE385	DECISION ANALYSIS
SE485	COMBAT MODELING
SS364	GAME THEORY
SS370	MASS MEDIA & AMER POLITICS
SS378	GREAT POWER COMPETITION
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS457	ADV STUDIES IN GRAND STRATEGY
SS464	HOMELAND SECURITY
SS465	TERRORISM: NEW CHALLENGES
SS466	COMBATING TERRORISM
SS472	THE AM STATE & THE SOLDIER

SS473	AMERICAN FOREIGN POLICY
SS475	DEMOCRATIZATION
SS476	CONFLICT AND NEGOTIATION
SS477	ECONOMICS OF NATIONAL SECURITY
SS481	POLITICS OF DEFENSE POLICY
SS483	NATIONAL SECURITY SEMINAR
SS486	STATE BUILDING
XH397	GRAND STRATEGY FIELD STUDY

**AND****Complementary Support Courses**

Cadets must take HI301 and two other courses, one each from the following two tracks.

**Complementary Support Course - Required**

Choose 1 of 1

HI301

HISTORY OF THE MILITARY ART

**AND****Complementary Support Course - History Focus**

Choose 1 of 2

HI358

STRATEGY, POLICY &amp; GENERALSHIP

HI385

WAR &amp; ITS THEORISTS

**AND****Complementary Support Course - Related Disciplines**

Choose 1 of 4

EV482

MILITARY GEOGRAPHY

LW474

LAW OF ARMED CONFLICT

PY325

MILITARY ETHICS

SS473

AMERICAN FOREIGN POLICY

**AND****Integrative Experience for the Major - Required**

Choose 1 of 1

The Integrative Experience for this major is provided by DS495 and either DS496 or DS497.

DS495

RESEARCH METHODS STRAT STUDIES

**AND****Integrative Experience for the Major - Choice**

Choose 1 of 2

DS496

STRATEGIC STUDIES THESIS

DS497

STRATEGIC STUDIES CAPSTONE

**AND****Science Depth**

Cadets may choose any one of the courses that are accepted as fulfilling this requirement.

CH102

GENERAL CHEMISTRY II

CH275

BIOLOGY

PH206

PHYSICS II

PH256

ADVANCED PHYSICS II

**STEM Depth**

Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.

CY305

CYBER FOUNDATIONS

CY355

CYBER FOUNDATIONS - COMPUTING

**AND****Curriculum Requirements**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305/355.

CY305

CYBER FOUNDATIONS

CY355

CYBER FOUNDATIONS - COMPUTING

### Core Engineering Sequence

Cadets in this major may choose any approved three-course Core Engineering Sequence.

### Writing-in-the-Major

Cadets in this major satisfy the West Point Writing Program requirement by successfully completing writing requirements in the core curriculum and this course in the major.

DS320

LANDPOWER

## 2021 Defense and Strategic Studies Major w/ Thesis Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
DSS2T	Defense/Strategic Studies w/ Thesis	Defense and Strategic Studies Major w/ Thesis	Defense/Strategic Studies w/ Thesis	0	1

### 2021 Defense and Strategic Studies Major w/ Thesis Tracks

Subject Area	Description
<b>Elective</b>	
Take one additional 300- or 400-level approved elective course	
<b>AND</b>	
<b>Individual Research Requirement</b>	
Complete DS496 rather than DS497 for the base major.	

## 2021 Defense and Strategic Studies Major w/ Thesis (Honors) Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
DSS2H	Defense/Strategic Studies w/ Thesis (Honors)	Defense and Strategic Studies Major w/ Thesis (Honors)	Defense/Strategic Studies w/ Thesis (Honors)	0	2

### 2021 Defense and Strategic Studies Major w/ Thesis (Honors) Tracks

Subject Area	Description
<b>Elective</b>	
Take two additional 300- or 400-level approved elective courses.	
<b>AND</b>	
<b>Individual Research Requirement</b>	
Complete DS496 rather than DS497 for the base major.	
<b>AND</b>	
<b>Grade Requirements</b>	

Complete the requirements of the major as shown above, and attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major. Earn at least an A- in DS496.

# Kinesiology

## 2021 Kinesiology Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
KIN1	Kinesiology	Kinesiology Major	Kinesiology	10	3

## 2021 Kinesiology Major Tracks

Subject Area	Description
<b>Required Courses</b>	Choose 9 of 9
CH375	ADVANCED BIOLOGY
CH387	HUMAN PHYSIOLOGY
KN355	FUNCTIONAL ANATOMY
KN360	BIOMECHANICS OF HUMAN MOVEMENT
KN365	NUTRITION FOR PERFORMANCE
KN455	PSYCHOLOGY OF EXERCISE
KN460	EXERCISE PHYSIOLOGY
KN465	MOTOR CONTROL AND LEARNING
KN470	FITNESS ASSESSMENT AND RX
<b>AND</b>	
<b>Complementary Support Courses</b>	Choose 3 of 11
CH383	ORGANIC CHEMISTRY I
CH384	ORGANIC CHEMISTRY II
CH385	INTRODUCTION TO CELL BIOLOGY
CH460	HUMAN ANATOMY
CH473	BIOCHEMISTRY
PL250	NEUROCOG FNDTNS OF BEHAVIOR
PL361	RESEARCH METHODS I
PL390	BIOLOGICAL PSYCHOLOGY
PL391	SENSATION/PERCEPTN/PSYCPHYS
PL394	ANTHROPOMETRICS & BIOMECHANICS
PY350	PHILOSOPHY OF SCIENCE
<b>AND</b>	
<b>Integrative Experience for the Major</b>	Choose 1 of 1
KN480	T/P OF ADVANCED PERFORMANCE
<b>AND</b>	
<b>Science Depth</b>	
Cadets in this major may take any approved chemistry or physics course to satisfy the Science Depth requirement. Since biology is a required course in the major, it cannot count as a science depth course.	
CH102	GENERAL CHEMISTRY II
PH206	PHYSICS II
PH256	ADVANCED PHYSICS II
<b>AND</b>	
<b>STEM Depth</b>	
Cadets in this major must take CY305/355 to satisfy the STEM Depth requirement.	
CY305	CYBER FOUNDATIONS
CY355	CYBER FOUNDATIONS - COMPUTING



**AND****Curriculum Requirements**

This section describes how cadets in this major satisfy various curriculum requirements.

**IT/CYBER Requirement**

Cadets in this major will satisfy the IT/CYBER requirement by successfully completing the IT/CYBER content in the core curriculum and CY305.

CY305

CYBER FOUNDATIONS

CY355

CYBER FOUNDATIONS - COMPUTING

**Core Engineering Sequence**

Cadets in this major can choose any approved three-course Core Engineering Sequence.

**Writing-in-the-Major**

Cadets in this major satisfy the West Point Writing Program requirement by successfully completing writing requirements in the core curriculum and this course in the major.

KN470

FITNESS ASSESSMENT AND RX

**2021 Kinesiology Major w/ Honors Curriculum**

<b>Code</b>	<b>Short Description</b>	<b>Description</b>	<b>Transcript Description</b>	<b>Req Crse Cnt</b>	<b>Opt Crse Cnt</b>
KIN1H	Kinesiology w/ Honors	Kinesiology Major w/ Honors	Kinesiology w/ Honors	2	0

**2021 Kinesiology Major w/ Honors Tracks**

<b>Subject Area</b>	<b>Description</b>
<b>Required Courses</b>	Choose 2 of 2
*If PL361 is chosen to represent 1 of the 3 required Complementary Support Courses, an additional elective approved by the DPE must be taken along with KN495 to fulfill the Major with Honors curriculum requirements.	
KN495	HONORS THESIS
PL361	RESEARCH METHODS I
<b>AND</b>	

Complete the requirements of the major as shown above, attain a minimum APSC of 3.0 in the core curriculum and 3.5 in the major.