

Undergraduate Course Descriptions

A&VS 105. Professional Orientation. 2 Hours.

PR: Freshman standing or consent. Orientation to WVU and the academic programs in the Division of Animal and Veterinary Sciences; related career and professional opportunities. Field trips required.

A&VS 150. Introduction to Animal Science. 2 Hours.

Survey of major disciplines in animal and veterinary sciences with emphasis on related terminology; study of the development of breeds of livestock and their identification.

A&VS 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

A&VS 199. Orientation to Biochemistry. 1,2 Hour.

Orientation to degree programs and requirements, departmental resources, curriculum options, student responsibilities and opportunities.

A&VS 251. Principles of Animal Science. 4 Hours.

A comparative study of the production of meat, milk, eggs and wool. Nutrition, physiology genetics, hygiene and physical environment, and economics are discussed as bases for sound managerial decisions. (1 hr. lab.).

A&VS 275. Companion Animal Science. 3 Hours.

Basic physiology, nutrition and genetics; economic and ethical consideration of pet ownership; benefits of companion animals in society; aspects of handling and training, behavior, and common health diseases and parasite problems of pet animals.

A&VS 276. Service Dog Training. 3 Hours.

Current principles, theory, and practices for training service dogs.

A&VS 277. Service Dog Training Laboratory. 1 Hour.

PR: A&VS 276 with a minimum grade of C-. Through hands-on training, students will apply their knowledge of animal training following programmatic procedures for training dogs to have basic obedience skills and perform advanced service dog tasks. Students will use the most modern, professional, and ethical techniques for training mobility-assistance and psychiatric service dogs.

A&VS 281. Introduction to Equine Care and Use. 3 Hours.

Survey of basic equine care, breeds, use, management, and behavior with a lab in equine safety and handling.

A&VS 282. Equine Handling & Ground Training Lab. 1 Hour.

PR: A&VS 281. This introductory course provides students with hands-on skills to safely handle and train horses from the ground. Students will learn to identify equine body language, and understand how their body language, position, and use of aids can be used to teach horses from the ground.

A&VS 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

A&VS 298. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study, or research.

A&VS 330. Equine Facility Design and Management. 3 Hours.

PR: A&VS 281. Design of safe, functional equine facilities. Business, legal, environmental, and other issues involved with running an equine facility.

A&VS 343. Equine Hoof and Limb. 3 Hours.

Students in this course gain in-depth knowledge of the anatomy and physiology of the equine hoof and limb. Students will study tendons, ligaments, bones, soundness, hoof structure, shoeing principles, laminitis, and navicular disease.

A&VS 370. Riding Theory and Techniques. 3 Hours.

PR: A&VS 281. Advanced methods and techniques for performance in hunter and stock horse events; anatomical, physiological, and psychological implications; preparation of horses and riders.

A&VS 372. Careers in the Equine Industry. 3 Hours.

Provides an in-depth understanding of the careers available in the equine industry and prepares students to enter the job market.

A&VS 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

A&VS 402. Values and Ethics. 3 Hours.

PR: Senior standing or consent. Current ethical aspects in agriculture and forestry and their impact on societal values.

A&VS 404. Career Development. 1 Hour.

Identification of career opportunities and preparation of employment applications. Development of personal skills for interviewing for employment.

A&VS 409. Food Animal Diseases. 3 Hours.

PR: Junior and above or consent. General discussion of diseases, disease processes and management affecting farm animals excluding horses.

A&VS 410. Calving Management. 3 Hours.

PR: Junior standing and ANNU 260. Application of current management practices for calving beef cows for early calf management and for service sire selection.

A&VS 411. Dairy Heifer Management. 3 Hours.

PR: Junior standing and ANNU 260. Application of current management practices for raising dairy calves from birth through establishment of pregnancy.

A&VS 412. Lambing Management. 1 Hour.

PR: Junior standing and ANNU 260. Application of current management practices for lambing ewes and lamb management from birth through first months of life.

A&VS 413. Camelid Physiology & Management. 3 Hours.

PR: Junior standing and ANNU 260. Application of current management practices for alpaca management.

A&VS 425. Principles of Therapeutic Horsemanship 1. 3 Hours.

Explores the history, organization, principles, and procedures of an equine assisted activities and therapies program with the use of therapy horses for persons with disabilities.

A&VS 426. Principles of Therapeutic Horsemanship 2. 3 Hours.

PR: A&VS 425. Expand knowledge of therapeutic horsemanship based on their learning from A&VS 425. Criteria for becoming a professional in equine assisted activities and therapy fields will be emphasized.

A&VS 435. Marketing Registered Livestock. 3 Hours.

PR: Junior standing or consent. Application of strategies for marketing animals in the registered livestock industry in West Virginia and the surrounding states.

A&VS 451. Current Literature in Animal Science. 3 Hours.

PR: ANNU 260. Evaluation of current research in animal science; its application to production and management. Note: Previously listed as ANPR 250.

A&VS 461. Racehorse Industry Tour. 3 Hours.

Travel course designed to introduce students to the Thoroughbred and Standard-bred Racing Industries, including career opportunities and current events within it.

A&VS 462. Performance Horse Industry Tour. 3 Hours.

Travel course designed to introduce students to the various aspects of the Performance Horse Industry, including career opportunities and current events within it.

A&VS 463. Equine Events Management. 3 Hours.

Planning, marketing, facility preparations and horse show management necessary to run a successful nationally-sanctioned equine event.

A&VS 476. Animal Assisted Activities and Therapy. 3 Hours.

PR: A&VS 276. Lecture and laboratory sessions focus on Animal Assisted Activities and Therapies. Students will learn to critically evaluate the research in this area and will learn hands-on about implementing Animal Assisted Activities with varying populations.

A&VS 480. Assigned Topics. 1-4 Hours.

To be eligible to register in A&VS 480, the student must: (1) be in good standing, (2) obtain approval of the instructor supervising the topic, and (3) obtain approval from the instructor assigned the course responsibility.

A&VS 480A. Assigned Topics. 1-4 Hours.

To be eligible to register in A&VS 480A, the student must: (1) be in good standing, (2) obtain approval of the instructor supervising the topic, and (3) obtain approval from the instructor assigned the course responsibility.

A&VS 480B. Assigned Topics. 1-4 Hours.

To be eligible to register in A&VS 480B, the student must (1) be in good standing, (2) obtain approval of the instructor supervising the topic, and (3) obtained approval from the instructor assigned the course responsibility.

A&VS 480C. Assigned Topics. 1-4 Hours.

To be eligible to register in A&VS 480C, the student must (1) be in good standing, (2) obtain approval of the instructor supervising the topic, and (3) obtain approval from the instructor assigned the course responsibility.

A&VS 480D. Assigned Topics. 1-4 Hours.

To be eligible to register in A&VS 480D, the student must (1) be in good standing, (2) obtain approval of the instructor supervising the topic, and (3) obtain approval from the instructor assigned the course responsibility.

A&VS 480E. Assigned Topics. 1-4 Hours.

To be eligible to register in A&VS 480E, the student must (1) be in good standing, (2) obtain approval of the instructor supervising the topic, and (3) obtained approval from the instructor assigned the course responsibility.

A&VS 480F. Assigned Topics. 1-4 Hours.

To be eligible to register in A&VS 480F, the student must (1) be in good standing, (2) obtain approval of the instructor supervising the topic, and (3) obtain approval from the instructor assigned the course responsibility.

A&VS 480Y. Assigned Topics. 1-4 Hours.

To be eligible to register in A&VS 480Y, the student must (1) be in good standing, (2) obtain approval of the instructor supervising the topic, and (3) obtain approval from the instructor assigned the course responsibility.

A&VS 480Z. Assigned Topics. 1-4 Hours.

To be eligible to register in A&VS 480Z, the student must (1) be in good standing, (2) obtain approval of the instructor supervising the topic, and (3) obtain approval from the instructor assigned the course responsibility.

A&VS 481. Volunteerism for Equine Assisted Activities and Therapies. 3 Hours.

Discuss and demonstrate the importance of the role of the volunteer in the equine assisted activities and therapies fields.

A&VS 482. Practicum for Equine Assisted Activities and Therapies Instructor Certification. 3 Hours.

Prepares therapeutic riding instructors for certification within the guidelines for the Professional Association of Therapeutic Horsemanship (PATH).

A&VS 486. Advanced Service Dog Training. 3 Hours.

PR: A&VS 276 with a minimum grade of C-. Students will train advanced commands to psychiatric and mobility service dogs in training. Topics covered include dog selection, temperament testing, training methods, and legal issues.

A&VS 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

A&VS 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

A&VS 492. Directed Study. 1-3 Hours.

Directed study, reading, and/or research.

A&VS 493. Special Topics. 6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

A&VS 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

A&VS 495. Independent Study. 1-6 Hours.

Faculty-supervised study of topics not available through regular course offerings.

A&VS 496. Senior Thesis. 1-3 Hours.

PR: Consent.

A&VS 497. Research. 1-6 Hours.

Independent research projects.

A&VS 498. Honors. 1-3 Hours.

PR: Students in honors program and consent by the honors director. Independent reading, study or research.

A&VS 499. Global Service Learning. 3 Hours.

PR: Consent. Theory and practice of global service-learning. The main objective will be to pair the experiential aspects of meaningful and sustained service in the host community with work from the student's anchor course by offering a methodological framework for cultural immersion and community service as well as adding to the content of the anchor course.

ACCT 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

ACCT 200. Survey of Accounting. 3 Hours.

This course will provide students with a general understanding of financial and managerial accounting as well as individual income tax preparation.

ACCT 201. Principles of Accounting. 3 Hours.

The concepts, principles, and procedures pertaining to the preparation, analysis, and interpretation of financial statements.

ACCT 202. Principles of Accounting. 3 Hours.

PR: ACCT 201 with grade of C or better. Utilization of accounting information for purposes of managerial control and decision making; cost concepts, profit and financial budgeting, analysis of financial statements.

ACCT 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ACCT 298. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study, or research.

ACCT 311. Intermediate Accounting. 3 Hours.

PR: WVU sections require ACCT 201 and ACCT 202 with a grade of B- or better in each and PR or CONC: ACCT 321, WVUIT sections require ACCT 201 and ACCT 202 with a grade of C- or better. Development of accounting theory and practice, with emphasis on asset accounting.

ACCT 312. Intermediate Accounting. 3 Hours.

PR: ACCT 311 with a grade of C- or better. Theory and practice of accounting for liabilities, revenue recognition, and stockholders' equity; financial statement preparation.

ACCT 321. Introduction to Accounting Systems. 3 Hours.

PR: ACCT 202 and CS 101 with a minimum grade of C- in each. Accounting software for record keeping, financial analysis, and accounting policy evaluation, with emphasis on the accounting cycle.

ACCT 322. Accounting Systems. 3 Hours.

PR: ACCT 321 and BCOR 330 with a minimum grade of C- in each. Analysis of data processing fundamentals and information systems analysis, design, and implementation, including necessary computer hardware and software components with particular reference to accounting information systems and the controls necessary therein.

ACCT 331. Managerial Accounting. 3 Hours.

PR: ACCT 202 with a minimum grade of C-. This course is intended for non-accounting majors. Analysis of internal accounting practices with emphasis on use of data for performance evaluation, control, motivation, through accounting systems, and decision-making. (No credit available to students having credit for ACCT 431 and ACCT 432.).

ACCT 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ACCT 405. Accounting Concepts and Techniques. 2 Hours.

PR: Consent. (Course primarily for graduate students in industrial and labor relations.) Basic accounting concepts and techniques for decision making. Emphasis on the interpretation and analysis of financial statements and internal accounting reports.

ACCT 415. Advanced Accounting. 3 Hours.

PR: ACCT 312 and (ACCT 321 or ACCT 323). Accounting for business combinations, consolidations, foreign currency translation, governmental and nonprofit entities, and equity method investment accounting.

ACCT 416. Advanced Accounting Theory. 3 Hours.

PR: ACCT 312 and (ACCT 321 or ACCT 323). Critical analysis of accounting concepts and standards with emphasis on their origin, development, and significance.

ACCT 417. Advanced Accounting Problems. 3 Hours.**ACCT 431. Cost Management. 3 Hours.**

PR: ACCT 202 with a minimum grade of B-. Strategic cost management concepts and techniques used for decision making, control, and product and service costing.

ACCT 441. Income Tax Accounting 1. 3 Hours.

PR: ACCT 311 with a minimum grade of C-. Federal income taxation of individuals emphasizing filing status, exemptions, gross income, deductions, credits, compensation, retirement savings, home ownership, property transactions, and investments.

ACCT 442. Income Tax Accounting 2. 3 Hours.

PR: ACCT 441 with a minimum grade of C-. Federal income tax treatment of corporations, pass through entities and their owners or beneficiaries, introduction to multistate and international taxation, and tax planning.

ACCT 451. Auditing Theory. 3 Hours.

PR: ACCT 312 and (ACCT 322 or ACCT 323). Standards and procedures related to the independent audit of financial statements.

ACCT 461. Accounting for Nonbusiness Entities. 3 Hours.

PR: ACCT 312 and (ACCT 321 or ACCT 323). Accounting, reporting, and budgeting for governmental and nonprofit entities and the use of fund accounting data for planning and control.

ACCT 471. International Accounting. 3 Hours.

PR: ACCT 312 and (ACCT 321 or ACCT 323). Financial reporting from an international perspective, focusing on the flow of information in multiple currencies, differences in financial reporting requirements, development of international accounting standards, and related issues facing multinational enterprises and global financial markets.

ACCT 471A. International Accounting. 1 Hour.

PR: ACCT 312 or consent. Financial reporting from an international perspective, focusing on the flow of information in multiple currencies, differences in financial reporting requirements, development of international accounting standards, and related issues facing multinational enterprises and global financial markets.

ACCT 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

ACCT 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

ACCT 492. Directed Study. 1-3 Hours.

Directed study, reading, and/or research.

ACCT 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses. (Maximum of nine semester hours in any or all courses numbered 493 offered by the College of Business and Economics may be applied toward bachelor's and master's degree.).

ACCT 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

ACCT 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

ACCT 496. Senior Thesis. 1-3 Hours.

PR: Consent.

ACCT 497. Research. 1-6 Hours.

Independent research projects.

ACCT 498. Honors. 1-3 Hours.

PR: Students in honors program and consent by the honors director. Independent reading, study or research.

ACE 105. Nutrition for Coaches. 3 Hours.

General nutrition and dietary requirements to aid coaches and their athletes.

ACE 106. Athletic Coaching Education. 3 Hours.

Overview of athletic coaching profession including careers opportunities, critical current issues/trends, professional standards and the professional organizations.

ACE 168. Sport Officiating. 2 Hours.

Study of the art, science, industry standards, and best practices of the officiating profession across all levels of sport.

ACE 215. Sport for Exceptional Athlete. 3 Hours.

Examines the past, present and future of sport for athletes with disabilities and those competing at the Masters-level. The focus is on the coaching of these unique populations of competitive and recreational athletes.

ACE 256. Principles and Problems of Coaching. 3 Hours.

Designed to teach students the principles and problems of interscholastic athletic coaching.

ACE 265. Diversity and Sport. 3 Hours.

Covers historical and current topics relevant to diversity in sport as it relates to current sport practices. Practical strategies for facilitating acceptance of diversity within individual/team sports are discussed.

ACE 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ACE 298. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study, or research.

ACE 310. Coaching Pedagogy. 3 Hours.

PR: ACE 256 and PET 244 with a minimum grade of C- in each. Pedagogical theory applied to coaching context, including roles and responsibilities, planning, instruction and feedback, and assessment for sport contexts.

ACE 350. Career Planning In Sport. 3 Hours.

Students will utilize the Career Service Center and demonstrate a working knowledge of various job search strategies and career planning.

ACE 356. Techniques of Coaching: Cheerleading. 3 Hours.

Designed to provide students with knowledge, skills, and motivation that will prepare them to become safe and successful cheerleading coaches.

ACE 357. Techniques of Coaching: Swimming. 2 Hours.

Designed to permit students to gain athletic coaching experience through a supervised on-site experience with a varsity athletic team.

ACE 359. Techniques of Coaching: Track. 2 Hours.

Designed to permit students to gain athletic coaching experience through a supervised on-site experience with a varsity athletic team.

ACE 360. Techniques of Coaching: Wrestling. 2 Hours.

Designed to permit students to gain athletic coaching experience through a supervised on-site experience with a varsity athletic team.

ACE 361. Techniques of Coaching: Soccer. 2 Hours.

Designed to permit students to gain athletic coaching experience through a supervised on-site experience with a varsity athletic team.

ACE 362. Techniques of Coaching: Basketball. 2 Hours.

Designed to permit students to gain athletic coaching experience through a supervised on-site experience with a varsity athletic team.

ACE 364. Techniques of Coaching: Football. 2 Hours.

Designed to permit students to gain athletic coaching experience through a supervised on-site experience with a varsity athletic team.

ACE 365. Techniques of Coaching: Baseball. 2 Hours.

Designed to permit students to gain athletic coaching experience through a supervised on-site experience with a varsity athletic team.

ACE 366. Techniques of Coaching: Volleyball. 2 Hours.

Designed to permit students to gain athletic coaching experience through a supervised on-site experience with a varsity athletic team.

ACE 373. Fitness Management. 3 Hours.

Provide content knowledge and practical experiences in health and fitness facility management and operation. ACE certification exam prep.

ACE 374. Fitness Field Testing. 3 Hours.

Provide content knowledge and practical experience concerned with health screening, fitness testing, assessment and evaluation. Content needed for ACE national certification exam.

ACE 375. Lifestyle and Weight Management. 3 Hours.

Provide content knowledge and practical experience in basic nutrition, behavior change, exercise, and health psychology.

ACE 376. Techniques of Lacrosse. 2 Hours.

Design sport specific daily workout plans and season practice plans and instructional techniques for teaching fundamental technical and tactical skills of lacrosse.

ACE 377. Techniques of Tennis. 2 Hours.

Design sport specific daily workout plans and season practice plans and instructional techniques for teaching fundamental technical and tactical skills of tennis.

ACE 389. Introduction to Adventure Sports. 1 Hour.

This course provides a comprehensive introduction to the field of adventure sports including its history, career opportunities, and common competencies needed to succeed in the industry.

ACE 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ACE 410. Training Theories for Coaches. 3 Hours.

PR: PET 124 and PET 125 and PR or CONC: EXPH 365. Application of sport training theories to building, designing and assessing athlete training plans, seasonal team development and long term athlete development from physical literacy to peak performance at all participation levels.

ACE 430. Coaching Education Administration. 3 Hours.

An administrative focus of leadership, finance, fundraising, planning, facility development, personnel supervision, public relations, rules and regulations, purchase and care of equipment and the conducting of athletic events.

ACE 451. Plan/Risk Management for Adventure Sport. 3 Hours.

The objective of this course is to provide students with a thorough introduction to the process of planning safe, fun, and meaningful outdoor adventure programs.

ACE 452. Outdoor Leader/Group Dynamics. 3 Hours.

The objective of this course is to guide students as they explore the concepts of leadership and group dynamics as they pertain to working with groups in outdoor adventure settings.

ACE 453. Applied Sport Science Stats. 3 Hours.

PR: ACE 457 and STAT 211 with a minimum grade of C- in each. Applied statistics in sport science includes a review of basic research design, data collection in applied athletic settings, the selection and use of appropriate statistical procedures in sport science, as well as data visualization techniques that can be used to make decisions regarding athlete status.

ACE 454. Advanced Sport Instruction Techniques. 3 Hours.

The objective of this course is to provide students with a thorough overview of the skills and knowledge needed to effectively instruct participants of outdoor adventure activities.

ACE 455. Adventure Sports Internship. 2-6 Hours.

The goal of this course is to provide students with a supervised professional experience within an adventure sports environment under the direction of a supervisor at that site.

ACE 457. Introduction to Sport Technology and Sport Science. 3 Hours.

PR or CONC: ACE 368 with a minimum grade of C-. This course focuses on developing the skills needed to develop and implement appropriate monitoring and training evaluation plans in sport training. Additionally, students will learn to evaluate technology based tools to allow coaches to optimizing the training process and training adjustment decisions.

ACE 458. Internship: Practicum & Data Collection. 3 Hours.

PR: ACE 457 with a minimum grade of C-. Practical internship experience preparing training and competition monitoring programs as well as monitoring and collecting sport training and sport performance data using sport technologies.

ACE 459. Internship: Practicum & Data Analysis. 3 Hours.

PR: ACE 458 with a minimum grade of C-. Practical internship experience analyzing training and competition monitoring data and utilizing it for coaching based decisions using sport technologies.

ACE 463. Group Fitness Internship. 6 Hours.

This course provides a supervised professional experience in teaching group fitness classes under the direction of a professional at the site.

ACE 468. Sport Movement Analysis. 3 Hours.

PR: PET 124 and PET 125 with a minimum grade of C- in each. This course is designed to introduce a prospective coach to the principles of human movement.

ACE 469. Basic Strength/Conditioning-Coaches. 3 Hours.

PR: EXPH 365 and (EXPH 364 or (PET 124 and PET 125)) with a minimum grade of C- in each. Present basic exercise performance methodologies to assist in coaching athletics. Types of training include speed drills, agility drills, conditioning workouts, flexibility exercises, balance- improvement drills, and proper training-environment safety techniques.

ACE 470. Methods of Aerobic Instruction. 3 Hours.

PR: ACE 460 and ACE 462. Provide practical experiences in teaching group fitness exercises, including hi/lo, step, interval, and resistance training. ACE certification exam prep.

ACE 471. Women and Sport. 3 Hours.

Study the history of women in sport, and investigate issues that are directly related to women in sport as participants, coaches, administrations, parents, and fans.

ACE 472. Methods of Personal Training. 3 Hours.

PR: ACE 460 and ACE 462. Content knowledge, practical experiences of training techniques and exercise programming for the healthy adult and special populations. ACE certification exam prep.

ACE 473. Strength and Conditioning Coaching Techniques. 3 Hours.

PR: ACE 469 or EXPH 369 with a minimum grade of C-. Hands-on experience performing and coaching exercises to improve athletic performance. Specifics include resistance training, core exercises, proprioception rehabilitation, injury prevention, flexibility exercises, plyometric and explosive techniques, speed training, agility exercises.

ACE 474. Aquatic Fitness Instructor. 1 Hour.

PR: ACE 470. Provides theoretical framework, content knowledge, and practical experiences in teaching aquatic fitness in a group setting.

ACE 475. Strength and Conditioning Internship. 3 Hours.

PR: ACE 371 and ACE 372. Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors in strength and conditioning environment. Involves temporary placement with public or private enterprise for professional competence development.

ACE 476. Fitness Internship. 3-6 Hours.

PR: ACE 470 or ACE 472. Supervised experience in a health/fitness environment under the direction of a professional at the site. Preparation for the ACE national certification exam.

ACE 480. Fitness Certification. 2 Hours.

This course provides college credit for successfully passing the North American Council on Exercise Certification Exam in personal training or Group Fitness Instruction.

ACE 482. Certified Pool Operator. 3 Hours.

This class is designed to give students the knowledge and skills to sit for the NSPF Pool Operator Exam. (Students responsible for the NSPF Exam fee.).

ACE 483. Aquatic Exercise Professional. 3 Hours.

This course is designed to prepare students to take the AEA Professional Instructor Exam for water aerobics instructors. (Students are responsible for the AEA exam fee.).

ACE 484. Aquatic Staff and Programming. 3 Hours.

This class teaches students the different types of staff and programs available for an aquatic facility.

ACE 485. Aquatic Design and Budget. 3 Hours.

PR: ACE 482 and ACE 484 and PE 175 and PET 324. Teaches students to design a facility that is both functional and profitable.

ACE 486. Aquatic Management Internship. 3 Hours.

PR: ACE 482 and ACE 484 and PE 175 and PET 324. This class will give students hands-on experience with aquatic facility management.

ACE 487. Sport Specific Strength/Conditioning. 3 Hours.

PR: ACE 469 or EXPH 369 with a minimum grade of C-. Present optimal training for athletics of different sports in trained and untrained states. Specific protocols in resistance training and conditioning, correcting specific running and speed mechanics and agility movements.

ACE 488. Practicum Coaching Exceptional Athletes. 3 Hours.

PR: ACE 315. Integration of theoretical knowledge and development issues with practical field experiences working with exceptional athletes.

ACE 489. Practicum Coaching Youth Sport. 3 Hours.

PR: ACE 256, PET 244, and one of the ACE Techniques of Coaching. Integration of theoretical knowledge and development issues with practical field experiences in coaching youth.

ACE 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

ACE 491. Professional Field Experience. 1-6 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

ACE 492. Directed Study. 1-3 Hours.

Directed study, reading, and/or research.

ACE 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ACE 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

ACE 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

ACE 496. Senior Thesis. 1-3 Hours.

PR: Consent.

ACE 497. Research. 1-6 Hours.

Independent research projects.

ACE 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study, or research.

ADPR 215. Introduction to Advertising and Public Relations. 3 Hours.

PR: College of Media majors only. This introductory course in strategic communications provides a broad overview of professional advertising and public relations practices and their role in society. (Course is equivalent to ADV 215, PR 215, & STCM 215.).

ADRC 102. Adventure in Society. 3 Hours.

This course explores how outdoor adventure has transformed from a daily necessity for survival in early cultures to its modern form of recreational pursuit. Through readings, media, lectures and hands-on adventure experiences students explore historical and modern perspectives of popular adventure pursuits and their societal influence.

ADRC 111. Introduction to Whitewater Rafting. 1 Hour.

Introductory skills course in navigating class II-III whitewater in inflatable watercraft. Content includes equipment selection and care, river features and hazards, paddle strokes, steering, whitewater maneuvers and basic rescue techniques. Must meet essential eligibility requirements to participate.

ADRC 112. Whitewater Rafting Techniques. 1 Hour.

PR: ADRC 111 or permission of the instructor. Whitewater raft skill development course designed to build intermediate skills on class III-IV whitewater. Includes intermediate paddle raft maneuvers, oar-rig operation and self-recovery techniques. Must meet essential eligibility requirements to participate.

ADRC 121. Introduction to Rock Climbing. 1 Hour.

Introduction to rock climbing skills. Content includes skills necessary to climb and belay using a top-rope system both on artificial and natural climbing surfaces. Must meet essential eligibility requirements to participate.

ADRC 122. Rock Climbing Techniques. 1 Hour.

PR: ADRC 121 or permission of the instructor. Rock climbing skill development course focused on building proficiency for independent set-up and safe climbing practices in a top rope climbing setting. Must meet essential eligibility requirements to participate.

ADRC 131. Introduction to Mountain Biking. 1 Hour.

Introduction to mountain biking and riding techniques. Foundational content and practice on biking skills, etiquette, and technical knowledge. Must meet essential eligibility requirements to participate.

ADRC 211. Introduction to Whitewater Raft Guiding. 1 Hour.

PR: ADRC 112 or permission of the instructor. Introduces methods and skills of commercial raft guiding on class III-IV whitewater. Emphasis is placed on customer care, building a short-term paddling team, effective communication and group safety. Must meet essential eligibility requirements to participate.

ADRC 212. Swiftwater Rescue. 1 Hour.

PR: ADRC 111 or permission of the instructor. Introductory theory and skills in self and group rescue techniques of paddlers in swiftwater settings. Instruction emphasizes recognition and avoidance of common river hazards, personal/group safety, throw bag use, rope/boat/wading-based rescues, rescue PFD use and mechanical advantage systems. Must meet essential eligibility requirements to participate.

ADRC 221. Lead Climbing. 1 Hour.

PR: ADRC 122 or permission of the instructor. Introduces experienced top rope climbers to techniques and skills required to lead climb bolted sport and traditional lead routes. Emphasis on safety practices, equipment, lead climbing knots, lead belay technique, bolt assessment, route finding, traditional gear placement and anchor cleaning. Must meet essential eligibility requirements to participate. Must have the ability to climb 5.8 on a top rope.

ADRC 222. Climbing Rescue Techniques. 1 Hour.

PR: ADRC 122 or permission of the instructor. Introduces theory and skills in self and group rescue for climbers in high angle terrain. Content includes vertical rescue management, belay escapes, ascending ropes, mechanical advantage systems, lowering systems, rescue rappels and counter-balance systems. Must meet essential eligibility requirements to participate.

ADRC 311. Whitewater Raft Trip Leadership. 1 Hour.

PR: ADRC 211 or permission of the instructor. Advanced skill course focused on methods and skills needed to lead whitewater paddling day trips primarily in rafts. Hands-on activities focus on site selection, equipment, logistics, permits, risk management, on-river trip management and group safety. Must meet essential eligibility requirements to participate.

ADRC 321. Rock Climbing Instructor Development. 1 Hour.

PR: ADRC 221 and must meet essential eligibility requirements to participate plus also have at least one year of personal climbing experience or permission of the instructor. Advanced skill course focused on development of instructional skills in rock climbing. Hands-on activities emphasize climbing site selection, risk management, technical skills as well as key instructional skills. Rock Climbing resume must show more than 20 single pitch traditional gear protected leads over 5.6 difficulty and can comfortably climb 5.8 routes on top rope at time of course.

ADV 201. Advertising and Society. 3 Hours.

As a social institution, advertising plays a critical role in our daily lives. This course examines the social, economic, and legal aspects of advertising.

ADV 215. Principles of Advertising. 3 Hours.

(Open to all University students.) An introduction to all sides of the advertising field and to the process, quantitative, strategic and aesthetic, by which the sales message is planned, produced and delivered. This is the first advertising course for advertising majors and must be taken as a pre-requisite for other courses in the sequence.

ADV 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ADV 298. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study, or research.

ADV 309. Advertising and Creativity. 3 Hours.

PR: (ADV 201 or ADV 215) and JRL 101. (Advertising minors only.) Examines advertising copy and design concepts. Students develop their own advertisements and learn to critically analyze existing ad campaigns.

ADV 315. Advertising Copywriting. 3 Hours.

PR: ADV 215 and admission to the College of Media. Writing advertising copy and designing effective layouts. Elements of effective advertising: creating strategies, building campaigns, writing and rewriting, and preparing roughs and comps. Developing a portfolio. Emphasis on print advertising.

ADV 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ADV 401. Creative 1. 3 Hours.

PR: STCM 215 and STCM 315. Principles and practices of advertising creativity. Focuses on creative ideation process and includes advertising graphics, copy preparation and layout, evaluation and selection of media.

ADV 403. Media Planning/Strategy. 3 Hours.

PR: STCM 215 or ADV 215. Theory, evaluation and selection of advertising media for a variety of market situations. Market analysis, media characteristics, sources of media data, and development of a media plan.

ADV 409. Advertising Research and Media. 3 Hours.

PR: (ADV 201 or ADV 215) and JRL 101. (Advertising minors only.) Introduces the selection and evaluation of different media used in advertising campaigns. Students learn to analyze and select audiences, compare media, and conduct media research.

ADV 419. Advertising Strategies. 3 Hours.

PR: ADV 201 or ADV 215 and JRL 101. (Advertising minors only.) Introduces students to the concept of branding. Students learn how to use advertising to help create powerful brand loyalty by analyzing case studies of successful and unsuccessful branding attempts.

ADV 450. Audience Psychology and Behavior. 3 Hours.

PR: STCM 315. This course introduces students to the audience psychology and behaviors that influence advertising and PR strategies and campaigns.

ADV 451. Interactive Marketing Communications. 3 Hours.

PR: STCM 215 and STCM 315. An examination of the concepts, strategies and applications involved in direct marketing. Measurability, accountability, lists, data and the integration of direct marketing program into total marketing efforts are discussed.

ADV 455. Creative 2. 3 Hours.

PR: (STCM 215 or ADV 215) and STCM 315 and ADV 401. This course builds on the strategic and creative processes for strategic communication introduced in Creative 1, including design for print, digital broadcast mobile and other media.

ADV 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant. (Course will be graded pass/fail.).

ADV 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hrs.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development. (Course will be graded pass/fail.).

ADV 492. Directed Study. 1-3 Hours.

Directed study, reading, and/or research.

ADV 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ADV 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

ADV 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

ADV 496. Senior Thesis. 1-3 Hours.

PR: Consent.

ADV 497. Research. 1-6 Hours.

Independent research projects.

ADV 498. Honors. 1-3 Hours.

PR: Students in honors program and consent by the honors director. Independent reading, study, or research.

AEM 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

AEM 216. Living in a Microbial World. 3 Hours.

Explores the microbial world's impact on humankind and the evolution of microorganisms from the beginning of life on Earth. Follows the journey of how these microorganisms have fundamentally shaped the world today. Students will learn about microbial diversity, the impact of microbes on human health and society, and the economic impact of microbial processes and products.

AEM 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

AEM 298. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study, or research.

AEM 341. General Microbiology. 4 Hours.

PR: CHEM 115. Introductory morphological, cultural, and physiological characteristics of microorganisms; application of microbiology to agriculture, home economics, and health.

AEM 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

AEM 401. Environmental Microbiology. 4 Hours.

PR: AEM 341 or Consent. Microbiology as applied to soil, water, wastewater, sewage, air, and the general environment. Occurrence, distribution, ecology, and detection of microorganisms in these environments. (Also listed as ENVP 401.).

AEM 420. Soil Microbiology. 3 Hours.

PR: AEM 341. Microbiology and biochemistry of the soil environment. Occurrence, distribution, ecology, and detection of micro-organisms in soil. (Also listed as AGRN 420 and ENVP 420.).

AEM 445. Food Microbiology. 3 Hours.

PR: AEM 341. The relationships of microorganisms to food-borne illness and intoxications, microbial food safety and food quality, food spoilage, food preservation and bio-processing. The emerging food preservation and technologies and predictive microbiology will be introduced.

AEM 449. Food Microbiology Lab. 1 Hour.

PR: AEM 445. Laboratory training in methods used in microbiological examination of foods. This laboratory will provide hands-on experience for students who take or have taken AEM 445.

AEM 470. Microbes and Global Change. 3 Hours.

PR: AEM 341. Microbially-mediated biogeochemistry of elements important for life with an emphasis on how these processes are being impacted by anthropogenic activities.

AEM 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

AEM 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

AEM 492. Directed Study. 1-3 Hours.

Directed Study, reading, and/or research.

AEM 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

AEM 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

AEM 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

AEM 496. Senior Thesis. 1-3 Hours.

PR: Consent.

AEM 497. Research. 1-6 Hours.

Independent research projects.

AEM 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

AFCS 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

AFCS 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

AFCS 298. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study, or research.

AFCS 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

AFCS 480. Assigned Topics. 1-4 Hours.

Assigned studies of an interdisciplinary nature with a particular specialty area in agriculture and forestry. Students must be in good standing and have prior approval of a proposed outline from the division director's office.

AFCS 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

AFCS 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

AFCS 492. Directed Study. 1-3 Hours.

Directed study, reading, and/or research.

AFCS 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

AFCS 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

AFCS 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

AFCS 496. Senior Thesis. 1-3 Hours.

PR: Consent.

AFCS 497. Research. 1-6 Hours.

Independent research projects.

AFCS 498. Honors. 1-3 Hours.

PR: Students in honors program and consent by the honors director. Independent reading, study or research.

AFCS 499. Global Service Learning. 1-3 Hours.

PR: Consent. Theory and practice of global service learning. The main objective will be to pair the experiential aspects of meaningful and sustained service in the host community with work from the student's anchor course by offering a methodological framework for cultural immersion and community service as well as adding to the content of the anchor course.

AGBI 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

AGBI 199. Orientation to Biochemistry. 1,2 Hour.

Orientation to degree programs and requirements, departmental resources, curriculum options, student responsibilities and opportunities.

AGBI 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

AGBI 298. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study, or research.

AGBI 386. Undergraduate Research Experience 1. 1,2 Hour.

PR: At least sophomore standing and faculty permission. Students will write a research proposal, conduct supervised research, and write a progress report. This course is the first of a two-course sequence that leads to a research-based capstone experience. Students must also complete AGBI 486 for this to serve as the Biochemistry Capstone course.

AGBI 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

AGBI 401. Senior Seminar in Biochemistry. 1 Hour.

PR: Senior standing in biochemistry. Students select a topic at the forefront of biochemistry and gather information on the subject. Students then read, critically evaluate, write about the subject and present the topic in a seminar.

AGBI 403. Applied Biochemistry Literature. 3 Hours.

PR: Senior standing. Biochemistry Capstone Experience involving literature review, grant writing, and orally defending a proposal.

AGBI 410. Introductory Biochemistry. 3 Hours.

PR: CHEM 231 or (CHEM 233 and CHEM 235). Introduction to chemistry of cellular constituents (proteins, amino acids, carbohydrates, lipids, nucleic acids, enzymes and coenzymes) and their metabolism in animals and plants.

AGBI 411. Introductory Biochemistry Laboratory. 1 Hour.

PR or CONC: AGBI 410. Experiments to demonstrate certain principles and properties of animal and plant biochemicals.

AGBI 412. Introduction to Biochemistry Wet Laboratory. 1 Hour.

PR or CONC: AGBI 410 or Consent. Classic and modern techniques in biochemistry.

AGBI 480. Assigned Topics. 1-4 Hours.**AGBI 486. Undergraduate Research Experience 2. 2-4 Hours.**

PR: AGBI 386 and faculty permission. Continuation of a research-based Capstone Experience where students will conduct supervised research, present their research, and prepare a final report. This course is the second of a two-course research-based sequence and must be completed after AGBI 386 to count as the capstone experience.

AGBI 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

AGBI 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

AGBI 492. Directed Study. 1-3 Hours.

Directed study, reading, and or research.

AGBI 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

AGBI 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

AGBI 495. Independent Study. 1-6 Hours.

Faculty-supervised study of topics not available through regular course offerings.

AGBI 496. Senior Thesis. 1-3 Hours.

PR: Consent.

AGBI 497. Research. 1-6 Hours.

Independent research projects.

AGBI 498. Honors. 1-3 Hours.

PR: Students in honors program and consent by the honors director. Independent reading, study or research.

AGEE 101. Global Food and Agricultural Industry. 3 Hours.

Examination of the history and current developments, structures, functions, and importance of the international food and agricultural industry; issues, concerns and interrelationships and their impacts on American agriculture and society.

AGEE 102. Educational Colloquium in Agricultural and Extension Education. 1 Hour.

Components of and requirements for majoring in agricultural and extension education, including specializations, professional organizations, avenues to program completion, and requirements to be gainfully employed.

AGEE 103. Basics of Agricultural Mechanization. 2 Hours.

Study and application of the foundation area associated with agricultural mechanization.

AGEE 110. Microcomputer Applications in Agricultural Education. 3 Hours.

PR: Consent. Microcomputer applications in the instructional process of agricultural education; use of applications software, agricultural software, and data bases; and methods of integrating microcomputers into secondary school agriculture and extension programs.

AGEE 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

AGEE 202. Site Based Tutoring in Agriculture and Extension Education. 1 Hour.

Application of models and paradigms of learning in the content area through tutoring of individuals and small groups in an assigned public school setting.

AGEE 203. Agriculture Mechanics Practica. 3 Hours.

Theory and practice of designing and constructing structures, electrical circuits, masonry, equipment maintenance, and surveying.

AGEE 220. Group Organization and Leadership. 3 Hours.

Study of the impact of leaders and organized groups on societies. Role of groups in conveying cultural norms. Principles and techniques involved in forming and directing organizations in providing effective leadership.

AGEE 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

AGEE 298. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study, or research.

AGEE 303. Small Engines and Hydraulics. 3 Hours.

Theory and practice of disassembling, assembling and maintaining small gasoline engines and hydraulic devices.

AGEE 305. Metal Fabrication. 3 Hours.

Theory and practice of the fusion of metals. Advancing the science, technology and application of welding and allied processes including: joining, brazing, soldering, and cutting.

AGEE 330. Shop Theory and Methods. 3 Hours.

PR: AGEE 103 and AGEE 203. Methods of teaching agricultural mechanics including laboratory safety, organization and supervision.

AGEE 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

AGEE 421. Agricultural and Natural Resource Communications. 3 Hours.

Procedures and practices in developing, interpreting, and communicating agricultural and natural resource information; emphasis on visual materials and effective presentations. (3 hr. lec.).

AGEE 426. Directing Future Farmers of America and Supervised Agricultural Experiences. 3 Hours.

This course is specifically designed for students preparing to teach agricultural science in the public schools. Focus will be on planning, advising, supervising and evaluating student educational experiences through FFA and supervised agricultural experience programs.

AGEE 430. Methods of Teaching Agriculture. 3 Hours.

PR: Consent. Organization and preparation for teaching agriculture in middle and secondary schools.

AGEE 431. Adult Education in Agriculture and Natural Resources. 2 Hours.

PR: Consent. Planning and preparation for teaching adult classes and advising agricultural organizations.

AGEE 434. Managing Learning Environment. 3 Hours.

PR: AGEE 430 or consent. Principals/process in organizing and managing all components of the secondary agricultural education learning environment to maximize student achievement.

AGEE 438. Agriculture Education Curriculum Development. 2 Hours.

PR: AGEE 430 or Consent. Development, organization, preparation and evaluation of materials/curriculum for teaching agriculture in middle and secondary schools.

AGEE 440. Principles of Cooperative Extension. 2 Hours.

PR: Consent. History, philosophy, and mission of the cooperative extension service. Roles and functions of extension faculty in developing and presenting extension programs.

AGEE 441. Methods in Extension Education. 2 Hours.

PR: Consent. Organization and preparation for extension teaching and the processes of communication.

AGEE 452. Advanced Farm Machinery. 3 Hours.

Systems approach to selection, use and operation of machinery related to agriculture, forestry and other rural activities. Emphasis on safety and environmental impact. Use of records for management decisions, purchase, replacement, sale, or overhaul. (2 hr. rec., 3 hr. lab.).

AGEE 454Z. Agricultural Mechanics Problems. 1-4 Hours.

PR: C or better in an AGEE course. Special projects and problems in theoretical analysis, design, or construction. (1-4 hr. conference.).

AGEE 460. Engineering Technology for Urban Watersheds and Irrigation. 3 Hours.

Soil and water management; analysis of small watersheds and design of waterways, culverts, ponds, sediment basins, and turf irrigation systems. (3 hr. lec.).

AGEE 461. Waste Management-Composting. 3 Hours.

Both present and alternative waste management strategies will be examined. Students will learn how to analyze the waste stream and be able to develop management concepts which are both economically and environmentally sound. Lectures by waste management professionals will be integrated into the class to expose the students to the very latest practices and technology.

AGEE 488. Professional Agricultural Internship. 1-12 Hours.

PR: Consent.

AGEE 489. Agriculture and Extension Education Reflective Seminar. 1 Hour.

Provides opportunities for students to examine their field based experiences. Professional issues and problems are identified and discussed. Ethics and misconceptions about professional practice are examined.

AGEE 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

AGEE 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

AGEE 492. Directed Study. 1-3 Hours.

Directed study, reading, and/or research.

AGEE 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

AGEE 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

AGEE 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

AGEE 496. Senior Thesis. 1-3 Hours.

PR: Consent.

AGEE 497. Research. 1-6 Hours.

Independent research projects.

AGEE 498. Honors. 1-3 Hours.

PR: Students in honors program and consent by the honors director. Independent reading, study or research.

AGRL 111. Professions in Agriculture. 1 Hour.

An overview of subject matter related to agriculture in current society. Emphasis on agricultural organizations, environmental and food issues, careers, and programs within the college.

AGRL 112. Professions in Agriculture. 1 Hour.

Continuation of AGRL 111.

AGRL 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

AGRL 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

AGRL 298. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study, or research.

AGRL 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

AGRL 400. Agricultural Travel Course. 1-6 Hours.

Tour and study of production methods in major livestock and crop regions of the United States and other countries. Influence of population, climate, soil, topography, markets, labor, and other factors on agricultural production.

AGRL 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

AGRL 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

AGRL 492. Directed Study. 1-3 Hours.

Directed study, reading, and/or research.

AGRL 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

AGRL 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

AGRL 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

AGRL 496. Senior Thesis. 1-3 Hours.

PR: Consent.

AGRL 497. Research. 1-6 Hours.

Independent research projects.

AGRL 498. Honors. 1-3 Hours.

PR: Students in honors program and consent by the honors director. Independent reading, study or research.

AGRN 120. Principles of Agroecology. 3 Hours.

Agroecology is the study of interactions among organisms and the environment in agricultural systems and broader interactions with the biosphere to meet human needs and provide ecosystem services while minimizing their ecological footprint. We will explore the structure and function of agroecosystems across a range of climate, landscape/soil, and crop and animal components.

AGRN 125. Soil Judging. 1 Hour.

PR: Consent. Field study of soils for classification and land use evaluation. (3 hr. lab.) (May be repeated for maximum of 3 credits.).

AGRN 202. Principles of Soil Science. 3 Hours.

PR: CHEM 111 or equivalent and PR or CONC: AGRN 203. Introductory course. Soils as a natural resource emphasizing physical, chemical, and biological properties in relation to plant growth and production, land use and management, soil and water pollution, and environmental protection. (Regional campus concurrent.).

AGRN 203. Principles of Soil Science Laboratory. 1 Hour.

PR or CONC: AGRN 202 or consent. (Regional campus concurrent.).

AGRN 225. Advanced Soil Judging. 1 Hour.

Advanced field study for soil classification and land use evaluation. Participation in National Collegiate Soils contest required. (May be repeated for maximum of 3 credits.).

AGRN 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

AGRN 298. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study, or research.

AGRN 315. Turfgrass Management. 3 Hours.

PR: AGRN 202 and AGRN 203 and PLSC 206 or consent. Establishment, maintenance and adaptation of grasses for lawns, golf courses, parks, athletic and playing fields, and roadsides. Associating differential plant responses with soil, climatic and biotic factors. (3 hr. lec.).

AGRN 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

AGRN 410. Soil Fertility. 3 Hours.

PR: AGRN 202 and AGRN 203 and CHEM 111. Effect of soil chemical and physical properties on soil fertility; evaluation of essential and toxic nutrients and the controls on their availability; fertilizer and lime use; soil fertility evaluation. (3 hr. lec.).

AGRN 415. Soil Survey and Land Use. 3 Hours.

PR: AGRN 125 or consent. Identification of morphological characteristics and taxonomic units of soil; techniques of writing soil pedon and mapping unit descriptions; techniques of preparing soil maps; evaluation of soil for land use planning. (2 hr. lec., 3 hr. lab.).

AGRN 417. Soil Genesis and Classification. 4 Hours.

PR: AGRN 125 or Consent. Origin and formation of soils; principles of soil classification; study of soil pedons and polypedons; influence of soil-forming factors and processes. (Two Saturday field trips required.)(3 hr. lec., 3 hr. lab.).

AGRN 420. Soil Microbiology. 3 Hours.

PR: AEM 341. Microbiology and biochemistry of the soil environment. Occurrence, distribution, ecology, and detection of micro- organisms in soil. (Also listed as AEM 420 and ENVP 420.).

AGRN 425. Environmental Soil Management. 3 Hours.

PR: AGRN 202 and AGRN 203. This course provides a foundation for utilizing creative solutions and technical knowledge in preserving and enhancing soil and water quality. Soil conservation, precision agriculture and nutrient management for protection of soil and water quality are covered. (Also listed as ENVP 425.).

AGRN 430. Soil Physics. 3 Hours.

PR: AGRN 202 and AGRN 203. Physical properties of soils; water and air relationships and their influence on soil productivity.

AGRN 451. Principles of Weed Science. 3 Hours.

PR: PLSC 206 and AGRN 202 and AGRN 203 or consent. Fundamental principles of weed science including identification, ecology, and control in crops. (Also listed as ENVP 451.).

AGRN 452. Grain and Special Crops. 3 Hours.

PR: PLSC 206 and AGRN 202 and AGRN 203 or consent. Advanced study of methods in the production of grain and special crops. Varieties, improvement, tillage, harvesting, storage, and use of crops grown for seed or special purposes.

AGRN 454. Forage Crops. 3 Hours.

PR: PLSC 206 and AGRN 202 and AGRN 203 or consent. All phases of forage crop science including ecology, taxonomy, management practices used for the production of forage and seed, and forage composition, quality, and utilization. (3 hr. lec, 1 hr. lab.).

AGRN 455. Reclamation of Disturbed Soils. 3 Hours.

PR: Junior standing or above. Principles of soil science, geology, hydrology, and engineering will be applied to surface mine planning, overburden handling during mining, soil replacement and amendments, revegetation practices, acid mine drainage control and treatment, hazardous wastes, and land management of disturbed areas. (Field trip required.) (Also listed as ENVP 455.).

AGRN 480. Field Methods and Case Studies in Agroecology. 3 Hours.

PR: AGRN 120 and PLSC 206 and BIOL 350 and AGRN 410 and ENTO 404 and PPTH 401. This is a capstone course for the Agroecology major. The main goal of the course is to develop independent thinkers and professionals in the field of agroecology, including proficiency in use of field and analytical methods for assessment of the structure and function of agroecosystems and support of management decisions.

AGRN 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

AGRN 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

AGRN 492. Directed Study. 1-3 Hours.

Directed study, reading, and/or research.

AGRN 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

AGRN 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

AGRN 495. Independent Study. 1-6 Hours.

Faculty-supervised study of topics not available through regular course offerings.

AGRN 496. Senior Thesis. 1-3 Hours.

PR: Consent.

AGRN 497. Research. 1-6 Hours.

Independent research projects.

AGRN 498. Honors. 1-3 Hours.

PR: Students in honors program and consent by the honors director. Independent reading, study or research.

ANES 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ANES 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

ANES 491. Professional Field Experience. 1-18 Hours.

PR: Consent (may be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

ANES 492. Directed Study. 1-3 Hours.

Directed study, reading, and/or research.

ANES 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ANES 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

ANES 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

ANES 496. Senior Thesis. 1-3 Hours.

PR: Consent.

ANES 497. Research. 1-6 Hours.

Independent research projects.

ANES 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study, or research.

ANNU 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

ANNU 260. Animal Nutrition. 3 Hours.

PR: Two courses in chemistry. Digestion and metabolism of food nutrients, nutrient requirements of farm animals, and nutritive values of feeds and rations.

ANNU 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ANNU 298. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study, or research.

ANNU 361. Applied Nutrition. 3 Hours.

PR: ANNU 260. Feedstuffs, feed processing storage and additives, nutrient requirements and ration formulation for beef and dairy cattle, sheep, and horses. (2 hr. lec., 1 hr. lab.).

ANNU 362. Applied Nutrition 2. 3 Hours.

PR: ANNU 260. Applied feeding practices, nutrient requirements and ration formulation for poultry, swine, laboratory and companion animals. (2 hr. lec., 1 hr. lab.).

ANNU 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ANNU 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

ANNU 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

ANNU 492. Directed Study. 1-3 Hours.

Directed study, reading, and/or research.

ANNU 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ANNU 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

ANNU 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

ANNU 496. Senior Thesis. 1-3 Hours.

PR: Consent.

ANNU 497. Research. 1-6 Hours.

Independent research projects.

ANNU 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

ANPH 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ANPH 298. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study, or research.

ANPH 301. Introduction to Animal Physiology. 3 Hours.

PR: BIOL 102 or consent. The function and regulation of the principal systems of the animal body.

ANPH 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ANPH 400. Growth and Lactation Physiology. 3 Hours.

PR: ANPH 301 or consent. Animal life cycles; nature of growth and lactation; effects of biological, environmental, and social-psychological variants; physiological regulation and control.

ANPH 405. Animal Physiology Laboratory. 2 Hours.

PR: ANPH 301 or consent. Laboratory study of the physiological systems of animals and the influences of environment on these systems. (4 hr. lab.).

ANPH 424. Physiology of Reproduction. 3 Hours.

PR: Course in biology. Comparative physiology of reproduction in higher animals; endocrine functions involved in reproduction; genetic and environmental variations in fertility mechanisms.

ANPH 425. Reproductive Laboratory. 1 Hour.

PR or CONC: ANPH 424 and junior standing or consent. Laboratory study of the anatomy and function of the reproductive physiology system in animals.

ANPH 426. Applied Animal Reproduction. 1 Hour.

PR or CONC: ANPH 424 and junior standing or consent. Laboratory study, including rectal pregnancy examination, of reproductive physiology system in animals.

ANPH 430. Breeding of Farm Animals. 3 Hours.

PR: Course in genetics or consent. Application of principles of quantitative genetics to the improvement of farm animals.

ANPH 440. Equine Exercise Physiology. 3 Hours.

PR: A&VS 281 and ANPH 301. Evaluation of research in equine exercise science; physiological and mental adaptation to training; performance nutrition; unsoundness during training and competition; management and training regimes.

ANPH 480. Behavioral Patterns of Animals. 3 Hours.

Examination of the bases for exhibition and control of behavioral patterns of domesticated and nondomesticated species. (2 hr. lec., 3 hr. lab.).

ANPH 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

ANPH 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

ANPH 492. Directed Study. 1-3 Hours.

Directed study, reading, and/or research.

ANPH 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ANPH 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

ANPH 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

ANPH 496. Senior Thesis. 1-3 Hours.

PR: Consent.

ANPH 497. Research. 1-6 Hours.

Independent research projects.

ANPH 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

ANPR 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ANPR 298. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study, or research.

ANPR 308. Animal Production Experience. 1-4 Hours.

Experience in operating a dairy or livestock farm, including layers or broilers, calving, lambing, or farrowing of hogs. (Can be repeated up to a maximum of 4 credits. 3 hr. lab./ per hr. of credit.).

ANPR 336. Dairy Cattle History and Selection. 3 Hours.

To familiarize the student with the breeds of dairy cattle as well as modern concepts in phenotype and performance record evaluation. (2 labs.).

ANPR 338. Horse/Livestock/Poultry Evaluation. 3 Hours.

Appraisal of horses, cattle, sheep, poultry, and swine. Evaluation of scientific techniques used in selecting those species. Tours of representative flocks, herds and stables will be required. (Two 3 hr. labs.).

ANPR 339. Advanced Evaluation of Animal Products. 1-4 Hours.

PR: FDSC 334 or ANPR 336 or ANPR 338 or consent. Advanced selection, evaluation and grading of domestic livestock species and animal products. Tours of representative flocks, herds and processing plants will be required. (Can be repeated up to a maximum of 4 credits. 3 hr. lab./per hr. credit.).

ANPR 341. Beef Production. 3 Hours.

PR: ANNU 260. Applying the principles of breeding, nutrition, physiology, and economics for the production of beef cattle.

ANPR 343. Beef Production Laboratory. 1 Hour.

CoReq: ANPR 341. Experiences in beef cattle management, including feeding, handling, health programs and farm visits. (3 hr. lab.).

ANPR 344. Advanced Horse Management. 4 Hours.

PR: A&VS 281. Application of scientific principles and concepts in genetics, breeding, nutrition, reproduction, and anatomy to efficient production and management of horses.

ANPR 350. Milk Production. 3 Hours.

PR: ANNU 260. Feeding and management of dairy cattle. (2 hr. lec., 3 hr. lab.)(Regional campus course requires 30 hours of work on the campus farm.).

ANPR 353. Pork Production. 3 Hours.

PR: ANNU 260. Physiological and economical bases of pork production. (2 hr. lec., 3 hr. lab.).

ANPR 356. Small Ruminants. 3 Hours.

PR: ANNU 260. Genetics, nutrition, physiology, health and management of small ruminants in production of fiber, meat and milk, in local, regional and global contexts.

ANPR 367. Poultry Production. 3 Hours.

PR: ANNU 260. Special phases of broiler and egg production, disease control, labor-saving studies, and recent designs in housing and equipment for all types of poultry.

ANPR 369. Poultry Production Laboratory. 1 Hour.

CoReq: ANPR 367. Laboratory study of poultry production systems, related feed manufacturing and product processing practices. (3 hr. lab.).

ANPR 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ANPR 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

ANPR 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

ANPR 492. Directed Study. 1-3 Hours.

Directed study, reading, and/or research.

ANPR 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ANPR 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

ANPR 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

ANPR 496. Senior Thesis. 1-3 Hours.

PR: Consent.

ANPR 497. Research. 1-6 Hours.

Independent research projects.

ANPR 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

ARBC 101. Elementary Modern Standard Arabic 1. 3 Hours.**ARBC 102. Elementary Modern Standard Arabic 2. 3 Hours.**

PR: ARBC 101. Continuation of ARBC 101.

ARBC 203. Intermediate Modern Standard Arabic 1. 3 Hours.

PR: ARBC 102 or equiv. Continuation of ARBC 102.

ARBC 204. Intermediate Modern Standard Arabic 2. 3 Hours.

PR: ARBC 203 or consent. Continuation of ARBC 203.

ARBC 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ARBC 298. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study, or research.

ARBC 303. Arabic Conversation 1. 3 Hours.

PR: ARBC 204 or consent. Advanced communication course in Arabic. The course targets all language skills (speaking, listening, reading, and writing) with a major focus on developing communication skills in Arabic to handle a variety of social situations.

ARBC 304. Arabic Conversation 2. 3 Hours.

PR: ARBC 204. A lecture and discussion course designed to build communicative abilities and conversational fluency in Arabic at the intermediate-advanced level. Particular emphasis on writing descriptive and narrative short essays, reading and discussing authentic texts, and presenting information about a variety of topics in Arabic.

ARBC 305. Advanced Arabic Structure. 3 Hours.

PR: ARBC 204. A lecture and discussion course designed to develop communicative abilities in Arabic at the intermediate-advanced level. Particular emphasis on reading authentic texts and reviewing Arabic structures; integrating grammar and vocabulary practices; and reading, discussing, and writing short essays about a variety of texts that tackle social and cultural issues related to the Arab world.

ARBC 306. Readings in Arabic. 3 Hours.

PR: ARBC 204. A lecture and discussion course designed to develop knowledge of Arabic structures and vocabulary practices through reading, writing, and translating linguistically relevant authentic texts from Arabic media resources and Al-Kitaab at the intermediate-advanced level in Modern Standard Arabic.

ARBC 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ARBC 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

ARBC 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

ARBC 492. Directed Study. 1-3 Hours.

Directed study, reading, and/or research.

ARBC 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ARBC 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

ARBC 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

ARBC 496. Senior Thesis. 1-3 Hours.

PR: Consent.

ARBC 497. Research. 1-6 Hours.

Independent research projects.

ARBC 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

ARE 110. Agribusiness Accounting. 3 Hours.

Introduction to accounting for agricultural, rural, and small business managers. Emphasis on the accounting cycle, analysis and interpretation of financial statements, income taxes, and managerial accounting. (Students having prior college credit in accounting are not eligible for this course.).

ARE 150. Introductory Agricultural and Agribusiness Economics. 3 Hours.

Introduction to basic agricultural economics and agribusiness concepts, and the application of these concepts to agricultural and agribusinesses issues.

ARE 187. Energy Resource Economics. 3 Hours.

Dilemmas posed for developing and modern societies by rising energy demands amid concerns for the world's environment. Economics of fuel sources and technologies, and historical and new concerns over resource scarcities.

ARE 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

ARE 199. Orientation to Agriculture and Resource Economics. 1,2 Hour.

Orientation to degree programs and requirements, departmental resources, curriculum options, student responsibilities and opportunities.

ARE 201. Principles of Resource and Energy. 3 Hours.

PR: Third-year standing. Analyzes problems important or peculiar to mineral industry economics; exhaustion, externalities, risks, production cycle, industry structure, pricing, role of minerals in development and trade, resource planning. Energy, metals, industrial minerals. (3 hr. lec.).

ARE 204. Agribusiness Management. 3 Hours.

Overview of the agribusiness decision-making process, and the functions of agribusiness management; analysis of financial statements and budgeting for evaluating profitability of alternative enterprises and practices.

ARE 220. Introductory Environmental and Resource Economics. 3 Hours.

Economic analysis of environmental pollution, natural resource conservation and management, outdoor recreation, public land use, wildlife resources, water use, property rights, and benefit-cost issues.

ARE 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ARE 298. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study, or research.

ARE 360. Current Issues In Agriculture. 3 Hours.

Course focusing on the current scientific, ethical, legal, economic and political issues relating to agriculture. Students conduct group and individual research, discuss topics in an informal debate format and summarize positions in a written form.

ARE 380. Agribusiness Sales and Management. 3 Hours.

This course is designed to provide students with essential spreadsheet and sales skills they can apply regardless of their chosen profession. The course will cover spreadsheet basics and students will apply that knowledge to problems related to agricultural and resource economics.

ARE 382. Agricultural and Natural Resources Law. 3 Hours.

Introduction to legal concepts, principles and practices related to environmental, natural resource, and agricultural issues; in the context of the legal system within which statutes are enacted, administered and enforced.

ARE 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ARE 401. Applied Demand Analysis. 3 Hours.

Consumer demand economics applied to environmental, natural resource, and agricultural issues; analysis of factors that influence demand and determine prices; special applications to non-market, environmental, and natural resource amenities.

ARE 406. Applied Quantitative Methods. 3 Hours.

PR: ARE 150. Application of basic quantitative concepts and methods applied to agribusiness and natural resources. Topics include applied economics, statistics, mathematics, and financial concepts and decision-making tools for determining optimum allocation of resources for production processes.

ARE 410. Environmental and Resource Economics. 3 Hours.

PR: (ARE 401 and ARE 402) or ECON 301 or consent. Economic analysis of natural resource and environmental problems; management of renewable and non-renewable resources and environmental amenities; market failure, externalities, benefit-cost and risk analysis; property rights and the taking issue.

ARE 411. Rural Economic Development. 3 Hours.

Economic trends, development policies, and analysis of rural economies in the United States. Rural diversity, development concepts, rural planning, public programs and policies, and community analysis methods.

ARE 422. New Venture Creation. 3 Hours.

In this course, students will learn the process of starting a new venture. The student will gain an in depth understanding of the framework and process by practicing the techniques on a startup of the student's choice.

ARE 431. Marketing Agricultural Products. 3 Hours.

Organization, functions, and analysis of the agricultural marketing system. Food consumption, exports, price analysis, marketing costs, market power, commodities futures market, food safety, and government regulations.

ARE 435. Marketing Livestock Products. 3 Hours.

Livestock marketing practices and policies. Supply and demand, livestock price cycles, grading, marketing alternatives, processing and retailing. Economic analysis of alternatives, current issues, and trends.

ARE 440. Futures Markets and Commodity Prices. 3 Hours.

Analysis of price-making forces which operate in the market place; emphasis on major agricultural and mineral commodity and futures markets.

ARE 445. Energy Economics. 3 Hours.

Analysis of the energy sector and its relationship to the rest of the economy; energy security, deregulation, full cost pricing, substitutability among energy sources, transmission, new technologies, environmental considerations.

ARE 450. Agriculture, Environmental and Resource Policy. 3 Hours.

PR: ARE 150 or ECON 201 or consent. Economic analysis of agricultural, natural resource and environmental policies; problems of externalities and market failure, and alternative policies for addressing such problems; benefits and cost of alternative policies.

ARE 461. Agribusiness Finance. 3 Hours.

An overview of financial analysis and the application of financial principles to small, rural and agricultural businesses. Includes applications of financial analysis computer software.

ARE 462. Records and Analysis for Sustainable Agribusinesses. 3 Hours.

PR: ARE 110 or ACCT 201 or BUSA 202. Managerial and record-keeping concepts and tools needed to run a successful agribusiness. Course materials and lab activities focus on collection and use of information to assist in whole-farm/agribusiness planning, decision-making, performance evaluation, sensitivity analysis, and management. Course stresses the impact of record-keeping and performance evaluation on the ability of an agribusiness to achieve its strategic goals.

ARE 482. Enterprise Operation Law. 3 Hours.

Course focusing on laws applicable to businesses and the management of risks associated with operating a business. Students will learn to read and interpret laws and apply them to real-life business scenarios.

ARE 484. Agribusiness Strategic Management. 3 Hours.

PR: Senior standing. This course is designed to enhance understanding of business strategy formulation and implementation. The course provides a balance between theoretical concepts, principles, and practice of agribusiness management. Case studies are used to illustrate the crafting, implementation, and execution of optimal strategies.

ARE 485. Economics of Water Resources and Energy. 3 Hours.

PR: Calculus with a grade of B- or better or consent, introductory micro economics with a C- or consent. Allocation under scarcity, water institutions and management, risk, pricing, marketing, demand and supply estimation, interdependence between energy and water resources (Credit cannot be received for both ARE 485 and ARE 585).

ARE 488. Career Development. 1 Hour.

PR: For Resource Economics and Management majors only. Development of career goals and job search skills. Investigation of topics that advance students in their career goals.

ARE 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

ARE 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

ARE 492. Directed Study. 1-3 Hours.

Directed study, reading, and/or research.

ARE 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ARE 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

ARE 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

ARE 496. Senior Thesis. 1-3 Hours.

PR: Consent.

ARE 497. Research. 1-6 Hours.

Independent research projects.

ARE 498. Honors. 1-3 Hours.

PR: Students in honors program and consent by the honors director. Independent reading, study or research.

ARHS 101. Landmarks of World Art. 3 Hours.

Introduction to the study of art history from prehistory to the present in which major landmarks of world art and architecture are considered as aesthetic objects, cultural documents and within their socio-historical contexts.

ARHS 111. World Architecture 1. 3 Hours.

Covers the built environment from cave shelter to Constantine's Rome. Includes architecture of ancient Mesopotamia, Egypt, Greece, Rome, Asia, Africa, and the Americas. Considers these periods' influence on modern structures.

ARHS 120. Survey of Art History 1. 3 Hours.

The course examines the history of the visual arts in world cultures from pre-historic periods to the fourteenth century.

ARHS 160. Survey of Art History 2. 3 Hours.

The course examines the history of the visual arts in world cultures from the fourteenth century to the present.

ARHS 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

ARHS 225. GPS-Introduction to Italian Culture. 3 Hours.

Exploration of Italian history, culture, art, design, and language through lecture and experiential learning. Possible field trips: Florence, Rome, Pisa, Sienna, Lucca, Milan. Students conduct an individual design research project.

ARHS 240. Art Theory. 3 Hours.

PR: ARHS 120 and ARHS 160 and ((ENGL 101 and ENGL 102) or ENGL 103). The course will examine development and tradition of the literature of art theory and its relationship to artistic practice.

ARHS 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ARHS 298. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study, or research.

ARHS 304. Asian Art. 3 Hours.**ARHS 307. Native American Visual Culture. 3 Hours.**

In-depth overview of the visual material culture of the First Peoples of North America north of the Rio Grande, pre-contact to present. Focus on formal analysis with careful contextual studies.

ARHS 310. Introduction to Curatorial Practices. 3 Hours.

PR: ARHS 120 and ARHS 160. This course provides an introduction to museum structure and specifically the role of the curator. The objective is to assess exhibition display and develop critical perspective on curatorial practice.

ARHS 320. Greek and Roman. 3 Hours.

The arts of the Aegean World, c. 2000 BCE, Greece and Rome to 400 CE are examined. Architecture, sculpture and painting will be included.

ARHS 321. Ancient Greek Art and Architecture. 3 Hours.

PR: ARHS 120 with a minimum grade of C-. A study of Greek Art and Architecture, beginning with the Aegean world in the Third Millennium BCE and continuing through the Hellenistic period, up to about 31 BCE.

ARHS 325. Ancient Roman Art and Architecture. 3 Hours.

PR: ARHS 120 and ARHS 160. A study of a limited number of monuments in two-dimensional and three-dimensional mediums from the first millennium BCE through Imperial Rome.

ARHS 331. Medieval. 3 Hours.

PR: ARHS 120 and ARHS 160. The arts of Europe from c. 312 to c. 1350 are examined. The theoretical, historical, and literary contexts for the images will be established. Architecture, sculpture, painting and portable arts will be included.

ARHS 333. Medieval Architecture. 3 Hours.

The architecture of western Europe and its builders, from 313 through the sixteenth century: monumental buildings, architectural ornament, and the fusion of sacred and secular, in context of medieval world views.

ARHS 338. The History of Stained Glass. 3 Hours.

In-depth introduction to the study of architectural stained glass. Focus on the development of the medium, on formal analysis of composition, on conographical conventions, and historic contexts.

ARHS 345. Modern Art Theory. 3 Hours.

PR: ARHS 120 and ARHS 160 and 200-level art history. The course will examine the development of modern art theory and its relationship to artistic practice. Emphasis will be placed on the critical and theoretical examination of modernism and post modernism.

ARHS 348. Women in Art. 3 Hours.

The course examines the art of female artists and of women as subjects in art. There will be a historical view along with a strong theoretical component.

ARHS 350. Northern Renaissance. 3 Hours.

PR: ARHS 120 and ARHS 160. The arts of Northern Europe from 1350 to 1560 will be studied in a historical and theoretical context. Painting and sculpture will be the focus of study.

ARHS 354. Italian Renaissance. 3 Hours.

PR: ARHS 120 and ARHS 160. Early Renaissance through Mannerism. The course will emphasize both the historical context and theoretical foundation of 15th and 16th-century Italian art and architecture.

ARHS 360. Baroque. 3 Hours.

PR: ARHS 120 and ARHS 160. The course examines the art of the late 16th through 18th centuries of both Northern and Southern Europe. Issues of historical context and theoretical interpretation are emphasized.

ARHS 370. American. 3 Hours.

PR: ARHS 120 and ARHS 160. This course will treat the arts in the United States from the Colonial era to 1960. Emphasis is placed upon factors which define American art and the critical foundations for the works.

ARHS 375. Nineteenth Century. 3 Hours.

PR: ARHS 120 and ARHS 160. The course focuses upon European and American art from the late 18th century through 1900. Issues of theory, historical context and literary foundation will be considered.

ARHS 380. Modern. 3 Hours.

PR: ARHS 120 and ARHS 160. The revolutionary experience of modern art, from its foundation in 19th-century European movements through the 1950s will be emphasized. Critical theory and historical context stressed.

ARHS 381. Modern Architecture. 3 Hours.

PR: ARHS 120 and ARHS 160. In-depth overview of architecture, 1850 to present. Focus on development of International Style, its dissemination, and challenges to this modernist aesthetic by contemporary architects.

ARHS 382. GPS-Architect Frank Lloyd Wright. 3 Hours.

Overview of the life and work of America's most noted and controversial architect. Close examination of his work in the context of the development of modern architecture.

ARHS 385. Print, Propaganda, and Art. 3 Hours.

Survey of the history of printing, printmaking, and other forms of imaging in the western world from earliest printed materials to present. Theoretical implications of image reproduction also considered.

ARHS 388. The Art of Andy Warhol. 3 Hours.

Overview of the ground-breaking and controversial art of Andy Warhol. Close examination of his work in the context of the 1960's Pop Art movement and recent contemporary art.

ARHS 389. Contemporary. 3 Hours.

PR: ARHS 120 and ARHS 160. This course explores the various artistic movements from World War II to the present. Emphasis will be given to the change from modern to postmodern. Familiarity with images and critical texts is expected.

ARHS 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ARHS 401. Senior Project-Capstone. 1-15 Hours.

PR: Consent. This class concentrates upon independent research, closely supervised, on a topic of student's selection. This must be well-defined and contain historical, critical, and theoretical issues. (Contractual course.).

ARHS 402. History of Chinese Ceramics. 3 Hours.

Covers pre-history to present with emphasis on historical development of ceramics and cultures of important dynasties in Jingdezhen, China. Students will visit historical archaeological sites, traditional production centers and museums.

ARHS 405. Chinese Language and Culture History. 3 Hours.

Covers basic cultural and written Chinese, an introduction to China's many cultures and customs, and a brief history of China. (Field trips offer experiential learning at sites discussed in class.).

ARHS 406. Graphic Design History. 3 Hours.

PR: ARHS 120 and ARHS 160. This course presents graphic design as visual communication from prehistory to present, traced primarily through the poster. It also includes typography, styles, material culture, attending international political and art movements.

ARHS 411. Conservation Practices: Digital Documentation, Treatment, Condition Assessment. 3 Hours.

This course provides an introduction to the field of conservation and historic preservation. Topics include an overview of historical and current approaches to conservation treatment as well as contemporary issues associated with the field. Students learn fundamental skills in conservation examination (assessing the construction/condition of artworks/artifacts) and documentation (techniques will include stereomicroscopy, ultraviolet illumination, and digital documentation.).

ARHS 412. Collections Care and Preservation of Material Objects. 3 Hours.

This course introduces students to the preventive care of collections with a focus on museum policies regarding accessioning/de-accessioning of objects, exhibitions and loans, the transportation and handling of artworks and more. Students complete a survey of a collection, participate in a mock disaster recovery exercise, and conduct environmental monitoring for nearby collections/exhibition spaces.

ARHS 413. Material Objects Investigations 1 (2-D). 3 Hours.

Introduction to historical and contemporary materials of two-dimensional art (organic and inorganic), historical conservation treatments, and selected methods of technical examination of objects (microscopy, ultraviolet, infrared reflectography, x-ray). Printmaking, works of art on paper, papermaking, gilding, easel, and wall paintings will be covered. Students write technical reports, conduct research projects, and reconstruct historical artworks/artifacts.

ARHS 414. Material Objects Investigation 2 (3-D). 3 Hours.

Introduction to historical and contemporary materials of three-dimensional art (organic and inorganic), historical conservation treatments, and selected methods of technical examination of objects (microscopy, ultraviolet, infrared reflectography, x-ray). Metals, ceramics, stone, glass, resins, bone/ivory, basketry, textiles, and taxidermy will be covered. Students write technical reports, conduct research projects, and reconstruct historical artworks/artifacts.

ARHS 445. Michelangelo and His Time. 3 Hours.**ARHS 446. Medieval Painting. 3 Hours.**

An historical and media- centered investigation of the pictorial arts of the West c. 800-1300: manuscript illumination, mural painting, panel decoration, embroidery, mosaics, and stained glass.

ARHS 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

ARHS 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

ARHS 492. Directed Study. 1-3 Hours.

Directed study, reading, and/or research.

ARHS 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ARHS 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

ARHS 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

ARHS 496. Senior Thesis. 1-3 Hours.

PR: Consent.

ARHS 497. Research. 1-6 Hours.

Independent research projects.

ARHS 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

ARHS 499. Global Service Learning. 1-3 Hours.

PR: Consent. Theory and practice of global service-learning. The main objective will be to pair the experiential aspects of meaningful and sustained service in the host community with work from the student's anchor course by offering a methodological framework for cultural immersion and community service as well as adding to the content of the anchor course.

ART 102. Non-Major Ceramics. 3 Hours.

The course is designed to teach basic ceramic skills associated with beginning pottery. Emphasis is on throwing techniques, trimming, handle attachment, basic ceramic design, glazing and studio practices.

ART 103. Materials and Procedures. 2,3 Hours.

Designed to guide elementary education majors in developing skills to teach visual arts within the PreK-8 classroom. Using age-appropriate 2-D and 3-D materials and resources students will pursue technical craftsmanship, employ elements and principles of design, and explore art concepts through a series of hands-on activities and projects. Learning relies on engagement with studio art production, lecture/demonstration, teaching labs, readings.

ART 109. Basic Drawing 1 for Non-Majors. 3 Hours.

A beginning-level studio experience emphasizing the application of techniques and materials in rendering. Designed for non-art majors and those seeking to improve their portfolios to gain entrance into the BFA studio program.

ART 110. Basic Drawing 2 for Non Majors. 3 Hours.

PR: ART 109 or consent. A studio experience building upon skills and techniques gained in ART 109. Includes the examination of drawing through expanded materials. For non-art majors, those seeking to improve their portfolios and enter the BFA program.

ART 111. Drawing 1. 3 Hours.

The course emphasizes fundamental principles of drawing with a focus on building basic skills through direct observation, using traditional graphic media and expression.

ART 112. Drawing 2. 3 Hours.

The course emphasizes fundamental principles of drawing with a focus on more expressive approaches to basic problems. Greater emphasis is placed on abstraction and non-traditional drawing processes and media.

ART 121. Visual Foundations 1. 3 Hours.

The course provides an introduction to the fundamental principles and concepts of two-dimensional image making with an emphasis on color theory and design. Through creative assignments students develop abilities and visual awareness emphasizing the basics of color perception, form, proportion and rhythm.

ART 122. Visual Foundations 2. 3 Hours.

The course incorporates projects involving abstract and representational ideas in three dimensions and investigates the basic concepts of line, plane, volume, form, mass, texture, composition and time.

ART 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

ART 211. Figure Drawing. 3 Hours.

PR: ART 111 and ART 112 and ART 121. This class concentrates on compositional structure from the human figure. Students will investigate organic nature of the figure and its representation in space using a wide variety of media and processes. (May be repeated for credit.).

ART 212. Multi Media. 3 Hours.

PR: ART 111 and ART 112 and ART 121. (May be repeated for a maximum of 6 credit hours.) This class expands media possibilities and examines the variables of image-making while establishing personal expression. The course is designed to develop analytical and problem solving skills as well as technical processes.

ART 213. Painting 1. 3 Hours.

PR: ART 111 and ART 112 and ART 121. The course serves as an introduction to painting with concentration on structure, techniques and imagery. Emphasis is on the development of skills in rendering works which express light, color and form integral to the medium.

ART 214. Painting 2. 3 Hours.

PR: ART 111 and ART 112 and ART 121. The course provides the essential structure, techniques and iconography of painting. Its modern development, augmenting the traditional languages of painting, are clarified and isolated.

ART 217. Arts and Cultural Organizations. 3 Hours.

An introduction to the types of non-profit arts and cultural organization and the field of arts administration. Coursework will focus on issues related to the performing and visual arts in the non-profit sector.

ART 223. Introduction to Graphic Design. 3 Hours.

PR: ART 111 and ART 112 and ART 121. The course emphasizes the application of traditional and technological skills emphasizing color, composition, symbolic drawing, and typography fundamental to the field of graphic design.

ART 224. Graphic Design 2. 3 Hours.

PR: ART 111 and ART 112 and ART 121 and ART 122. This course emphasizes typography, sequential projects and complex compositions, and includes preparation as well as review of upper-level entrance portfolios.

ART 226. Introduction to Sculpture. 3 Hours.

PR: ART 111 and ART 112 and ART 122. The course focuses on creative expression using basic traditional materials and techniques. Students explore aesthetics and contemporary issues while acquiring a working knowledge of various sculptural media.

ART 227. Sculpture. 3 Hours.

PR: ART 111 and ART 112 and ART 122. New construction techniques including stretched canvas over wood encaustics, molds, plasticene, and figure modeling will aid the students in developing problem-solving skills related to aesthetics and formal sculptural issues.

ART 230. Printmaking - Intaglio and Relief. 3 Hours.

PR: ART 111 and ART 112 and ART 121. This course is a fundamental printmaking class concerned with creating an understanding and sensitivity towards intaglio processes and techniques. Students explore and develop visual ideas and images using non-traditional approaches.

ART 231. Printmaking - Lithography. 3 Hours.

PR: ART 111 and ART 112 and ART 121. This course is an introduction to the fundamental processes of lithography with a focus on developing imagery and technical proficiency. Students acquire a working knowledge of the medium while examining aesthetics, contemporary discourse, and history as an art form.

ART 232. Photography. 3 Hours.

PR: ART 111 and ART 112 and ART 121. The class provides an introduction to the fundamentals of black and white photography. This course covers the tools, materials and principles of the photographic art, focusing on both the technical and visual aspects of the medium.

ART 234. Digital Photography. 3 Hours.

PR: ART 232. This course will explore the fundamentals of photography using digital cameras and Adobe Photoshop software. Emphasis will be placed on processes in the digital darkroom, specialized lighting methods and concept development.

ART 235. Introduction to Silkscreen. 3 Hours.

Printmaking class concerned with creating an understanding and sensitivity towards silkscreen processes, techniques, and developing ideas and images using multiple approaches. Students acquire knowledge of silkscreen, examine its aesthetics, discourse, and history.

ART 240. Ceramics. 3 Hours.

PR: ART 111 and ART 112 and ART 122. The course covers basic ceramic techniques including throwing, trimming, ceramic design, glazing, firing and studio practices. Lectures cover basic ceramic material, information and studio procedures.

ART 241. Ceramics. 3 Hours.

PR: ART 111 and ART 112 and ART 122. The course continues the study of basic ceramic techniques: throwing, trimming, ceramic design glazing, firing and studio practices. Lectures cover basic ceramic material, information and studio procedures.

ART 242. Life Modeling. 3 Hours.

PR: ART 111 and ART 112 and ART 121 and ART 122. Explores entry-level figure modeling including basic bust and small-scale figure modeling. Covers techniques of clay building from armature to plaster or wax castings.

ART 264. Introduction to Art Education. 3 Hours.

PR: ART 105 and ART 106 and ART 111 and ART 112 and ART 121 and ART 122 and six hours of studio. Contemporary art education and resources that support its practices. Students also interact with experienced K-12 art specialists and their various grade levels.

ART 265. Art Education: Elementary. 3 Hours.

PR: ART 264. This course is designed on the discipline-based content and the character of art education at the elementary level. Emphasis is placed on child-centered curriculum development. Course content is based on the WV CSOs and national standards.

ART 266. Art Education: Secondary. 3 Hours.

PR: ART 264. This course is designed on discipline-based content and the character of art education at the secondary level. Emphasis is placed on child-centered curriculum development. Course content is based on the WV CSOs and national standards.

ART 267. Technology Methods in Art Education. 3 Hours.

PR: ART 264. This class examines multiple aspects of classroom technology in arts education. The course combines hands-on computer techniques, critical analysis of digital art, and practical experience with curriculum design.

ART 270. Introduction to Electronic Media 1. 3 Hours.

PR: ART 112 and ART 121 and ART 122. Class provides introduction to fundamentals of digital media. Explores digital photography, animation multimedia. Covers use of various software, focuses on sound, technical foundation and esthetic proficiency in these media.

ART 271. Introduction to Electronic Media 2. 3 Hours.

PR: ART 270. A continued exploration into applications and aesthetics of digital media. Attention is given to historical and contemporary critical contest for this media. Students encouraged to create hybrids between media and digital approaches.

ART 272. Designing for Multimedia. 3 Hours.

This course explores 2D and 4D visual design in a digital media context. Students learn the foundations of visual design including composition, hierarchy, unity and color theory. These concepts are explored through digital media tools.

ART 273. Beginning 3D Animation. 3 Hours.

Introduction to 3D computer modeling and animation. Fundamental concepts and techniques of polygonal modeling, shading, texturing, lighting, animating and rendering. Character design and bipedal animation. The course culminates with the production an original, character-based group animation.

ART 280. Studio Art for Art Historians. 3 Hours.

PR: ARHS 120 and ARHS 160. Experiential investigation of art studio practice; guest artist demonstrations. Emphasis on understanding materials, terminology, and artistic processes. May be repeated for credit.

ART 285. Interactive Audio Design. 3 Hours.

PR: ART 121 and ART 122 with a minimum grade of C- in each and must be enrolled in the Interactive Design for Media major or minor. Covers core principles of audio design and control in an interactive environment. Students will learn about sound creation and propagation, audio recording and editing, the structure and emotional effect of music, and the function and application of sound effects to augment interactive experiences.

ART 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ART 298. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study, or research.

ART 313. Painting 3. 1-15 Hours.

PR: ART 213 and ART 214. (May be repeated for a maximum of 36 credit hours.) The course reaffirms and expands formal criteria established in 213 and 214 and directs individual research into personal, historical and contemporary painting issues in oil, acrylic and related media.

ART 315. Arts Administration. 3 Hours.

This course provides a practical approach to understanding arts management in not- for-profit organizations. Topics include facilities management, leadership, programming, audience development, board relations, and fundraising.

ART 316. Arts Programming. 3 Hours.

PR: ART 217. The course examines principles and best practices related to comprehensive arts and cultural programming. Program theory, partnerships, program evaluation, volunteer coordination, marketing, and related topics will be explored.

ART 323. Graphic Design 3. 12 Hours.

PR: ART 224. Varied hypothetical projects give students a methodology for solving applied design projects in a range of formats. This class will deal with a combination of computer graphics, book arts, publication design and multi-media projects. Portfolio review. (May be repeated for credit.).

ART 324. Graphic Design 4. 1-9 Hours.

PR: ART 323. Senior graphic design studio includes a model studio with real projects, most of which are produced and printed. Emphasis is on developing professional skills in design and design management. (May be repeated for credit.).

ART 325. Design for Web and Screen. 3 Hours.

PR: ART 223 and ART 224. Introduction to the technologies and methodologies utilized in graphic design for the web and other screen-based interfaces. This course focuses on an entire design process including information architecture, visual aesthetics and usability.

ART 326. Sculpture. 1-15 Hours.

PR: ART 226 and ART 227. Students continue to examine personal iconography as it pertains to aspects of contemporary sculpture. Topics explored are concept-oriented, using stone, concrete, glass, and emphasizing craftsmanship and aesthetic issues. (May be repeated for credit.).

ART 327. Installation Art. 1-15 Hours.

PR: ART 122. Students investigate this contemporary art form through a series of temporary, site-specific sculptural environments. Conventional art media and concepts are challenged as students develop alternative solutions to creative problems. (May be repeated for credit.).

ART 328. Advanced Typography. 3 Hours.

PR: ART 224. Students will study taxonomy, history and classification of typography as well as create projects in diverse formats such as posters, publications, exhibits or packaging to experience the typographic contexts and etiquette for each.

ART 330. Printmaking. 1-15 Hours.

PR: ART 230 and ART 231. An exploration of color printmaking, advancing imagery through critical contexts. Students focus on technical mastery in lithography, intaglio, relief and alternative processes, expand their knowledge of printmaking's history and develop creative problem solving skills. (May be repeated for credit.).

ART 331. GPS-Jackson Hole Photography Workshop. 3 Hours.

Ten-day intensive photography field course that explores the diverse and remote region of northwestern Wyoming. Course includes daily excursions, darkroom and digital work sessions, gallery visits, and evening presentations.

ART 332. Intermediate Photography. 3,6 Hours.

PR: ART 232 and ART 234. This course expands on the formal and critical criteria established in the introductory courses, and directs creative research into personal, historical, and contemporary issues. Students explore larger format cameras and advanced lighting techniques.

ART 333. Alternative Photography. 3-6 Hours.

PR: ART 232 and ART 234. This course explores alternative photographic techniques and concepts that expand the definition of the medium. Techniques may include hand-applied emulsions, contemporary liquid emulsions, pinhole and plastic cameras, and digital negatives.

ART 335. Advanced Photography. 6 Hours.

PR: ART 332 and ART 333. In this course emphasis will be on furthering explorations in the study of personal expression and development of creative style. Advanced camera, lighting and digital techniques are covered as needed.

ART 340. Ceramics. 1-15 Hours.

PR: ART 240 and ART 241. This intense studio concentration is designed to prepare students for graduate studies and/or professional studio practices. Historical and contemporary design issues, kiln design and building, firing, glaze and clay formulation, studio practices and advanced-level throwing and hand-building techniques will be studied. (May be repeated for credit.).

ART 341. Ceramic Production Methods. 3 Hours.

PR: ART 240 or consent. This course expands the student's experiences in ceramics through the use of industrial techniques, production equipment and business tools for the development, production and marketing of ceramic products.

ART 365. Pre-Student Teaching. 3 Hours.

PR: ART 265 and ART 266. The course concentrates on curriculum development, research methods, and delivery strategies for K-12 art specialists preparing for their professional semester.

ART 370. Intermediate Electronic Media. 3,6 Hours.

PR: ART 270 and ART 271. Students will expand explorations in video production from ART 271 and examine opportunities of creative works on the Internet. Building video skills and methodologies, students will create dynamic and artistic web pages.

ART 371. Interactive Art. 3,6 Hours.

PR: ART 270 and ART 271. Students will utilize skills learned in previous electronic media courses to create projects incorporating a variety of knowledge and interactive software. Attention is given to historical and contemporary critical context.

ART 372. Interactive Design. 3 Hours.

PR: ART 272 or ART 270 or VISJ 210. Interactive Design is a multimedia studio art course addressing core principles of interactivity, non-linear narration, and interaction design in art and culture.

ART 380. Art and Environment. 3 Hours.

PR: Must pass freshman review and complete 6 hours of 200-level coursework in area of emphasis or consent. Interdisciplinary studio/seminar course investigating art's relationship to the environment through readings, field trips, presentations and studio practice.

ART 393. Special Topics. 1-3 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ART 413. Senior Projects in Painting. 6 Hours.

PR: 18 hours of ART 313. Advanced study directed toward completion of senior-level projects. Developed to meet individualized creative goals. The course culminates with participation in a senior student exhibition/other exit requirements.

ART 425. Graphic Design: Senior Project. 3 Hours.

PR: ART 324. This course is focused on the development of an undergraduate thesis in which each project is individually defined with an umbrella topic. Formats and content vary but each project culminates in a thesis exhibition and an individual audio/visual presentation. (May be repeated for credit.).

ART 426. Senior Projects in Sculpture. 6 Hours.

PR: 18 hours of ART 326 or consent. Advanced study towards completion of senior-level projects, developed to meet individualized creative goals. The course culminates with participation in a senior student exhibition and other exit requirements.

ART 430. Senior Projects in Printmaking. 6 Hours.

PR: 18 hours of ART 330 or consent. Advanced study directed toward completion of senior-level projects. Projects developed to meet individualized creative goals. The course culminates with participation in a senior student exhibition and other exit requirements.

ART 435. Senior Projects in Photography. 6 Hours.

PR: ART 234 and ART 335. Advanced study directed toward completion of senior level projects, developed to meet individualized creative goals. The course culminates with participation in a senior student exhibition.

ART 440. Senior Projects in Ceramics. 6 Hours.

PR: 18 hours of ART 340 or consent. Advanced study towards completion of senior-level projects, developed to meet individualized creative goals. The course culminates with participation in a senior student exhibition and other exit requirements.

ART 444. Promoting the Arts and Culture. 3 Hours.

Provides a framework for effective promotion of non-profit performing arts, visual arts and service organizations in the cultural arts industry. Identifies the tactical side of commercially advancing the arts including effective implementation of arts-field-specific promotional programs and initiatives. Develops an awareness of arts organizations in the current social, cultural, and commercial environments.

ART 470. Senior Projects in Intermedia. 6 Hours.

PR: Consent. Advanced study towards completion of senior-level projects in intermedia. Projects are developed to meet individualized goals. The course culminates with participation in a senior student exhibition as well as other exit requirements.

ART 472. Advanced Interactive Design. 3 Hours.

PR: ART 272 and ART 372 and JRL 225 with a minimum grade of C- in each. This course is a semester long, self-directed project focusing on specific interactive design applications in conjunction with advice and consultation from the instructor.

ART 485. Experiments in Interactivity. 3 Hours.

PR: ART 372 and ART 262 with a minimum grade of C- in each and students must be enrolled in the Interactive Design for Media minor or major. Addresses core principles of microcomputer programming, sensor interaction, and the Internet of Things to create site-specific interactive environments. Students will establish a critical awareness of computer-controlled environments through programming, circuit construction, and customized console design. Technologies explored include Raspberry Pi microcomputers, Arduinos, and 3D printing.

ART 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

ART 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

ART 491B. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

ART 491D. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

ART 492. Directed Study. 1-3 Hours.

Directed study, reading and/or research.

ART 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ART 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

ART 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

ART 496. Senior Thesis. 1-3 Hours.

PR: Consent.

ART 497. Research. 1-6 Hours.

Independent research projects.

ART 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

ART 499. Global Service Learning. 1-3 Hours.

PR: Consent. Theory and practice of global service learning. The main objective will be to pair the experiential aspects of meaningful and sustained service in the host community with work from the student's anchor course by offering a methodological framework for cultural immersion and community service as well as adding to the content of the anchor course.

ASP 220. Introduction to Africana Studies. 3 Hours.

An interdisciplinary introduction to the histories, economics, cultural and artistic heritages, political and social experiences of Africans and African-Americans; focusing on the relationships between the two experiences.

ASP 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ASP 298. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study, or research.

ASP 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ASP 420. Seminar Africana Studies. 3 Hours.

PR: ASP 220. Focus on selected aspects of Africana experience. Required for completion of minor in Africana Studies.

ASP 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

ASP 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

ASP 492. Directed Study. 1-3 Hours.

Directed study, reading, and/or research.

ASP 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ASP 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

ASP 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

ASP 496. Senior Thesis. 1-3 Hours.

PR: Consent.

ASP 497. Research. 1-6 Hours.

Independent research projects.

ASP 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study, or research.

ASTR 106. Descriptive Astronomy. 3 Hours.

The celestial sphere, star time, solar time, Kepler's laws, H-R diagram and modern developments. No sophisticated mathematics used; only simple geometrical arguments employed.

ASTR 107. Descriptive Astronomy Laboratory. 1 Hour.

PR or CONC: ASTR 106. Introduction to modern astronomical techniques and practices through research-quality astronomical data collection and analysis, computer simulation, and hands-on activities. Includes study of objects in our solar system, in the Milky Way, and located much farther away in the vast reaches of space. Students engage in authentic scientific practices while exploring the universe.

ASTR 110. Explosions in Space. 3 Hours.

PR: MATH 124 or higher, or appropriate score on MATH placement test. Topics covered include: special and general relativity, supernovae, neutron stars, black holes, wormholes, time travel and gamma-ray bursts.

ASTR 115. Honors Relativity. 1 Hour.

PR: MATH 124 or higher or appropriate score on MATH placement test. Exploration of gravity as the geometry of four-dimensional space time; the legacy of Einstein.

ASTR 290. Teaching Practicum. 1-3 Hours.

ASTR 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ASTR 298. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study, or research.

ASTR 367. Astrophysics 1. 3 Hours.

PR: PHYS 314. Physical description of the astronomical universe. Physical principles are used to explain the properties and evolution of stars. Physical properties and effects of the Milky Way's interstellar medium are examined.

ASTR 368. Astrophysics 2. 3 Hours.

PR: ASTR 367. Continuation of ASTR 367. Physical principles are applied to the properties and evolution of the Milky Way and galaxies and to the structure and evolution of the solar system. Physical properties of the universe are examined.

ASTR 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ASTR 469. Observational Astronomy. 3 Hours.

PR: PHYS 314. Laboratory course consisting of three detailed projects which aim to acquaint students with current techniques for astronomy data analysis and interpretation across the electromagnetic spectrum.

ASTR 470. General Relativity. 3 Hours.

PR: PHYS 314 and PHYS 331. Innovative 'physics-first' introduction to Einstein's relativistic theory of gravity. Topics covered include special relativity, curved space time, spherical stars, gravitational collapse, black holes, gravitational waves and cosmology.

ASTR 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

ASTR 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

ASTR 492. Directed Study. 1-3 Hours.

Directed study, reading, and/or research.

ASTR 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ASTR 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

ASTR 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

ASTR 496. Senior Thesis. 1-3 Hours.

PR: Consent.

ASTR 497. Research. 1-6 Hours.

Independent research projects.

ASTR 498. Honors. 1-3 Hours.

PR: Students in honors program and consent by the honors director. Independent reading, study, or research.

ATTR 101. Prospective Athletic Training. 1 Hour.

An introduction to the clinical and educational components of athletic training including observation hours and basic skill acquisition.

ATTR 121. Sport Injury Control and Management. 3 Hours.

Training, conditioning, protection, and other injury prevention measures. First aid, emergency service, and care related to physical education and athletics.

ATTR 122. Sports Injury Control and Management Lab. 1 Hour.

PR: Consent. Basic skills in athletic conditioning, application of taping and bracing, equipment fitting, record keeping, modality set-up, emergency procedures for athletic-related injuries and the proper management of open wounds. Pre-requisite(s) and/or co-requisite(s) may differ on regional campuses.

ATTR 218. Gross Anatomy Lab. 1 Hour.

Analysis of gross anatomy and systems of the trunk and extremities; cadaver laboratory experience.

ATTR 219. Gross Anatomy. 3 Hours.

Designed to provide an overview of body systems and gross anatomy of the trunk and extremities.

ATTR 220. Taping/Bracing and Padding. 2 Hours.

PR: Consent. Practical application of adhesive tape, elastic wraps, and bracing techniques for prevention and protection of athletic injuries to support an athletes return to play.

ATTR 221. Advanced Athletic Training 1. 3 Hours.

PR: Consent. Designed to provide an in-depth analysis of life-threatening situations and internal injuries associated with athletics.

ATTR 222. Orthopedic Assessment 1. 3 Hours.

PR: Consent. Designed to provide in-depth analysis of athletic injury mechanisms to the lower extremity; injury recognition, injury evaluation techniques, and muscle isolation techniques.

ATTR 281. Athletic Training Practicum 1. 2 Hours.

PR: Consent. Structured methods of practical application and evaluation of clinical skills and academic knowledge of athletic training students and their progress through the athletic training program.

ATTR 282. Athletic Training Practicum 2. 2 Hours.

PR: Consent. Structured methods of practical application and evaluation of clinical skills and academic knowledge of athletic training students and their progress through the athletic training program.

ATTR 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ATTR 301. Athletic Training Practicum 3. 2 Hours.

PR: Junior standing and consent. Structured methods of practical application and evaluation of clinical skills and academic knowledge of athletic training students and their progress through the athletic training program.

ATTR 302. Athletic Training Practicum 4. 2 Hours.

PR: Junior standing and Consent. Structured methods of practical application and evaluation of clinical skills and academic knowledge of athletic training students and their progress through the athletic training program.

ATTR 321. Therapeutic Modalities. 3 Hours.

PR: Consent. Designed to investigate tissue repair, physiology of hot and cold treatment, therapeutic modalities and pharmacology relevant to athletic injury management.

ATTR 323. Athletic Injury Rehabilitation. 2 Hours.

PR: ATTR 219 and ATTR 221 and ATTR 222 and ATTR 332. Designed for the practical applications of athletic training rehabilitation techniques to the lower extremity.

ATTR 324. Athletic Injury Rehabilitation 2. 2 Hours.

PR: ATTR 219 and ATTR 221 and ATTR 222 and ATTR 323 and ATTR 332. Designed for the practical application of athletic training rehabilitation techniques to the upper extremity.

ATTR 325. Organization & Administration. 3 Hours.

PR: Consent. Designed to analyze various issues and policies in athletic training relevant to training room administration, liability, drug testing, record keeping, and other selected topics.

ATTR 326. Clinical Drug Application. 1 Hour.

PR: ATTR 321 and ATTR 323. Designed to provide students with the skills to make basic drug application issues and interactions within the athletic training setting.

ATTR 332. Orthopedic Assessment 2. 3 Hours.

PR: Consent. Designed to provide in-depth analysis of athletic injury mechanics to the upper extremity; injury recognition, injury evaluation techniques, and muscle isolation techniques.

ATTR 403. Athletic Training Practicum 5. 2 Hours.

PR: Senior standing and consent. Structured methods of practical application and evaluation of clinical skills and academic knowledge of athletic training students and their progress through the athletic training program.

ATTR 404. Athletic Training Practicum 6. 2 Hours.

PR: Senior standing and consent. Structured methods of practical application and evaluation of clinical skills and academic knowledge of athletic training students and their progress through the athletic training program.

ATTR 424. Athletic Training Senior Seminar. 3 Hours.

PR: Consent. Practical application of athletic training techniques.

ATTR 426. Medical Aspects of Athletic Training. 3 Hours.

PR: Consent. Designed to provide students the exposure to a variety of medical concerns, illnesses, and conditions that may occur within the various clinical settings of athletic training.

ATTR 427. Biomechanics. 3 Hours.

PR: Consent. Designed to provide in-depth study of normal and abnormal biomechanics of the lower extremity and spine.

ATTR 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

ATTR 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

ATTR 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ATTR 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

ATTR 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

ATTR 496. Senior Thesis. 1-3 Hours.

PR: Consent.

ATTR 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

BCOR 185. Building a Business Mindset. 3 Hours.

This course helps students begin to develop a professional business mindset. For this course, a mindset is the set of assumptions, views, attitudes, and behaviors related to the subject.

BCOR 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

BCOR 199. Introduction to Business. 3 Hours.

This course introduces the student to the major business disciplines, basic business communications, and the University environment.

BCOR 289. Internship. 1-3 Hours.

PR: Consent. Supervised professional experience in a business, economics or related field. Internships are organized, administered, and evaluated jointly by faculty, student, and sponsoring organization. Minimum 50 actual work hours for the employer per hour of credit awarded.

BCOR 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

BCOR 299. Business Communication. 3 Hours.

PR: (ENGL 101 and ENGL 102) or ENGL 103. Students will develop facility with business communication genres, such as memos, letters, proposals, reports, interviews, and oral presentations. Includes research and client projects.

BCOR 315. Professional Development. 1 Hour.

The development of essential skills for professional placement, including resume development, interviewing skills, and job search skills.

BCOR 320. Legal Environment of Business. 3 Hours.

Explores the relationship of law, government and ethics to business enterprise. Provides overview of legal and ethical issues relevant to business decision-making and planning and the government regulations of business.

BCOR 330. Information Systems and Technology. 3 Hours.

PR: ACCT 202 with a minimum grade of C-. Introduces essential information systems concepts for managing competitive firms in a global environment. Utilizes the Internet and builds skills in decision-making using spreadsheets, oral communication using presentation graphics, and data management using database software.

BCOR 340. Business Finance. 3 Hours.

PR: ACCT 202 and ECON 202 and (ECON 225 or STAT 211) with a minimum grade of C- or better. Activities of the finance manager in the planning, acquisition, and administration of funds used in a business enterprise.

BCOR 350. Principles of Marketing. 3 Hours.

Overview of marketing and the interrelationships between marketing and other business disciplines. Topics include the management of the product, communication, price, and distribution variables as well as introduction to buyer behavior and marketing research.

BCOR 360. Supply Chain Management. 3 Hours.

The course acquaints students with a variety of supply chain management key concepts, to include purchasing, logistics, competitiveness, location, inventory, forecasting, layout, production and operations management concepts and techniques.

BCOR 370. Managing Individuals and Teams. 3 Hours.

Topics include traditional management functions, employee motivation, leadership, team dynamics, individual and group decision-making, and individual differences. Additional topics include social responsibility and ethics, diversity, organizational structure and design, organizational control, and managing innovation and change.

BCOR 380. Business Ethics. 3 Hours.

This course first provides a comprehensive survey of the ethical issues challenging professional and corporate conduct in today's business world.

BCOR 460. Contemporary Business Strategy. 3 Hours.

PR: BCOR 320 and (BCOR 340 or FIN 325) and BCOR 350 and BCOR 360 and BCOR 370. The course focuses on the total organization and strategy development and execution that lead to the achievement of the organization's objectives and a superior position in the competitive environment in which it operates.

BCOR 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

BCOR 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study, or research.

BIBY 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

BIBY 492. Directed Study. 1-3 Hours.

Directed study, reading, and/or research.

BIBY 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

BIBY 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

BIBY 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

BIOC 339. Introduction to Biochemistry. 5 Hours.

PR: General chemistry, organic chemistry. (For medical technology, undergraduate biochemistry majors, and other students.) A general introduction to biochemistry with emphasis on human biochemistry. (4 hr. lec., 1 hr. lab.).

BIOC 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

BIOC 492. Directed Study. 1-3 Hours.

Directed study, reading, and or research.

BIOC 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

BIOC 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

BIOC 496. Senior Thesis. 1-3 Hours.

PR: Consent.

BIOC 497. Research. 1-6 Hours.

Independent research projects.

BIOC 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

BIOL 101. General Biology. 3 Hours.

PR or CONC: BIOL 103. Introductory course in biology: cellular, organismal, and population genetics, including reproduction, growth and development, and evolution.

BIOL 102. General Biology. 3 Hours.

PR or CONC: BIOL 104. Introductory biology: energetics and physiology of cells, organisms, and populations, including regulation and control of multicellular organisms.

BIOL 103. General Biology Laboratory. 1 Hour.

PR or CONC: BIOL 101. Experiments in biology: genetics and evolution; reproduction, growth, and development of cells, organisms, and populations.

BIOL 104. General Biology Laboratory. 1 Hour.

PR or CONC: BIOL 102. Experiments in biology: materials exchange, actions of enzymes, photosynthesis and respiration, and physiology of organisms.

BIOL 105. Environmental Biology. 3 Hours.

(Intended for non-biology majors.) Population growth and human impacts on the environment, including ecosystem destruction, biological diversity, pollution, and global climate change are explored to obtain the concepts necessary to understand complex environmental issues of our time.

BIOL 106. Environmental Biology Laboratory. 1 Hour.

Field and laboratory exercises explore fundamental ecological concepts and environmental problems, such as biodiversity, pollution, and natural resource utilization.

BIOL 107. Biotechnology and Society. 3 Hours.

An overview of the use of biotechnology to solve agricultural, medical, and environmental problems. Bioethical concerns and societal impacts of the use of the technologies will be discussed.

BIOL 108. Drugs and the Body. 3 Hours.

An overview of how common prescription, street and over-the-counter drugs alter body functions. How the body absorbs and metabolizes various drugs, drug interactions, and the biology of addiction will also be presented.

BIOL 113. Inquiry and Reasoning for Biologists. 1 Hour.

PR or CONC: BIOL 115 or consent. Problem-based and team-based learning approach using topics from BIOL 115 to help students build foundational knowledge in biological principles as well as develop and practice critical thinking skills essential for success as a science major.

BIOL 115. Principles of Biology. 3 Hours.

PR or CONC: BIOL 116. An introductory course presenting basic principles of modern biology. This course represents the first in a four-course, integrated sequence required of biology majors. Topics include ecology and evolution, organismal biology, and cellular/molecular biology.

BIOL 116. Principles of Biology Laboratory. 1 Hour.

PR or CONC: BIOL 115. BIOL 116 is the corequisite laboratory course associated with BIOL 115 lecture. This laboratory course emphasizes the proper understanding and use of the scientific method to design and perform biological experiments. Discipline-specific communication techniques, including scientific writing, are also emphasized.

BIOL 117. Introductory Physiology. 3 Hours.

PR: (BIOL 115 and BIOL 116) or (BIOL 101 and BIOL 102 and BIOL 103 and BIOL 104) and PR or CONC: BIOL 118. Continuation of BIOL 115. The diversity of reproductive, developmental, functional, and integrative mechanisms in plants and animals.

BIOL 118. Introductory Physiology Laboratory. 1 Hour.

PR: (BIOL 115 and BIOL 116) or (BIOL 101 and BIOL 102 and BIOL 103 and BIOL 104) and PR or CONC: BIOL 117. BIOL 118 is the corequisite laboratory course associated with BIOL 117 lecture. This laboratory is a continuation of BIOL 116 and utilizes themes from plant and animal physiology to enhance student skill when applying the scientific method. Emphasis is placed on experimental design and discipline-specific communication methods.

BIOL 122. Human Sexuality. 3 Hours.

A study of biological, behavioral and societal aspects of sexuality. Issues considered include changing fecundity, social-legal implications, sex roles, sexually transmitted diseases, populations, erotica, aging, dysfunctions, and decision-making skills for sex related issues.

BIOL 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

BIOL 215. Cell Biology for Pre-Pharmacy. 3 Hours.

PR: BIOL 115 and BIOL 117 and (CHEM 115 or CHEM 117). Structure, function and diversity of cells with an emphasis on gene expression and cellular phenotype including cell chemistry, energetics, and regulation of cell activities. This course is offered only to Pre-Pharmacy majors.

BIOL 219. The Living Cell. 3 Hours.

PR: (CHEM 115 or CHEM 117) and ((BIOL 117 and BIOL 118) or BIOL 240) and PR or CONC: BIOL 220. This is the third course in the core curriculum required for biology-related majors. It will expand on topics from BIOL 115/117, especially with regard to cell chemistry, bioenergetics, cell physiology and gene expression.

BIOL 220. The Living Cell Laboratory. 1 Hour.

PR: (CHEM 115 or CHEM 117) and ((BIOL 117 and BIOL 118) or BIOL 240) and PR or CONC: BIOL 219. BIOL 220 is the laboratory that accompanies BIOL 219 (The Living Cell).

BIOL 221. Ecology and Evolution. 3 Hours.

PR: BIOL 219. Basic concepts in evolution and ecology including Darwin's theory of natural selection, modern population genetics, speciation, population growth and regulation, demography, community ecology, ecosystem dynamics, and human ecology.

BIOL 235. Human Physiology. 3 Hours.

PR: (BIOL 101 and BIOL 102 and BIOL 103 and BIOL 104) or BIOL 115. (Intended for non-biology majors.) An introductory course in the function of the human.

BIOL 236. Human Physiology: Quantitative Laboratory. 1 Hour.

PR: MATH 156 and CHEM 116 and (BIOL 115 or (BIOL 101 and BIOL 102 and BIOL 103 and BIOL 104) or PR or CONC: BIOL 235). Optional lab for BIOL 235 incorporating engineering concepts, such as mass and energy balances, circuit theory, and chemical kinetics to quantify and help understand many aspects of human physiology.

BIOL 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

BIOL 298. Honors. 1-3 Hours.

PR: Students in the Honors Program and consent by the honors director. Independent reading, study, or research.

BIOL 301. History of Biology. 3 Hours.

PR: (BIOL 101 and BIOL 103 and BIOL 102 and BIOL 104) or BIOL 115. History of development of biological knowledge with philosophical and social backgrounds.

BIOL 302. Biometry. 3 Hours.

PR: STAT 211. Application of quantitative methods and statistics to biological data with emphasis on hands-on hypothesis construction, experimental design, data analysis and biological interpretation of statistical results.

BIOL 310. Advanced Cellular/Molecular Biology. 3 Hours.

PR: BIOL 219. Advanced study of molecular mechanisms underlying fundamental cellular processes.

BIOL 311. Advanced Cellular/Molecular Biology-Laboratory. 2 Hours.

PR or Conc: BIOL 310. Experimental approaches to the study of cellular systems.

BIOL 312. Introduction to Virology. 3 Hours.

PR: BIOL 219. Survey of viruses, their modes of replication and spread, and the medical and economic significance of viral diseases in public health.

BIOL 313. Molecular Basis of Cellular Growth. 3 Hours.

PR: BIOL 219. Study of the integration of internal and external influences as they regulate the division, growth, and differentiation of cells. Topics include hormones as cell effectors, cancer, and stem cells.

BIOL 315. Communicating Natural Science. 3 Hours.

PR: BIOL 219 or BIOL 221. Teaches students to effectively communicate about scientific discoveries and scientific issues in both written and oral forms to professional scientists, the public, the media and politicians. Students will learn to consider the knowledge, biases and goals of their intended audience to communicate thoughtfully and effectively.

BIOL 316. Developmental Biology. 3 Hours.

PR: BIOL 219. A molecular genetic analysis of the mechanisms by which multicellular organisms develop from single cells.

BIOL 317. Developmental Biology Laboratory. 1 Hour.

PR: BIOL 219. CoReq: BIOL 316. Experimental approaches to the genetic analysis of the mechanisms by which multicellular organisms develop from single cells.

BIOL 318. Writing Appalachian Ecology. 3 Hours.

This course encourages students to think about the long-term future of our planet. What could our world be like in 200 years? How will current environmental problems change the future? How will relationships with the natural world change? Students address questions like these in creative nonfiction essays they write about research being conducted at the Fernow Experimental Forest in WV.

BIOL 320. The Total Science Experience: Genomics. 2 Hours.

PR: BIOL 219. Biological research experience incorporating critical skills of being a research scientist, including writing grant proposals, manuscripts, and materials for presentation of results in a public forum. Students conceive, design, propose, execute, analyze, and report an experiment with a genomics focus. Fulfills the capstone requirement in Biology and provides a realistic exposure to joys and challenges of performing scientific research.

BIOL 321. Total Science Experience Lab. 2 Hours.

PR or Conc: BIOL 221. Biological research experience incorporating diverse learning experiences that take place in the process of being a research scientist; including writing grant proposals, manuscripts, and presentation of results in a public forum.

BIOL 324. Molecular Genetics. 3 Hours.

PR: BIOL 219. Theoretical and practical knowledge in genetics as a field of study and as an approach for investigating biological problems.

BIOL 325. Molecular Genetics Laboratory. 1 Hour.

PR: BIOL 219. CoReq: BIOL 324. The laboratory is a logical sequence of experiments providing actual research experience in molecular genetics. Must be taken at the same time as BIOL 324.

BIOL 327. Professional Development. 1 Hour.

PR: BIOL 219. This course provides an overview of opportunities for students graduating with degrees in the biological sciences. An assessment test will help identify strengths and weaknesses within the field.

BIOL 335. Cell Physiology. 3 Hours.

PR: BIOL 219. Emphasis on the unity and diversity of cells; membrane structure and function; and the role that intracellular compartments, cytoskeleton, and extracellular matrix play in cell physiology.

BIOL 336. Vertebrate Embryology. 4 Hours.

PR: BIOL 112 or BIOL 219. An experimental and descriptive analysis of vertebrate development. Students on the Morgantown campus will be required to complete BIOL 219.

BIOL 337. Physiological Psychology. 3 Hours.

PR: PSYC 301 and junior or senior standing. Advanced study of the physiological mechanisms of behavior. Topics include neural and endocrine mechanisms of behavior and issues, methods, and findings in behavioral neuroscience. (Also listed as PSYC 426.).

BIOL 338. Behavioral Ecology. 3 Hours.

PR: BIOL 112 or BIOL 221. Consideration of the influences of environmental factors on short-and long-term regulation, control, and evolution of the behavior of animals. Students on the Morgantown campus will be required to complete BIOL 221.

BIOL 339. Animal Communication. 3 Hours.

PR: BIOL 221 or consent. Communication mediates most interactions between individuals and the brain dedicates much of its resources to generating and processing these signals. This course examines why and how animals communicate, the physiological mechanisms involved in generating / sensing communication signals, how evolution shapes communication, and how communication signals can influence decision making.

BIOL 340. Invertebrate Zoology. 3 Hours.

PR: BIOL 221. The evolution of animals without vertebral columns.

BIOL 341. Ichthyology. 4 Hours.

Study of the internal and external structure of fishes, their systematic and ecological relationships, and their distribution in time and space. (Dissection kit required.).

BIOL 348. Neuroscience 1. 3 Hours.

PR: BIOL 219. An introduction to neuroscience, including basic neuroanatomical neurophysiology, and the relationship between the central nervous system, physiology, and behavior.

BIOL 349. Neuroscience 2. 3 Hours.

PR: BIOL 348. An introductory systems level course on organization of the nervous system, from an evolutionary to a clinical perspective. Topics include development and functional organization of sensory, motor, autonomic and cognitive systems. The evolutionary history and human health concerns associated with these systems will be addressed, through lecture, discussion, and readings in the primary literature.

BIOL 350. Plant Physiology. 4 Hours.

PR: (BIOL 117 and CHEM 116) or (CHEM 112 and PLSC 206). Physiochemical processes of plants.

BIOL 351. Plant Diversity. 4 Hours.

PR: (BIOL 101 and BIOL 102 and BIOL 103 and BIOL 104) or BIOL 115. Evolution, morphology, life cycles, ecology, and uses of cyanobacteria, lichens, algae, bryophytes, ferns, gymnosperms, and angiosperms. Laboratory emphasizes comparing living specimens with local field trips.

BIOL 352. Plant Anatomy and Development. 4 Hours.

PR: BIOL 117 or PLSC 206. How plants (especially angiosperms) develop, stand up, defend themselves, transport food and water, and reproduce; also evolution and uses of wood and bark. Students observe development from spores, seeds, and cuttings. (Two local field trips.).

BIOL 353. Flora of West Virginia. 3 Hours.

PR: (BIOL 101 and BIOL 103 and BIOL 102 and BIOL 104) or BIOL 115. Identification of local woody and herbaceous seed plants, with emphasis on common native and introduced species. Conducted primarily through field trips to nearby areas with the use of dichotomous keys to determine the scientific names of observed specimens.

BIOL 361. Plant Ecology. 4 Hours.

PR: BIOL 221. Introduction to the four divisions of plant ecology, including physiological ecology, population ecology, community ecology and ecosystem ecology.

BIOL 363. Plant Geography. 3 Hours.

PR: BIOL 221. World-wide distribution patterns of plants and factors related to these distributions, including dispersal. Limiting factors, climate, isolation, evolutionary history, plate tectonics, pleistocene glaciations, and human activities. Plant communities and soils of polar, temperate, and tropical biomes are discussed.

BIOL 365. Conservation Biology. 3 Hours.

PR: BIOL 221 or WMAN 313. Review of literature, research, and application of topics including biodiversity, endangered species, population biology, extinction, invasive species, conservation, restoration, and sustainability.

BIOL 376. Research Methods. 3 Hours.

PR or CONC: BIOL 221 (may be taken as a corequisite). An introduction to the tools and mathematics that scientists use to solve scientific problems. Mathematical modeling, experimental design, hypothesis formulation, data collection, use of statistics, reading and evaluating the scientific literature, writing and reviewing scientific papers, and oral presentation of scientific research.

BIOL 384. Marine EcoSystem Topics. 3 Hours.

Three-week field-based courses offered at the Marine Science Consortium in Virginia. Courses vary by year including marine ichthyology, marine mammals, and coral reef ecology. A maximum of six-hours counts toward the biology major.

BIOL 384A. Marine EcoSystem Topics. 3 Hours.

Three-week field-based courses offered at the Marine Science Consortium in Virginia. Courses vary by year including marine ichthyology, marine mammals, and coral reef ecology. A maximum of 6 hours counts toward the biology major.

BIOL 384B. Marine EcoSystem Topics. 3 Hours.

Three-week field-based courses offered at the Marine Science Consortium in Virginia. Courses vary by year including marine ichthyology, marine mammals, and coral reef ecology. A maximum of 6 hours counts toward the biology major.

BIOL 384C. Marine EcoSystem Topics. 3 Hours.

Three-week field based courses offered at the Marine Science Consortium in Virginia. Courses vary by year including marine ichthyology, marine mammals, and coral reef ecology. A maximum of 6 hours counts toward the biology major.

BIOL 386. Undergraduate Research. 1-4 Hours.

PR: Written consent of chair and a 2.7 grade point average in biology. (May be repeated for a maximum of 6 credit hours.) Individual laboratory or field experiments supervised by a faculty member.

BIOL 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

BIOL 409. Biochemical Basis of Therapeutics. 3 Hours.

PR: BIOL 219. This course explores the process of drug discovery and development. The topics emphasized include the biological factors that determine success, failure, or limitation of therapeutics. Other topics include, specific therapeutic areas and regulation.

BIOL 410. Cell and Molecular Biology Methods. 3 Hours.

PR: BIOL 219. Introduction to the theory, application, ethic and economics of biotechnologies.

BIOL 411. Introduction to Recombinant DNA. 4 Hours.

PR: BIOL 219. An introductory course covering the basic principles and techniques of recombinant DNA technology, includes molecular cloning, isolation of plasmid DNA, agarose/acrylamide gel electrophoresis, restriction enzyme mapping, nucleic acid hybridization, and DNA sequencing.

BIOL 413. Molecular Endocrinology. 3 Hours.

PR: BIOL 219. Hormonal action is discussed at the cellular and molecular levels. Topics include hormone production and regulation, receptor kinetics and activation, and receptor output.

BIOL 414. Molecular Endocrinology-Laboratory. 1 Hour.

CoReq: BIOL 413. Experimental techniques used to study hormones and receptors.

BIOL 415. Epigenetics. 3 Hours.

PR: BIOL 219 or consent. Explores the molecular mechanisms, phenotypic phenomena and current applications of epigenetics and the study of how genetic information is used and maintained.

BIOL 418. Medical Genetics. 3 Hours.

PR: BIOL 219. The use of genetic principles to uncover biological mechanisms of both inherited and infectious diseases. The role of the human genome. The evolution of genetic diseases and the impact on human populations. Genetic medicine and current medical treatments.

BIOL 420. Genomics. 3 Hours.

PR: BIOL 219. Advanced elective examining biology and evolution on a genome-wide scale. Topics include fields of study and methods of DNA sequence acquisition and annotation, including exploration of the human genome and its contribution to disease discovery.

BIOL 421. Experimental Biochemistry. 2 Hours.

PR: AGBI 410 and PR or CONC: BIOL 423. Advanced biochemistry laboratory. Research and hypothesis design, manipulation of DNA and proteins, use of biochemical techniques to express protein and analyze function.

BIOL 422. Current Topics in Genome Biology. 1 Hour.

PR: BIOL 219. Exploration of modern topics in genomics research through interactive discussion of current literature. Students learn approaches to critical evaluation of manuscripts while exploring current research in this rapidly growing field. The course is organized around student-led discussions of manuscripts selected by the class. Undergraduate students are paired with graduate students to facilitate interpretation of complex material.

BIOL 423. Biochemistry of Nucleic Acids and Proteins. 3 Hours.

PR: AGBI 410 or equivalent. Focuses on the biochemistry of proteins and nucleic acids, with an emphasis on application of advanced knowledge to contemporary problems in cell biology, neuroscience, and immunology. Develops critical thinking, predictive, and problem-solving abilities that prepare students for health-related professional/graduate schools and the biotech industry.

BIOL 424. Protein Structure and Function. 4 Hours.

PR: BIOL 219 and (CHEM 231 or CHEM 233). Explores fundamentals of the protein structure; methods of structure determination; features of globular, membrane, and fibrous proteins; and approaches to protein classification.

BIOL 425. Developmental Genetics. 3 Hours.

PR: BIOL 219. This course covers the mechanisms by which genetics instructs the process of development. The complex interactions between cells, the environment, and the genome are presented.

BIOL 426. Molecular Biology of Cancer. 3 Hours.

PR: BIOL 219. Exploration of molecular pathways leading to the development of cancer with emphasis on gene expression, cell cycle regulation, and signaling pathways targeted in conventional therapies.

BIOL 430. Bioinformatics. 3 Hours.

PR: BIOL 219 or Consent. An introduction to algorithms and tools for analysis of genetic and genomic data in an evolutionary context.

BIOL 432. Forensic Biology. 3 Hours.

PR: BIOL 219. Biological applications and advances in forensic identification technologies, including advantages and limitations of different approaches. Focuses on isolation, quantification, amplification, and analysis of DNA.

BIOL 433. Herpetology. 3 Hours.

Investigation into the biology, ecology, and evolution of reptiles and amphibians, emphasizing North American species especially those found in the state of West Virginia. (One field exercise outside of regular time is required.)

BIOL 434. Forensic Biology Laboratory. 1 Hour.

PR or CONC: BIOL 432. Prepares students in the processing of biological samples for DNA analysis, including presumptive and confirmatory testing, isolation of nuclear DNA, quantification, amplification, and analysis of DNA. Extensive hands-on practical experience and application of knowledge.

BIOL 436. General Animal Physiology. 3 Hours.

PR: BIOL 221. In-depth, current treatment of physiological principles which operate at various levels of biological organization in animals of diverse taxonomic relationships. Understanding is developed from background lectures and student analyses in discussion sessions of research literature.

BIOL 438. Animal Behavior. 4 Hours.

PR: BIOL 221. Introduction to animal behavior (ethology) emphasizing the ecology and evolution of individual and social behaviors. Laboratory includes independent investigation of behavioral phenomena. (Offered in even numbered years.).

BIOL 439. Neuroethology. 3 Hours.

PR: BIOL 219. Explores the way sensory systems process information to mediate behavior in a wide variety of animals in order to understand similarities and differences in neural mechanisms.

BIOL 440. Comparative Anatomy. 4 Hours.

PR: WVU sections require BIOL 219 and BIOL 221 or consent, WVUIT sections require BIOL 112. A functional and evolutionary study of vertebrate structure. (Dissection kit required.).

BIOL 441. Vertebrate Microanatomy. 5 Hours.

PR: BIOL 219. Structural and functional approach to the study of tissues and organs of vertebrates.

BIOL 446. Freshwater Ecology. 4 Hours.

PR: (BIOL 101 and BIOL 102 and BIOL 103 and BIOL 104) or BIOL 115 or WMAN 224 or consent. Physical, chemical, and biological characteristics of inland waters with emphasis on the structure and function of stream ecosystems. (Also listed as WMAN 446.).

BIOL 450. Plant Systematics. 4 Hours.

PR: BIOL 117. Study of the taxonomy of flowering plants worldwide and related topics in angiosperm classification and evolution. Laboratories emphasize characteristics of selected families of monocotyledons and dicotyledons using living and herbarium material.

BIOL 451. Plant Development. 4 Hours.

PR: BIOL 221 and (CHEM 235 or AGBI 410). Experimental studies of plant growth and development.

BIOL 453. Molecular Basis of Disease. 3 Hours.

PR: BIOL 219. Examine medical, ethical, and legal/regulatory issues emerging from the Human Genome Project and its applications to personalized medicine.

BIOL 454. Immunology. 3 Hours.

PR: BIOL 240 or BIOL 219. Explores the fundamental principles and practices of immunology including how the immune system is organized, how it functions to keep us healthy, and how it can cause allergies and autoimmune disease.

BIOL 455. Evolution of Infectious Diseases. 3 Hours.

PR: BIOL 221. The application of phylogenetics, microbiology, immunology, and epidemiology towards understanding the evolution of infectious diseases. Students will develop a fundamental understanding of the significance of evolution and ecology in infectious disease emergence and control.

BIOL 456. Microbial Symbiosis. 3 Hours.

PR: BIOL 221. An understanding of the significance of microbial symbioses towards ecological and health processes will be developed. Molecular techniques used towards identifying the composition and functions of microbial communities will be discussed. (Also listed as BIOL 615.).

BIOL 457. Ecology of Parasites. 3 Hours.

PR: BIOL 219 and BIOL 220. An introduction to the wide diversity of evolved relationships between parasites and their hosts. This course incorporates topics such as gene regulation, cell signaling, animal physiology, and evolution into a complete picture of host/parasite interactions.

BIOL 461. Principles of Evolution. 3 Hours.

PR: BIOL 112 or BIOL 221. Introduction to the study of evolution, including genetics of evolutionary change, speciation and adaptation molecular evolution, the history of life, extinction, co-evolution and the origins of humans. Students on the Morgantown campus will be required to complete BIOL 221.

BIOL 462. Ecosystem Models. 3 Hours.

PR: BIOL 221. Students will gain an understanding of the theory and mechanics behind ecosystem model, including models that predict soil decomposition and photosynthesis, ecosystem and terrestrial biosphere models. Students will also learn basic coding behind these models.

BIOL 463. Global Ecology. 3 Hours.

PR: BIOL 221. The Earth viewed as a changing biogeochemical system. Topics include the structure, composition and dynamics of the ecosphere, nutrient cycles, changing atmospheric composition, climate change, ozone depletion, land-use change, biological invasions, and changes in biodiversity.

BIOL 464. Population and Quantitative Genetics. 3 Hours.

PR: BIOL 221. Relationship of gene and genotype frequencies in populations of diploid organisms and the effects of mutation, selection, and non-random mating in relation to single gene pairs. Application of these concepts to multigenic inheritance of quantitative traits.

BIOL 474. Neurogenetics and Behavior. 3 Hours.

PR: BIOL 219 with a minimum grade of C-. Covers the principles and techniques that define the field of neurogenetics. Analysis the development and function of the nervous system at cellular and molecular levels. Particular emphasis placed on genetic and environmental factors that contribute to human neurological disorders and the study of how genes control behavior.

BIOL 475. Neurobiological Diseases. 3 Hours.

PR: BIOL 219. The physiological mechanisms of neurobiological diseases. Impact of neurobiological diseases on society. Standard and experimental treatments. Current research.

BIOL 476. Computational Neuroscience. 4 Hours.

PR: BIOL 348 or consent. Tools and concepts used to probe and characterize the dynamics of neurons, neural networks and neural coding mechanisms. Lectures introducing concepts and discussion sessions focusing on current research literature complement computer laboratories where the student learns programming skills, analytical tools and neural modeling methods used in computational neuroscience research.

BIOL 477. Central Nervous System Evolution and Development. 3 Hours.

PR: BIOL 348. Origin and evolution of the central nervous system, focusing on developmental and genetic mechanisms underlying structural modifications that serve as the basis for the evolution of animal behavior.

BIOL 478. Sensory Neural Systems and Behavior. 3 Hours.

PR: BIOL 348. This course explores how brains acquire information about the external world and process this information to produce sensory perceptions. Students gain a deep understanding of sensory transduction and neural processing at the cellular, network and systems levels. Additionally the class is aimed at enhancing science communication.

BIOL 479. Principles of Systems Neuroscience. 3 Hours.

PR: BIOL 348. Fundamental principles of nervous system organization with an emphasis on interactions between neurons and the consequences for behavior. There will be a focus on recent advances in our understanding of each organizational principle.

BIOL 486. Honors Investigation and Thesis. 1-4 Hours.

(May be repeated for credit; max credit 12 hr.) PR: Second semester of junior year, recommendation of advisor, biology majors only. Permission required. Supervised readings, investigation, and study.

BIOL 490. Teaching Practicum. 1-3 Hours.

PR: Consent. (May be repeated for a maximum of 9 credit hours.) Teaching practice as a tutor or assistant.

BIOL 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

BIOL 492. Directed Study. 1-3 Hours.

Directed study, reading, and/or research.

BIOL 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

BIOL 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

BIOL 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

BIOL 496. Senior Thesis. 1-3 Hours.

PR: Consent.

BIOL 497. Research. 1-6 Hours.

Independent research projects.

BIOL 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

BIOM 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

BIOM 426. Biometric Systems. 3 Hours.

PR: STAT 215 and MATH 261 and CS 111. This course presents an introduction to the principles of operation, design, testing, and implementation of biometric systems, and the legal, social, and ethical concerns associated with their use. (Cross-listed with EE 426.).

BIOM 480. Capstone Project - Design. 2 Hours.

PR: ENGL 102 or ENGL 103 and consent. Penultimate semester. Group senior design projects with individual design assignments appropriate to student's discipline. Complete system-level designs of the subsequent semester's project presented in written proposals and oral presentations. (Equivalent to CPE 480, CS 480 and EE 480.) (2 hr. lec., 1 hr. conf.).

BIOM 481. Capstone Project - Implementation. 3 Hours.

PR: BIOM 480. Continuation of BIOM 480. Detailed design and implementation of the system including choice of components, algorithm development, interfacing, troubleshooting, working in groups, and project management. Also covers professional topics including ethics, liability, safety, socio-legal issues, risks, and employment agreements. (1 hr. lec., 1 hr. conf., 2 hr. lab.).

BIOM 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

BIOM 497. Research. 1-15 Hours.

Independent research projects.

BLAW 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

BLAW 310. Business Law for Managers. 3 Hours.

PR: BCOR 320. Survey of legal principles relevant to operation and management of business organizations, including the substantive law of agency and employment, business organizations, credit and bankruptcy.

BLAW 400. Personnel Relations and the Law. 3 Hours.

PR: BCOR 320 or consent. The legal principles guiding employer-employee relations, including agency law and the laws regulating employee health, safety, compensation, and benefits, job opportunity, and labor organizing.

BLAW 420. Law for the Certified Public Accountant. 3 Hours.

PR: BCOR 320. (Credit cannot be received for both BLAW 310 and BLAW 420.) A survey of those areas of commercial and regulatory law with which accountants need familiarity in order to exercise good judgement, practice their profession skillfully and understand their professional responsibility.

BLAW 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

BLAW 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hr.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

BLAW 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

BLAW 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

BLAW 496. Senior Thesis. 1-3 Hours.

PR: Consent.

BLAW 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

BMEG 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

BMEG 201. Introduction to Biomedical Engineering. 3 Hours.

PR: MATH 156 and CHEM 116 and BIOL 115. An introduction to biomedical engineering principles using foundational resources from molecular and cellular biology and physiology, and relating them to various sub-specialties of biomedical engineering. Concrete examples of applying engineering knowledge to solve problems related to human medicine as well as concrete examples of recent technological breakthroughs.

BMEG 203. Biomedical Engineering Seminar. 1 Hour.

PR: BMEG 201. Discussion of current aspects related to biomedical engineering including on-going research directions, technical, logistical and ethical issues.

BMEG 230. Numerical Methods in Biomedical Engineering. 3 Hours.

PR: BMEG 201 and PR or CONC: MATH 251 with a minimum grade of C-. Introduce the integrative set of computational problem solving tools important to biomedical engineers. Through the use of comprehensive homework exercises, relevant examples and extensive case studies, this course will integrate principles and techniques of numerical analysis into biomedical engineering concepts from cellular and molecular systems, to physiological and biomechanical phenomena and tissue systems.

BMEG 236. Quantitative Analysis in Human Physiology. 2 Hours.

PR: MATH 156 and CHEM 116 and (BIOL 115 or (BIOL 101 and BIOL 102 and BIOL 103 and BIOL 104)) with a minimum grade of C- in each. Integrate engineering tools and approaches for quantitative measurements related to human physiology, including neural, cardiovascular, respiratory, and muscular systems.

BMEG 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

BMEG 310. Biomedical Imaging. 3 Hours.

PR: BIOL 117 or BIOL 235. Introduction to biomedical imaging technologies including x-ray planar radiography, computed tomography (CT), nuclear medicine, optical imaging, ultrasound (US) and magnetic resonance imaging (MRI). Focus on physical principles, instrumentation methods, and imaging-related algorithms; medical interpretation of images will also be included to give practical examples of the development and applications of medical imaging.

BMEG 311. Biomaterials. 3 Hours.

PR: BMEG 201 and (BIOL 235 or (BIOL 117 and PHYS 111)). Principles of materials science and cell biology underlying the design of medical implants and artificial organs. Properties of living tissue, biocompatibility of polymers, metals, and ceramics; implants for hard and soft tissue.

BMEG 315. Transport Phenomena in Biological Systems. 4 Hours.

PR: (BIOL 235 or BIOL 117) and MATH 261. Develop fundamental relationships for momentum and mass transfer from microscopic and macroscopic balance equations and the application to biological systems that include biochemical reactions, inter-phase transport, and transient phenomena.

BMEG 321. Thermodynamics and Kinetics for Biomedical Engineering. 3 Hours.

PR: BMEG 230 and CHEM 116. Development of thermodynamic principles and their application to biological and biophysical systems. Topics will include first and second law; phase and reaction equilibria, kinetic rate laws and macromolecular thermodynamics.

BMEG 340. Biomechanics. 3 Hours.

PR: (BMEG 201 or MAE 243) and PHYS 111. Introduction to the basic approach of biomechanics and application in musculoskeletal, bone and human motion mechanics problems. Includes kinematics to analyze human motion, biomechanics of bone and skeletal system and biomechanical behavior of fibers.

BMEG 350. Biomedical Engineering Laboratory. 2 Hours.

PR: BMEG 201 and (BIOL 235 or BIOL 117). Measurement and interpretation of data from tissue and materials in the areas of biomaterials, biomechanics, bionanotechnology, and biomedical imaging.

BMEG 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

BMEG 420. Biomedical Instrumentation. 3 Hours.

PR: EE 221. Fundamentals of biomedical instrumentation and devices. Clinical applications of medical instrumentation, sensors, devices, biopotential electrodes and amplifiers, measurement of blood flow, different medical imaging systems, and therapeutic and prosthetic devices.

BMEG 421. Biomedical Engineering Seminar and Journal Club. 1 Hour.

PR: BMEG 203. Introduction to current research and topics pertinent to biomedical engineering through literature review and guest lectures by external and internal speakers.

BMEG 455. Biomedical Senior Design 1. 4 Hours.

PR: BMEG 310 and BMEG 311 and BMEG 315 and BMEG 340. Planning, designing, and reporting solutions to challenging biomedical engineering problems that have clinical implication. Also covers professional topics, including ethics, liability, safety, socio-legal issues.

BMEG 456. Biomedical Senior Design 2. 3 Hours.

PR: BMEG 455. Continuation of BMEG 455.

BMEG 480. Cellular Machinery. 3 Hours.

PR: BIOL 115 or Consent. Fundamental understanding of how a cell operates like a chemical factory; understanding how self-sustaining capacity of the cell's complex chemical reaction networks and cellular components can be manipulated in a synthetic environment.

BMEG 481. Applied Bio-Molecular Modeling. 3 Hours.

PR: BMEG 201 and MATH 261 and (CHEM 231 or CHEM 233). This course provides an introduction to modern molecular-level computational methods for calculating properties of reaction systems and thermodynamic, transport, and structural properties of materials with a particular focus on biological applications.

BMEG 482. Introduction to Tissue Engineering. 3 Hours.

PR: BMEG 201 and BMEG 311. This course introduces biological principles and engineering fundamentals pertaining to cell behavior and substrate properties. The design and characterization of artificial tissues will be discussed using properties and function of native tissues as a guide.

BMEG 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

BMEG 495. Independent Study. 1-6 Hours.**BMEG 496. Senior Thesis. 1-6 Hours.****BMEG 497. Research. 1-6 Hours.****BMEG 498. Honors Research. 1-6 Hours.****BUDA 450. Business Data Mining and Visualization. 3 Hours.**

PR: ((MATH 150 with a minimum grade of B-) or (MATH 154 or MATH 155 with a minimum grade of C-)) and ((STAT 211 or ECON 225 with a minimum grade of B-) or (STAT 215 with a minimum grade of C-)). This course introduces students to higher order business analytics methods, and topics that impact the way businesses make decisions. Topics such as data collection, data technologies, and data mining methods are covered focusing on impacting business outcomes.

BUDA 451. Advanced Business Data Mining. 3 Hours.

PR: BUDA 450 with a minimum grade of C-. This course enables students to use higher order concepts and models in data mining that impact business. Concepts such as supervised and unsupervised learning will be covered, with a focus on business outcomes, cases, and communication.

BUDA 452. Business Simulation Modeling. 3 Hours.

PR: BUDA 450 with a minimum grade of C-. This course enables students to design computational experiments to compare alternatives and arrive at the best business decision. In order to fit models to business cases, students have to identify the relevant variables, sources of uncertainty and probability distributions.

BUSA 101. Introduction to Business. 3 Hours.

An introduction to the contemporary business world, including international and small business, quality, ethics, and career preparation. The role of accounting, economics, finance, management, and marketing activities are investigated.

BUSA 199. Orientation to Business. 1-2 Hours.

Orientation to degree programs and requirements, departmental resources, curriculum options, student responsibilities and opportunities.

BUSA 201. Survey of Economics. 3 Hours.

Introduction to the analysis of the economic system. Pricing system, monetary system, determination of all national income and employment.

BUSA 202. Survey of Accounting. 3 Hours.

Overview of the accounting discipline. Utilization of accounting information for purposes of financial reporting, management control and decision making, and individual income tax reporting.

BUSA 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

BUSA 310. Survey of Business Law. 3 Hours.

PR: Sophomore standing. Overview of business law discipline. Topics include laws and the court system, employment and labor law, business forms and capitalization, business competition law and business ethics.

BUSA 320. Survey of Management. 3 Hours.

PR: Sophomore standing. Overview of management discipline as a process involving planning, organizing, controlling and directing. An integrated view of management including organizational behavior is emphasized.

BUSA 330. Survey of Marketing. 3 Hours.

PR: Sophomore standing. Overview of the marketing discipline. Topics include the management of the product, communication, price and distribution variables as well as an introduction to buyer behavior and marketing research.

BUSA 340. Survey of Finance. 3 Hours.

PR: Sophomore standing. Overview of the finance discipline. Topics include financial statement analysis, risk, capital budgeting, investments, and security markets.

BUSA 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

BUSA 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

BUSA 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

BUSA 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

BUSA 496. Senior Thesis. 1-3 Hours.

PR: Consent.

BUSA 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

C&I 230. Mathematics for Elementary Teachers 1. 3 Hours.

PR: MATH 124 or MATH 126. The focus of this course is on topics of mathematics in the primary grades and how these concepts and skills connect to mathematics on the horizon (grades 3-8 and beyond). The course includes topics in the domains of counting and cardinality, numbers and operations, algebraic thinking, measurement, and geometry and connections among concepts.

C&I 231. Mathematics for Elementary Teachers 2. 3 Hours.

PR: C&I 230. The focus of this course is on topics of mathematics in the intermediate grades and how these concepts and skills connect to mathematics on the horizon (grades 6-8 and beyond). The course includes topics in the domains of numbers and operations (whole numbers, fractions and decimals), algebraic thinking, rates, ratios, and proportional thinking and connections among concepts.

C&I 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

C&I 311. ELL and Language Acquisition for Elementary Teachers. 2 Hours.

This course is designed to develop a student's understanding of the theoretical foundations of L2 learning and acquisition as well as understanding of the unique aspects of the process of L2 teaching, facilitating, and learning specific to the integration within the PK-6 classroom.

C&I 324. Teaching Language Arts: Secondary School. 3 Hours.

Includes an examination and application of relevant curricular materials and teaching techniques.

C&I 337. Mathematics in the Junior High School and Middle School. 3 Hours.

PR: 6 hours of college mathematics or consent. Study of teaching of mathematics in the junior high school and/or middle school; application of mathematics content to teaching; instructional techniques and materials.

C&I 365. Dance and Movement in PK-12 Schools. 2 Hours.

This course provides a basic understanding of the principles and potential of standards-based dance education as integration as a fine art.

C&I 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

C&I 410. Early Childhood Education 1. 3 Hours.

PR: CDFS 316. An introduction to curriculum objectives, instructional methods and materials, and evaluation in early childhood education. (Pre-K to 4th grade) that includes a field experience with individualized instruction for one child.

C&I 411. Early Childhood Education 2. 3 Hours.

PR: C&I 410. This course is designed for individuals who will be working in early childhood education Pre-K to 4th grade. Topics include: working with families of young children; designing, teaching and evaluating experiential lessons for small groups of children; and gathering and assessing developmental data on small groups of children. A semester-long field experience with a class of young children is required.

C&I 412. Methods in Preschool Education. 3 Hours.

PR: EDUC 200 or equiv. Development of an experiential model of teaching young children. Application of methods in basic needs areas of nursery-early childhood education consistent with an experiential model of teaching.

C&I 413. Early Childhood Issues and Methods. 3 Hours.

Bridging theory and practice, this course helps K-6th grade preservice teachers learn to understand the complexities of the field and to teach all young children well. This course provides an opportunity for individuals to examine and expand their understandings of early childhood education.

C&I 414. Creative Experiences in Early Childhood. 3 Hours.

PR: EDUC 200 or equiv. Examination of creative experiences for young children and their relationship to child development. A special focus on play behavior as a learning medium with emphasis on program planning, curriculum development, and instructional strategies.

C&I 416. Early Language and Communication Experiences. 3 Hours.

PR: EDUC 200 or equivalent. Presents activities for developing language and communication skills in children 2-5 years of age. Covers a broad range of temporary and enduring forms of communication in visible and audible media.

C&I 418. Management of Preschool Education. 3 Hours.

PR: EDUC 200 or equiv. (A field experience with children 2-5 years of age is required.) Planning, designing, and assessing programs for children ages 2-5 years with emphasis on management skills. (Alternate Years.).

C&I 424. Approaches to Teaching Language. 3 Hours.

PR: ENGL 102. Designed for prospective teachers of English and language arts. Focus is upon planning and implementing methods of teaching English as a language. Materials and resources appropriate for public school instruction are analyzed and utilized.

C&I 425. Approaches to Teaching Reading in ELA. 3 Hours.

PR: Junior standing. Designed for prospective teachers of English and language arts. Course focuses upon methodologies for teaching literature in public schools and strategies for supporting reading fluency and comprehension in English and language arts classrooms. Workshop format will provide opportunities for peer teaching activities as students apply methods of teaching literature.

C&I 426. Teaching Rational Number/Proportional in K-9. 3 Hours.

The course is designed to develop understanding of rational number/ proportional reasoning content in grades K-9. Special attention will be given to student learning in grades K-9.

C&I 427. Place-based Elementary Education. 2 Hours.

Place-based Elementary Education involves working with local communities to support teaching and learning; it is one of the most challenging aspects of teaching. This course helps K-6 preservice teachers to understand the potential of seeing education as situated in the context of community, family, and collegial partnerships, yet recognizes the inherent debates and challenges of this work in unique contexts.

C&I 431. Mathematics Methods for Elementary Teachers I. 3 Hours.

PR: C&I 230 and C&I 231 and PR or CONC: EDUC 410 with a minimum grade of C- in each. This course introduces students to methods for teaching all children in developmentally appropriate topics in elementary mathematics. Emphasis is placed on current movements in mathematics education, the big ideas of elementary mathematics, teaching for understanding, and understanding children's mathematical thinking. Students engage in examining and analyzing children's mathematical thinking and work, examining and analyzing standards documents, and analyzing curricular materials.

C&I 432. Curriculum and Technology in Mathematics. 3 Hours.

This course is designed to familiarize participants with techniques associated with applications of curriculum and technology in Mathematics settings. Class topics will span on number and operation, algebra, geometry, measurement, data and probability.

C&I 433. Mathematics Methods for Elementary Teachers II. 3 Hours.

PR: C&I 431 and PR or CONC: EDUC 411 with a minimum grade of C- in each. This course continues students' study of methods for teaching all children in developmentally appropriate topics in elementary mathematics. Emphasis is placed on current movements in mathematics education and developing effective teaching practices for teaching children mathematics for understanding. Students engage in developing skills for leading productive classroom discussions about mathematics and plan, implement, and assess instruction using appropriate tools.

C&I 434. Teaching Mathematics: Secondary School. 3 Hours.

Includes an examination and application of relevant curricular materials and teaching techniques.

C&I 444. Teaching Science: Secondary School. 3 Hours.

Includes an examination and application of relevant curricular materials and teaching techniques.

C&I 451. Social Studies for Elementary Teachers 1. 3 Hours.

This course bridges theory and practice, designed to help Pre-K-6th grade preservice teachers learn to create dynamic social studies learning communities through place-based, democratic, dialogic, and arts-based methods.

C&I 452. Social Studies for Elementary Teachers 2. 3 Hours.

PR: C&I 451 with a minimum grade of C-. This course is a 3-credit semester-long undergraduate level course bridging theory and practice. This course builds on the foundation provided in C&I 451 in order to strengthen, deepen and expand capacities to be a reflective teacher. The course focuses on place-based education, integration of environmental science methods, and advanced methods for teaching social studies PK-6.

C&I 453. Disciplinary Foundations for Social Studies Teaching. 3 Hours.

PR: EDUC 200 with a minimum grade of C-. This lecture-based course examines national, state, and local curriculum standards for elementary social studies; the relationship between social science disciplines and the elementary curriculum; multicultural perspectives on teaching and learning, and the effects of curricular, instructional, and assessment patterns on children's understanding of social studies concepts and methods.

C&I 454. Teaching Social Studies: Secondary School. 3 Hours.

Includes an examination and application of relevant curricular materials and teaching techniques.

C&I 468. Art Integration in the Elementary Classroom. 2 Hours.

This course explores the nature of creative thinking, meaningful integration of the arts, the impact of the arts on social awareness, and school-family-community connections built through creative learning experiences involving the arts in the elementary classroom.

C&I 480. Special Problems and Workshops. 2-4 Hours.

(Maximum of 8 semester hours may be applied toward the master's degree.) PR: 14 hours in education. Credits for special workshops and short intensive unit courses on methods, supervision, and other special topics.

C&I 480A. Special Problem and Workshops. 2-4 Hours.

(Maximum of 8 semester hours may be applied toward the master's degree.) PR: 14 Hr. in education. Credits for special workshops and short intensive unit courses on methods, supervision, and other special topics.

C&I 480B. Special Problems and Workshops. 2-4 Hours.

(Maximum of 8 semester hours may be applied toward the master's degree.) PR: 14 Hr. in education. Credits for special workshops and short intensive unit courses on methods, supervision, and other special topics.

C&I 480C. Special Problems and Workshops. 2-4 Hours.

(Maximum of 8 semester hours may be applied toward the master's degree.) PR: 14 Hr. in education. Credits for special workshops and short intensive unit courses on methods, supervision, and other special topics.

C&I 480D. Special Problems and Workshops. 2-4 Hours.

(Maximum of 8 semester hours may be applied toward the master's degree.) PR: 14 Hr. in education. Credits for special workshops and short intensive unit courses on methods, supervision, and other special topics.

C&I 480E. Special Problems and Workshops. 2-4 Hours.

(Maximum of 8 semester hours may be applied toward the master's degree.) PR: 14 Hr. in education. Credits for special workshops and short intensive unit courses on methods, supervision, and other special topics.

C&I 480X. Special Problems and Workshops. 2-4 Hours.

(Maximum of 8 semester hours may be applied toward the master's degree.) PR: 14 Hr. in education. Credits for special workshops and short intensive unit courses on methods, supervision, and other special topics.

C&I 480Y. Special Problems and Workshops. 2-4 Hours.

(Maximum of 8 semester hours may be applied toward the master's degree.) PR: 14 Hr. in education. Credits for special workshops and short intensive unit courses on methods, supervision, and other special topics.

C&I 480Z. Special Problems and Workshops. 2-4 Hours.

(Maximum of 8 semester hours may be applied toward the master's degree.) PR: 14 Hr. in education. Credits for special workshops and short intensive unit courses on methods, supervision, and other special topics.

C&I 489. Identity and Cultural Diversity in the Classroom. 3 Hours.

This course is designed to help school professionals create effective learning environments for all students. It will provide students with socio-historical global perspectives for the study of race, ethnicity, language, gender/sexuality, (dis)ability, culture, religion and other differences in an increasingly globalized world. It will provide collective reflection about the multiple meanings of diversity and multiculturalism in American education.

C&I 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

C&I 491. Professional Field Experience. 1-18 Hours.

PR: Consent (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

C&I 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

C&I 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

C&I 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

C&I 496. Senior Thesis. 1-3 Hours.

PR: Consent.

C&I 497. Research. 1-6 Hours.

Independent research projects.

CDFS 101. Introduction to Child Development and Family Studies. 1 Hour.

This course will introduce students to the following: Child Development and Family Studies Program, West Virginia University, core objectives of a First Year Experience, major requirements, program expectation and career possibilities with an emphasis on critical thinking and college survival skills.

CDFS 110. Families Across the Life Span. 3 Hours.

Explores the physical, psychological, and cognitive developmental changes of individuals who are functioning in family systems that change across the life-span.

CDFS 112. Introduction to Marriage and Family. 3 Hours.

Explores various dimensions of self-development and personal preference relevant to dating, mate selection, marriage, having children, parenting, divorce, and remarriage.

CDFS 172. Health, Safety, & Nutrition in Early Childhood. 3 Hours.

Examines physical, nutritional, and safety needs that influence the growth and development of young children including non-medical-professional emergency training for the sick and injured leading to adult, child, and infant basic life support, CPR/AED and first aid certification.

CDFS 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

CDFS 210. Introduction to Parenting. 3 Hours.

Introduction of terminology, descriptions, and explanations of the parental role and parent-child interactions. Emphasis on social and personal definitions of the parental role and on the problems and changes in parent-child relationships.

CDFS 211. Infant Development. 4 Hours.

PR: CDFS 110. Developmental characteristics and environmental effects on the child during the prenatal period and the first two years with implications for guidance and care, includes practical experience working with infants and toddlers.

CDFS 212. Early Childhood Development. 3 Hours.

PR: CDFS 110. Physical, social, emotional, and cognitive development of children from conception to seven years with implications for guidance and care in practical settings.

CDFS 250. Research Methods and Data Analysis. 3 Hours.

Overview of principles and methods of CDFS research; developmental research challenges and strategies; descriptive statistics and statistical inference (hypothesis testing).

CDFS 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

CDFS 316. Child Development Practicum. 3-4 Hours.

PR: CDFS 212 or PSYC 241. Application of child development principles. Involves planning developmentally appropriate activities for three-four-and five-year old children at the West Virginia University Child Development Laboratory.

CDFS 317. Hospital Child Life Practicum. 3 Hours.

PR: CDFS 212 and CDFS 316. Application of development principles to children in the hospital. Assignments involve learning intervention techniques to minimize hospital-generated stress and enhance normal development and family experience.

CDFS 320. Family Life Education. 3 Hours.

Introduces the general philosophy and broad principles of family life education along with the range of programs available. An opportunity is given to plan, implement, and evaluate such educational programs for diverse audiences.

CDFS 321. Family Policy and Law. 3 Hours.

Explores at the federal and state level the process of policy formation, implementation, and evaluation as it relates to family life. Introduces the laws regulating such family life activities as marriage, parenting, and divorce.

CDFS 412. Adolescent Development. 3 Hours.

PR: Senior or graduate standing and CDFS 110. The adolescent in contemporary American culture, including normative physical, social, and personality development; relationships within various typical social settings. (e.g., family, school, community, peer group.).

CDFS 413. Contemporary Issues in Family Relations. 3 Hours.

PR: Senior or graduate standing or consent. Study of recent research findings in the major areas of family relationships. Topics include effects of family violence, substance abuse, poverty, and health. Pre-requisite(s) and/ or co-requisite(s) may differ on regional campuses.

CDFS 414. Adolescent Problems and Disorders. 3 Hours.

Focuses on non-normative aspects of adolescent development including social, behavior, emotional, and psychological problems. Prevention and intervention strategies are examined.

CDFS 415. Family Interaction and Communication. 3 Hours.

PR: Senior or graduate standing or consent. The family as a social group; processes related to well-being for a variety of family relationships.

CDFS 420. The Art of Leadership in Early Childhood. 3 Hours.

The course will prepare students to develop effective leadership skills in early childhood settings, advocate for children and families and develop collaborative partnerships.

CDFS 421. Child Care Center Administration. 3 Hours.

Focuses on skills necessary for directing a high quality child care center. Participants will gain knowledge in program planning, development, and maintenance.

CDFS 422. Business of Child Care. 3 Hours.

This course is designed to provide essential business and management lessons in operating a high quality early child care center.

CDFS 423. External Funding: Early Childhood Programs. 1 Hour.

Provides the opportunity to learn and understand external funding sources and the application of grant writing process in relationship to early childhood programs.

CDFS 430. Best Practices in Pre-K Movement. 3 Hours.

The course will prepare students to plan, develop and implement an appropriate structured movement program so young children can be physically active and to set the stage for lifelong physical activity.

CDFS 431. Infant Toddler Language and Literacy. 3 Hours.

Focus on language and literacy development in infants and toddlers for teachers and others working with infants and toddlers.

CDFS 432. Early Socio-Emotional Growth. 3 Hours.

An advanced course in infant and toddler socio-emotional development. The course will focus on the development of emotion, relationships, and the curriculum to promote infant socio-emotional well-being.

CDFS 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

CDFS 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

CDFS 491A. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

CDFS 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

CDFS 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

CDFS 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

CDFS 496. Senior Thesis. 1-3 Hours.

PR: Consent.

CDFS 497. Research. 1-6 Hours.

Independent research projects.

CDFS 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

CE 191. First-Year Seminar. 1-3 Hours.

Engages students in Investigation of topics not covered in regularly scheduled active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

CE 200. Land Surveying. 3 Hours.

PR: MATH 128. Introduction to current surveying methods and equipment as applied to mapping projects and simple construction layout. Leveling, angles and directions, distance measurements, and fundamental traverse calculations along with mapping principles are emphasized.

CE 201. Introduction to Civil Engineering. 1 Hour.

PR: ENGR 102. Overview of civil engineering disciplines and careers including structural, environmental, hydrotechnical, geotechnical and transportation engineering. Addresses the technical concepts and career opportunities in each area. Emphasis on providing guidance for success in completing undergraduate studies.

CE 210. Introduction to Computer Aided Design and Drafting for Civil Engineers. 2 Hours.

PR: ENGR 102 or consent. An introduction to computer-aided design and drafting (CADD) software for communicating design plans and specifications for civil and environmental engineering projects.

CE 273. American Society of Civil Engineers Workshop. 1 Hour.

The course provides a formal structure for meeting and conducting activities necessary to compete in competitions such as the concrete canoe, steel bridge, technical problem solving, and surveying. It does not satisfy any graduation requirement.

CE 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

CE 301. Engineering Professional Development. 1 Hour.

PR: CE 201. Non-technical issues facing graduate engineers; career paths, job search, professional registration, legal issues, engineering ethics, professional societies, and life-long learning.

CE 305. Introduction to Geomatics. 3 Hours.

PR: CE 210. Introduction to the theory and practice of the technologies used to measure, calculate, acquire, process, and display terrain and other data for use in mapping, planning, designing, constructing, and managing the built and natural environments. (2 - 75-minute periods.).

CE 310. Civil Engineering Materials. 3 Hours.

PR: MAE 243. Physical, chemical, and molecular properties of materials commonly used in civil engineering works. Influence of these properties on the performance and use of materials.

CE 321. Fluid Mechanics for Civil Engineers. 3 Hours.

PR: MATH 261 and MAE 242. Fluid properties, statics, and kinematics; conservation laws for mass, momentum, and mechanical energy; piezometric head and grade lines; dimensional analysis and similitude; weir and orifice flow; introduction to flow in pipes and open channels. (3 hr. lecture.).

CE 322. Hydrotechnical Engineering. 3 Hours.

PR: CE 321. Flow in pipes and pipe networks; pumps; uniform and gradually varied open channel flow; design of water distribution, sanitary sewer, and storm water collection systems. (3 hr. lec.).

CE 332. Introduction to Transportation Engineering. 4 Hours.

PR: MATH 156 with a minimum grade of C-. Integrated transportation systems from the standpoint of assembly, haul, and distribution means. Analysis of transport equipment and traveled way. Power requirements, speed, stopping, capacity, economics, and route location. Future technological developments and innovations. (3 hr. lec., 3 hr. lab.).

CE 347. Introduction to Environmental Engineering. 4 Hours.

PR: WVU sections require CHEM 115 and MATH 251 with a minimum grade of C- in each, WVUIT sections require MAE 331 and CHEM 116.

Introduction to physical, chemical, and biological characteristics of waters and wastewaters, and fundamental principles of water and wastewater treatment including hands-on laboratory exercises.

CE 351. Introductory Soil Mechanics. 4 Hours.

PR: WVU sections require MAE 241 and MAE 243 and MATH 261 with a minimum grade of C- in each, WVUIT sections require MAE 243 and GEOL 312. Introduction to geotechnical engineering, fundamental soil properties, classification of soils, soil compaction, permeability, compressibility, and consolidation of soils, shear strength, lateral earth pressures.

CE 361. Structural Analysis 1. 4 Hours.

PR: WVU sections require MAE 241 and MAE 243 and MATH 261 with a minimum grade of C- in each, WVUIT sections require MAE 243 and PR or CONC: MATH 251. Stability, determinacy, and equilibrium of structures; shear and bending moment diagrams of determinate and indeterminate beams and frames; analysis of trusses; displacement of planar structures by geometric and energy methods.

CE 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

CE 411. Pavement Design. 3 Hours.

PR: WVU sections require CE 351, WVUIT sections required CE 312 and CE 331 and CE 351. Effects of traffic, soil, environment, and loads on the design and behavior of pavement. Design of pavement structures. Pavement performance and performance surveys.

CE 413. Construction Methods. 3 Hours.

PR: CE 332 or CE 347 or CE 351 or CE 361. Study of construction methods, equipment, and administration with particular emphasis on the influence of new developments in technology. (3 hr. lec.).

CE 414. Construction Engineering. 3 Hours.

PR: CE 332 or CE 347 or CE 351 or CE 361. Introduce student to the role of the civil engineer in the construction process, including critical path analysis, productivity estimation, equipment capability and selection.

CE 415. Flexible Pavements. 3 Hours.

PR: CE 310. Design, construction and maintenance of flexible pavements, including material characterization, mix design, construction methods, pavement design and evaluation, and maintenance procedures.

CE 416. Advanced Concrete Materials. 3 Hours.

PR: MAE 243. Microstructure and properties of portland cement pastes, rheology, maturity, strength properties, non-linear fracture mechanics, early age volume changes, creep and shrinkage models, transport mechanism and durability of concrete, special concretes. (3 hr. lec.).

CE 417. Infrastructure Asset Management 1. 3 Hours.

PR: CE 332 or CE 347 or CE 351 or CE 361. Integrated course that covers different strategies in supporting and sustaining civil infrastructure systems which include transportation, drinking and waste water, and energy systems. This course focuses on the maintenance stage, which broadly includes maintenance, repair, rehabilitation, and replacement, of the lifetime of an infrastructure (e.g., planning, design, construction, and operation/maintenance).

CE 420. Computational Fluid Mechanics. 3 Hours.

PR: CE 321. Use of the computer in elementary hydraulics, open channel flow, potential flow, and boundary layer flow, numerical techniques for solution of algebraic equations, ordinary differential equations, and partial differential equations. (3 hr. lec.).

CE 423. Water System Design. 3 Hours.

PR: CE 321. This course extends the student's understanding of fluid mechanics and brings it to bear on common and important areas of water system design: water distribution systems, sanitary sewer systems, and storm water collection systems.

CE 425. Engineering Hydrology. 3 Hours.

PR: WVU sections require CE 321, WVUIT sections require MAE 331. Scientific basis of the hydrologic cycle and its engineering implications; rainfall-runoff processes, hydrographs, flood routing, and statistical methods. (3 hr. lec.).

CE 427. Water Resources Engineering. 3 Hours.

PR: CE 321. Application of hydrologic and hydraulic principles in the design and analysis of water resource systems; probability concepts and economics in water resource planning, water law, reservoir operations, hydraulic structures, flood damage mitigation, hydroelectric power, and drainage. (3 hr. lec.).

CE 431. Highway Engineering. 3 Hours.

PR: WVU sections require CE 332, WVUIT sections require CE 204 and CE 331. Highway administration, economics and finance; planning and design; subgrade soils and drainage; construction and maintenance. Design of a highway. Center line and grade line projections, earthwork and cost estimates.

CE 433. Urban Transportation Planning and Design. 3 Hours.

PR: CE 332. Principles of planning and physical design of transportation systems for different parts of the urban area. Land use, social, economic, and environmental compatibilities emphasized. Evaluation and impact assessment. (3 hr. lec.).

CE 435. Railway Engineering. 3 Hours.

PR: CE 332. Development and importance of the railroad industry. Location, construction, operation, and maintenance. (3 hr. lec.).

CE 436. Pedestrian/Bike Transportation. 3 Hours.

PR: CE 332. Planning, design, operation and maintenance of pedestrian and bicycle facilities, including multi-use trails; policies to encourage non-motorized travel; traffic calming; accessibility and ADA requirements; connections to transit. (3 hr. lec.).

CE 439. Traffic Engineering and Operations. 3 Hours.

PR: CE 332. Driver and vehicular characteristics, horizontal and vertical curve design, traffic flow theory, analysis of traffic engineering data, traffic engineering studies, traffic signal analysis and design.

CE 442. Environmental Aerosol Science. 3 Hours.

PR: CE 347. This course will give an understanding of the basic principles behind aerosol generation, measurement, mechanics, and toxicity for aerosols found in the environment.

CE 443. Environmental Science and Technology. 3 Hours.

PR: CE 347. Issues of global atmospheric change, minimization and control of hazardous wastes, groundwater contamination, water pollution, air pollution, solid waste control, and management of water and energy resources. (3 hr. lec.).

CE 445. Properties of Air Pollutants. 3 Hours.

PR: CE 347. Physical, chemical, and biological behavioral properties of dusts, droplets, and gases in the atmosphere. Air pollutant sampling and analysis. Planning and operating air pollution surveys. (3 hr. lec.).

CE 447. Environmental Engineering Design. 3 Hours.

PR: CE 347. Process design of treatment/remediation systems; comparison of alternatives and preliminary cost evaluation. (2 hr. lec., 3 hr. lab.).

CE 451. Foundation Engineering. 3 Hours.

PR: CE 351. Subsurface investigations and synthesis of soil parameters for geotechnical design and analysis, concepts of shallow and deep foundation design, geotechnical design of conventional retaining walls, computerized analysis and design of soil/foundation interaction; case histories. (3 hr. lec.).

CE 453. Earthwork Design. 3 Hours.

PR: CE 351. Use of soil mechanics principles in the analysis, design and construction of earth structures. Principles of compaction and compaction control; an introduction to slope stability analysis and landslides; earth reinforcement systems, and ground improvement techniques. (3 hr. lec.).

CE 454. Geotechnical Engineering Field Methods. 3 Hours.

PR: CE 351. Soil exploration and groundwater sampling; in-situ determination of properties using split spoon, cone, dilatometer, pressure meter, and vane equipment. Instrumentation for monitoring field performance and challenges associated with exploration and monitoring in geotechnical/geoenvironmental engineering. (3 hr. lec.).

CE 461. Structural Analysis 2. 3 Hours.

PR: WVU sections require CE 361, WVUIT sections require MATH 261 and PR or CONC: (CE 462 or CE 463). Fundamental theory of statically indeterminate structures; analysis of indeterminate beams, frames, and trusses by stiffness and flexibility methods; study of influence lines for beams, frames, and trusses.

CE 462. Reinforced Concrete Design. 3 Hours.

PR: WVU sections require CE 361, WVUIT sections require PR or CONC: CE 361. Behavior and design of reinforced concrete members. Material properties, design methods and safety consideration, flexure, shear, bond and anchorage, combined flexure and axial load, footings, introduction to torsion slender columns, and pre-stressed concrete.

CE 463. Steel Design. 3 Hours.

PR: CE 361. Material properties, design of steel bridge and building systems with emphasis on connections, beams, columns, plastic design, and cost estimates.

CE 464. Timber Design. 3 Hours.

PR: CE 361. Fundamentals of modern timber design and analysis. Topics include wood properties, design of beams, columns, trusses, and other structures using dimension lumber, glue-laminated products and composites.

CE 479. Integrated Civil Engineering Design-Capstone. 3 Hours.

PR: Senior standing and a minimum grade of C- in CE 411 or CE 415 or CE 431 or CE 439 or CE 447 or CE 451 or CE 453 or CE 462 or CE 463 or CE 464 or CE 465. Capstone integration of the civil engineering curriculum by comprehensive design experience to professional standards. Projects are performed in student groups under faculty supervision.

CE 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

CE 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

CE 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

CE 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

CE 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

CE 496. Senior Thesis. 1-3 Hours.

PR: Consent.

CE 497. Research. 1-15 Hours.

Independent research projects.

CE 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

CHE 102. Introduction to Chemical Engineering. 3 Hours.

PR: ENGR 101 and PR or CONC: (CHEM 116 or CHEM 118.) Overview of traditional and emerging areas of chemical engineering, projects involving computational and programming tools, design projects, written and oral presentation of results, discussions of professional and ethical behavior relating to the engineering professions.

CHE 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

CHE 201. Material and Energy Balances 1. 3 Hours.

PR: MATH 155 and CHEM 116 and PR or CONC: ENGR 102 or CHE 102. Introduction to chemical engineering fundamentals and calculation procedures, industrial stoichiometry, real gases and vapor-liquid equilibrium, heat capacities and enthalpies, and unsteady material balances and energy balances. (2 hr. lec., 2 hr. calc. lab.).

CHE 202. Material and Energy Balances 2. 3 Hours.

PR: (CHE 201 or CHE 211) and PR or CONC: CHE 230. Continuation of CHE 201. (2 hr. lec., 2 hr. calc. lab.).

CHE 230. Numerical Methods for Chemical Engineering. 3 Hours.

PR: (ENGR 102 or CHE 102) and MATH 156 and PR or CONC: (CHE 202 or CHE 212) and MATH 251. Numerical solution of algebraic and differential equations with emphasis on process material and energy balances. Statistical methods optimization, and numerical analysis. (2 hr. lec., 2 hr. calc. lab.).

CHE 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

CHE 310. Process Fluid Mechanics. 3 Hours.

PR: MATH 251 and (CHE 202 or CHE 212). Fluid statics, laminar and turbulent flow, mechanical energy balance, Bernoulli equation, force balance, friction, flow in pipes, pumps, metering and transportation of fluids, flow through packed beds and fluidized beds. (2 hr. lec., 2 hr. calc. lab.).

CHE 311. Process Heat Transfer. 3 Hours.

PR: MATH 251 and (CHE 202 or CHE 212). Conductive heat transfer, convective heat transfer, design and selection of heat exchange equipment, evaporation, and radiation. (2 hr. lec., 2 hr. calc. lab.).

CHE 312. Separation Processes. 3 Hours.

PR: CHE 310 and CHE 311 and CHE 320. Equilibrium stage and multiple stage operations, differential countercurrent contacting, membrane separations, fluid-particle separations.

CHE 315. Chemical Engineering Transport Analysis. 3 Hours.

PR: CHE 310 and CHE 311 and CHE 320 and MATH 261. Development of fundamental relationships for momentum, heat and mass transfer for flow systems to include chemical reactions, interphase transport, and transient phenomena. Development and use of microscopic and macroscopic balance equations.

CHE 320. Chemical Engineering Thermodynamics. 3 Hours.

PR: (CHE 202 or CHE 212) and MATH 251. First and second laws of thermodynamics. Thermodynamic functions for real materials. Physical equilibrium concepts and applications. (2 hr. lec., 2 hr. calc. lab.).

CHE 325. Chemical Reaction Engineering. 3 Hours.

PR or CONC: CHE 312 or CHE 317. Application of material balances, energy balances, chemical equilibrium relations, and chemical kinetic expressions to the design of chemical reactors. (3 hr. lec.).

CHE 326. Reaction Phenomena. 3 Hours.

PR: CHE 320 and PR or CONC: CHE 325. Theory and application of reaction kinetics, analysis of rate data, reaction equilibrium, and catalysis. The application of these phenomena to industrial relevant systems will be emphasized.

CHE 351. Chemical Process Laboratory. 2 Hours.

PR or CONC: CHE 310 and CHE 311. Reinforcement of practical concepts acquired during the junior year chemical engineering courses on fluids and heat transfer through experimental design and practice.

CHE 355. Process Simulation and Design. 2 Hours.

PR or CONC: CHE 312 and CHE 325. The application and use of chemical process simulation software to the design of a chemical process.

CHE 366. Materials Science. 3 Hours.

PR: CHEM 116 and junior standing in engineering and mineral resources or chemistry. Chemical bonding and structures of metals, ceramics, and organic materials; the dependence of properties upon these structures and bonding conditions; thermal and mechanical stresses; corrosion; synthesis and preparation of materials.

CHE 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

CHE 414. Coal Conversion Engineering. 3 Hours.

PR: CHEM 233 and PR or CONC: (CHE 312 or CHE 317) and CHE 325. Coal conversion processes from the unit-operations approach; thermodynamics, kinetics, and evaluation of system requirements and performance. (3 hr. lec.).

CHE 416. Oil & Gas Refining. 3 Hours.

PR: CHE 311 and PR or CONC: CHE 325 or CHE 312. The fundamental principles to analyze refining processes in modern petroleum refineries, chemistry and processes for the conversion of natural gas to products equivalent to those from petroleum.

CHE 435. Chemical Process Control. 3 Hours.

PR: (CHE 230 or CHE 330) and (CHE 325 or CHE 327). Transient behavior of chemical process flow systems, linearization and stability. Process control system design including frequency response analysis. Instrumentation and hardware.

CHE 450. Unit Operations Laboratory 1. 2 Hours.

PR: (CHE 312 or CHE 317) and (CHE 350 or CHE 351). Operation of chemical process engineering equipment; collection, analysis, and evaluation of laboratory report preparation. (4 hr. lab.).

CHE 451. Unit Operations Laboratory 2. 2 Hours.

PR: CHE 450. Continuation of CHE 450. (4 hr. lab.).

CHE 455. Chemical Process Design 1. 4 Hours.

PR: (CHE 312 or CHE 317) and CHE 325. Analysis, synthesis, and design of chemical process systems. Engineering economics, safety, professional aspects of the practice of chemical engineering. Includes a group chemical plant design project, as well as individual design projects. (3 hr. lec., 4 hr. des. lab.).

CHE 456. Chemical Process Design 2. 3 Hours.

PR: CHE 455. Continuation of CHE 455.

CHE 461. Polymer Science and Engineering. 3 Hours.

PR: CHEM 233. Polymer classification, polymer synthesis, molecular weights and experimental techniques, thermodynamics, rubber elasticity, mechanical behavior, crystallization, diffusion, rheology, extrusion and injection molding. (3 hr. lec.).

CHE 462. Polymer Processing. 3 Hours.

PR: Junior standing in engineering and mineral resources. Flow behavior in idealized situations; extrusion; calendaring; coating; injection molding; fiber spinning; film blowing; mixing; heat and mass transfer; flow instabilities. (3 hr. lec.).

CHE 463. Polymer Composites Processing. 3 Hours.

PR: Junior standing in engineering and mineral resources. Advantages and applications of polymer composites; chemistry and kinetics of thermosetting polymers; hand layup and spray up; compression molding; resin transfer molding; reaction injection molding; filament winding; pultrusion. (3 hr. lec.).

CHE 466. Electronic Materials Processing. 3 Hours.

PR: Junior standing in engineering and mineral resources. The design and application of thermal, plasma, and ion assisted processing methodologies; solid state, gas phase, surface, and plasma chemistry underpinnings; thin film nucleation and growth; the effect of processing methods and conditions on mechanical, electrical, and optical properties. (3 hr. lec.).

CHE 471. Biochemical Engineering. 3 Hours.

PR: CHE 325. Kinetics of enzymatic and microbial reactions, interactions between biochemical reactions and transport phenomena, analysis and design of bioreactors, enzyme technology, cell cultures, bioprocess engineering. (3 hr. lec.).

CHE 472. Biochemical Separations. 3 Hours.

PR or CONC: CHE 312 or CHE 317. Modeling and design of separation processes applicable to recovery of biological products. Topics include filtration, centrifugation, extraction, adsorption, chromatography, electrophoresis, membranes, crystallization, and examples from industry. (3 hr. lec.).

CHE 475. Chemical Process Safety. 3 Hours.

PR: CHE 202 or CHE 212. Introduction to safety, health and loss prevention in the chemical process industry; regulations, toxicology, hazard identification, system safety analysis and safety design techniques. (3 hr. lec.).

CHE 476. Pollution Prevention. 3 Hours.

PR or CONC: (CHE 312 or CHE 317) and CHE 325 and CHE 326. Environmental risk and regulations; fate and persistence of chemicals; green chemistry; evaluation and improvement of pollution performance during chemical process design; life cycle analysis; industrial ecology.

CHE 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

CHE 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

CHE 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

CHE 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

CHE 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

CHE 496. Senior Thesis. 1-3 Hours.

PR: Consent.

CHE 497. Research. 1-15 Hours.

CHE 497. Research. I,II,S. 1-15 hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. Grading may be S/U.

CHE 498. Honors. 1-3 Hours.

PR: Students in the Honors Program and consent by the honors director. Independent reading, study or research.

CHEM 110. Introduction to Chemistry. 2 Hours.

PR: Satisfy the minimum ACT/SAT math score, or satisfactory performance on placement examination, or MATH 122 or higher with a minimum grade of C-. Required for students whose performance on ACT/SAT/placement examination indicates need for introductory work before enrolling in other chemistry courses. Elementary scientific terminology and concepts; simple chemical arithmetics; chemical symbols, formulae and equations; and mole concepts.

CHEM 110A. Introduction to Chemistry A. 1 Hour.

PR: Satisfy the minimum ACT/SAT math score, or satisfactory performance on placement examination, or C- in MATH 122 or higher. Students must register for CHEM 110A and CHEM 110B in the same term. Required for students whose performance on ACT/SAT/placement examination indicates need for introductory work before enrolling in other chemistry courses. Elementary scientific terminology and concepts; simple chemical arithmetic's; chemical symbols, formulae and equations; and mole concepts.

CHEM 110B. Introduction to Chemistry B. 1 Hour.

PR or CONC: CHEM 110A with a grade of C- or better. Required for students whose performance on the ACT/SAT/placement examination indicates need for introductory work before enrolling in other chemistry courses. Scientific terminology and concepts; chemical arithmetic's; chemical symbols, formulae and equations; and mole concepts.

CHEM 111. Survey of Chemistry 1. 4 Hours.

PR: WVU sections require MATH 122 or MATH 124S or MATH 126S with a minimum grade of C- or ALEKS Score of ML 20 or Math ACT Score of 22 or Math SAT Score of 540 or Math SAT (March 2016) Score of 570 or PR or CONC: MATH 126A or MATH 126B or MATH 126C or MATH 129 or MATH 150 or MATH 153 or MATH 155, WVUIT and PSC sections require MATH 122 or MATH 124S or MATH 126S with a minimum grade of C- or ALEKS Score of ML 10 or Math ACT Score of 19 or Math SAT Score of 460 or Math SAT (March 2016) Score of 500 or PR or CONC: MATH 126A or MATH 126B or MATH 126C or MATH 129 or MATH 150 or MATH 153 or MATH 155 and PR or CONC: CHEM 111L. Designed primarily for students taking only one year of college chemistry. Atomic structure; chemical bonding; acids, bases, and salts; periodicity; properties of gases, liquids, and solids; stoichiometry; oxidation-reduction. (3 hr. lecture) (Students may not receive credit for CHEM 115 or CHEM 117 and for CHEM 111.).

CHEM 111L. Survey of Chemistry 1 - Laboratory. 0 Hours.

PR or CONC: CHEM 111. Survey of Chemistry 1 - CHEM 111 Laboratory.

CHEM 112. Survey of Chemistry 2. 4 Hours.

PR: CHEM 111 and PR or CONC: CHEM 112L. Continuation of CHEM 111. Nuclear chemistry; air and water pollution; useful natural materials; consumer chemistry; introduction to organic and biochemistry. (3 hr. lec.) (Students may not receive credit for CHEM 116 or CHEM 118 and for CHEM 112.) (CHEM 111 and CHEM 112 cannot be used as pre-requisite courses for organic chemistry).

CHEM 112L. Survey of Chemistry 2 - Laboratory. 0 Hours.

PR or CONC: CHEM 112. Survey of Chemistry 2 - CHEM 112 Laboratory.

CHEM 115. Fundamentals of Chemistry. 3 Hours.

PR: Satisfactory ACT/SAT or placement exam performance, or WVU sections require CHEM 110B with a minimum grade of C- or MATH 129 or higher with a minimum grade of C-, PSC sections require MATH 124 or MATH 126 or PR or CONC: MATH 128 or higher with a minimum grade of C-, WVUIT sections require PR or CONC: MATH 126 or MATH 129, and PR or CONC: CHEM 115L. For students who need more than one year of college chemistry and quantitative relationships on which subsequent chemistry courses are built. (3 hr. lec.) (Students may not receive credit for CHEM 117 and CHEM 115.) Pre-requisite(s) and/or co-requisite(s) may differ on regional campuses.

CHEM 115L. Fundamentals of Chemistry 1 - Laboratory. 1 Hour.

PR or CONC: CHEM 115. Fundamentals of Chemistry 1 - CHEM 115 Laboratory.

CHEM 116. Fundamentals of Chemistry. 3 Hours.

PR: CHEM 115 and CHEM 115L and PR or CONC: CHEM 116L with a minimum grade of C- in all. Continuation of CHEM 115 & CHEM 115L. (3 hr. lec., 3 hr. lab.) (Students may not receive credit for CHEM 118 and for CHEM 112 or CHEM 116.) Pre-requisite(s) and/or co-requisite(s) may differ on regional campuses.

CHEM 116L. Fundamentals of Chemistry 2 - Laboratory. 1 Hour.

PR or CONC: CHEM 116. Fundamentals of Chemistry 2 - CHEM 116 Laboratory.

CHEM 117. Principles of Chemistry 1. 5 Hours.

PR: Satisfactory ACT/SAT and placement examination performance, or a score of four or five on AP Chemistry examination, and PR or CONC: CHEM 117L. A more advanced treatment of the principles and theories of chemistry than offered in CHEM 115 and CHEM 116. Primarily for students specializing in chemistry. (Students may not receive credit for CHEM 117 and for CHEM 111 or CHEM 115.).

CHEM 117L. Principles of Chemistry 1 - Laboratory. 0 Hours.

PR or CONC: CHEM 117. Principles of Chemistry 1 - CHEM 117 Laboratory.

CHEM 118. Principles of Chemistry 2. 5 Hours.

PR: CHEM 117 and CHEM 117L and PR or CONC: CHEM 118L. Continuation of CHEM 117. (3 hr. lec. plus recitation) (Students may not receive credit for CHEM 118 and for CHEM 112, CHEM 116 or CHEM 215.).

CHEM 118L. Principles of Chemistry 2 - Laboratory. 0 Hours.

PR or CONC: CHEM 118. Principles of Chemistry 2 - CHEM 118 Laboratory.

CHEM 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

CHEM 215. Introductory Analytical Chemistry. 3 Hours.

PR: CHEM 116 and CHEM 116L with a minimum grade of C- in each and PR or CONC: CHEM 215L. Volumetric analysis, gravimetric analysis, solution equilibria, spectrophotometry, separations, and electrochemical methods of analysis. (Students may not receive credit for CHEM 215 and for CHEM 117 and CHEM 118.).

CHEM 215L. Introductory Analytical Chemistry Laboratory. 1 Hour.

PR: CHEM 116 and CHEM 116L with a minimum grade of C- in each and PR or CONC: CHEM 215. Volumetric analysis, gravimetric analysis, solution equilibria, spectrophotometry, separations, and electrochemical methods of analysis.

CHEM 231. Organic Chemistry: Brief Course. 4 Hours.

PR: CHEM 116 and CHEM 116L and PR or CONC: CHEM 231L. Emphasis on biological applications for students in medical technology, agriculture, and family resources. Nomenclature, structure, reactivity, and stereochemistry are stressed. (3 hr. lec., 3 hr. lab.) (Students may not receive credit for CHEM 231 and for CHEM 233 and CHEM 234.).

CHEM 231L. Organic Chemistry: Brief Course - Laboratory. 0 Hours.

PR: CHEM 116 and CHEM 116L with a minimum grade of C- and PR or CONC: CHEM 231. Emphasis on biological applications for students in medical technology, agriculture, and family resources. Nomenclature, structure, reactivity, and stereochemistry are stressed.

CHEM 233. Organic Chemistry. 3 Hours.

PR: (CHEM 116 or CHEM 118) and PR or CONC: CHEM 235 with a minimum grade of C- in all. Basic principles of organic chemistry. Modern structural concepts, the effect of structure on physical and chemical properties, reactions and their mechanisms and application to syntheses. (3 hr. lec.) (Students may not receive credit for CHEM 233, CHEM 234, and for CHEM 231.).

CHEM 234. Organic Chemistry. 3 Hours.

PR: CHEM 233 and CHEM 235 and PR or CONC: CHEM 236 with a minimum grade of C- in all. Continuation of CHEM 233 and its study of basic principles of organic chemistry. Modern structural concepts, the effect of structure on physical and chemical properties, reactions and their mechanisms and application to syntheses. (3 hr. lec.).

CHEM 235. Organic Chemistry Laboratory. 1 Hour.

PR or CONC: CHEM 233 with a minimum grade of C-. Fundamental organic reactions and the preparation of organic compounds. (3 hr. lab.).

CHEM 236. Organic Chemistry Laboratory. 1 Hour.

PR: CHEM 233 and CHEM 235 and PR or CONC: CHEM 234 with a minimum grade of C- in all. Continuation of CHEM 235 and its study of fundamental organic reactions and the preparation of organic compounds. (3 hr. lab.).

CHEM 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

CHEM 310. Instrumental Analysis. 3 Hours.

PR: (CHEM 215 or CHEM 118) and (CHEM 341 or CHEM 346). Lectures and demonstrations. Fundamentals of instrumental methods applied to chemical analyses: electrochemistry, spectroscopy, mass spectrometry, and chromatography. (2 hr. lec., 1 hr. demonstration.).

CHEM 312. Environmental Chemistry. 3 Hours.

PR: CHEM 215 and CHEM 234 and physical chemistry. Study of the nature, reactions, transport, and fates of chemical species in the environment. (2 hr. lec., 1 hr. demonstration.).

CHEM 313. Instrumental Analysis Laboratory. 1 Hour.

PR: CHEM 310. Practical application of modern instrumental methods to problems in chemical analysis. (3 hr. lab.).

CHEM 335. Methods of Structure Determination. 4 Hours.

PR: CHEM 234 and CHEM 236. Use of chemical methods and UV, IR, NMR, and mass spectroscopy to elucidate structures of organic compounds. For students in chemistry and related fields who may need these methods in research and applied science. (2 hr. lec., 2 hr. lab.).

CHEM 337. Polymer Chemistry. 3 Hours.

PR: CHEM 234 and physical chemistry. Methods, mechanisms, and underlying theory of polymerization. Structure and stereochemistry of polymers in relation to chemical, physical, and mechanical properties. (3 hr. lec.).

CHEM 339. Organic Syntheses. 3 Hours.

PR: CHEM 234 and CHEM 236. Modern synthetic methods of organic chemistry. (1 hr. lec., two 3 hr. lab.).

CHEM 341. Physical Chemistry: Brief Course. 3 Hours.

PR: ((CHEM 116 with a minimum grade of C- and CHEM 215) or CHEM 118) and MATH 156 and (PHYS 102 or PHYS 112). Beginning physical chemistry covering the subjects of chemical thermodynamics, chemical dynamics, and the structure of matter. (Students may not receive credit for CHEM 346 and 348 and for CHEM 341.).

CHEM 342. Experimental Physical Chemistry. 1 Hour.

PR or CONC: CHEM 341. Laboratory work in physical chemistry designed to accompany CHEM 341. (One 3 hr. lab.).

CHEM 346. Physical Chemistry. 3 Hours.

PR: CHEM 234 and MATH 156 and PHYS 112. A first course in physical chemistry. Topics include a study of thermodynamics and chemical equilibria. (3 hr. lec.) (Students may not receive credit for CHEM 346 and for CHEM 341.).

CHEM 347. Physical Chemistry Laboratory. 1 Hour.

PR: (CHEM 118 or CHEM 215) and CHEM 346. Experimentation illustrating the principles of physical chemistry and offering experience with chemical instrumentation. (One 3 hr. lab.).

CHEM 348. Physical Chemistry. 3 Hours.

PR: CHEM 346 and MATH 251. Continuation of CHEM 346. Chemical dynamics and the structure of matter. (3 hr. lec.) (Students may not receive credit for CHEM 348 and for CHEM 341.).

CHEM 349. Physical Chemistry Laboratory. 2 Hours.

PR: CHEM 346 and CHEM 347 and CHEM 348. Continuation of CHEM 347. (Two 3 hr. lab.).

CHEM 376. Research Methods. 3 Hours.

PR: (CHEM 118 or CHEM 215) and PR or CONC: ARSC 220. An introduction to the tools and mathematics that scientists use to solve scientific problems. Mathematical modeling, experimental design, hypothesis formulation, data collection, use of statistics, reading and evaluating the scientific literature, writing and reviewing scientific papers, and oral presentation of scientific research.

CHEM 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

CHEM 401. Chemical Literature. 1 Hour.

PR: CHEM 234 and (CHEM 341 or CHEM 346). Study of techniques for locating, utilizing, and compiling information needed by the research worker in chemistry. (1 hr. lec.).

CHEM 403. Undergraduate Seminar. 1 Hour.

PR: CHEM 401. Instruction in design and presentation of topics of current chemical interest. (1 hour individual instruction and/or lecture.).

CHEM 411. Intermediate Analytical Chemistry. 3 Hours.

PR: CHEM 215 and physical chemistry. Concepts underlying modern analytical procedures and their application to the solution of contemporary problems; presented at the intermediate level. (3 hr. lec.).

CHEM 422. Intermediate Inorganic Chemistry. 3 Hours.

PR: Physical chemistry. Structure, bonding, and reactivity of compounds of main-group and transition metal elements. Molecular structure and symmetry, solid state chemistry, ligand field theory, and coordination chemistry. (3 hr. lec.).

CHEM 423. Inorganic Synthesis Laboratory. 2 Hours.

PR: CHEM 422. Application of modern synthetic and spectroscopic methods of analysis to the preparation and characterization of main group, solid-state, transition metal, and organometallic compounds. (Two 3 hr. lab.).

CHEM 440. Quantum Chemistry. 3 Hours.

PR: CHEM 348. Introduction to the principles of quantum mechanics and its application to atoms, molecules, solids, spectroscopy, and computational chemistry.

CHEM 444. Colloid and Surface Chemistry. 3 Hours.

PR: Physical chemistry. Selected topics in the properties and physical chemistry of systems involving macromolecules, lyophobic colloids, and surfaces. (3 hr. lec.).

CHEM 460. Forensic Chemistry. 3 Hours.

PR: CHEM 115 and CHEM 116 and CHEM 117 and CHEM 118 and CHEM 233 and CHEM 236 and CHEM 215 or instructor permission. Analytical chemistry as applied in forensic science. Drug analysis, toxicology, arson, paints, polymers, fibers, inks, and gunshot residue.

CHEM 462. Biochemistry 2. 3 Hours.

PR: AGBI 410. Second semester of undergraduate biochemistry with a focus on the molecular level processes that enable life and the integration of multiple hierarchies of mechanistic regulation.

CHEM 463. Forensic Chemistry Lab. 1 Hour.

PR: (CHEM 115 and CHEM 116) or (CHEM 117 and CHEM 118) and CHEM 233 and CHEM 236 required and CHEM 215 or instructor permission and PR or CONC: CHEM 460. Analytical chemistry as applied in forensic science. Drug analysis, toxicology, arson, paints, polymers, fibers, inks, and gunshot residue.

CHEM 464. Biochemistry 2 Laboratory. 1 Hour.

PR: AGBI 410 and AGBI 412 and PR or CONC: CHEM 462. Second semester of undergraduate biochemistry lab, familiarizes students with biochemical techniques used in the analysis of biological species/processes.

CHEM 490. Teaching Practicum: Peer-Led Team Learning. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

CHEM 490A. Teaching Practicum-CLC. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

CHEM 490B. Teaching Practicum - TA. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

CHEM 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

CHEM 492. Directed Study. 1-3 Hours.

Directed study, reading, and/or research.

CHEM 493. Special Topics. 6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

CHEM 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

CHEM 496. Senior Thesis. 1-3 Hours.

PR: Consent.

CHEM 497. Research. 1-6 Hours.

Independent research projects.

CHEM 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study, or research.

CHIN 101. First Year Chinese 1. 3 Hours.

PR: No prior study of the language. Introduction to the sound and writing systems of the language, with emphasis on listening, speaking, reading, and writing within an authentic cultural context. (3 hr. lec.).

CHIN 102. First Year Chinese 2. 3 Hours.

PR: CHIN 101. Continuation of CHIN 101. Continued development of basic skills in listening, speaking, reading, and writing Chinese. (3 hr. lec.).

CHIN 203. Second Year Chinese 1. 3 Hours.

PR: CHIN 102 or equiv. Continuation of CHIN 102. Continued development of basic skills in listening, speaking, reading, and writing Chinese. (3 hr. lec.).

CHIN 204. Second Year Chinese 2. 3 Hours.

PR: CHIN 203 or equiv. Continuation of CHIN 203. Continued development of basic skills in listening, speaking, reading, and writing Chinese.

CHIN 271. Intensive Mandarin Chinese 1. 3 Hours.

PR: CHIN 102 or equivalent. Faculty-led study abroad course. Development of oral and written communication skills in Chinese through classroom activities and outside of class assignments in an authentic cultural environment.

CHIN 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

CHIN 301. Third Year Chinese 1. 3 Hours.

PR: CHIN 204. Continued development of oral and written communicative skills in Chinese.

CHIN 302. Third Year Chinese 2. 3 Hours.

PR: CHIN 301. Continued development of oral and written communicative skills in Chinese.

CHIN 303. Readings in Modern Chinese 1. 3 Hours.

PR: CHIN 204. Development of communicative skills, with emphasis on reading modern Chinese texts.

CHIN 304. Readings in Modern Chinese 2. 3 Hours.

PR: CHIN 303. Development of communicative skills, with emphasis on reading modern Chinese texts.

CHIN 461. Business Chinese. 3 Hours.

PR: CHIN 302 or CHIN 304. Advanced training in vocabulary, sentence structures, and rhetoric in business Chinese.

CHIN 465. Chinese Media. 3 Hours.

PR: CHIN 302 or CHIN 304. Advanced training in vocabulary, sentence structure, and rhetoric of Chinese media.

CHIN 471. Intensive Mandarin Chinese 2. 3 Hours.

PR: CHIN 204 or equivalent. Faculty-led study abroad course. Development of advanced oral and written communication skills through classroom activities and outside of class assignments, including interaction with native speakers in an authentic cultural environment.

CHIN 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

CHIN 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

CHIN 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

CHIN 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

CHIN 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

CHIN 496. Senior Thesis. 1-3 Hours.

PR: Consent.

CHIN 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

CHPR 170. Health of the Individual. 3 Hours.

Examines personal health-related problems in terms of information, services, and actions, as they relate to attainment and maintenance of individual health.

CHPR 172. First Aid and Emergency Care. 2 Hours.

Emergency aid for the sick and injured. Emergency services aimed at reducing the potential of permanent disability or threats to life, as well as pain, damage, or suffering of a less serious nature.

CHPR 210. First-Aid Teaching Practicum. 3 Hours.

This class prepares students to conduct a first-aid course. Students work with the instructor in all aspects of course management. Students who complete this course are eligible to apply for instructor candidate training with the American Red Cross.

CHPR 260. Introduction to Peer Health Education. 3 Hours.

Prepares students to become peer health educators through the study of health concerns of students in higher education and examination of effective teaching strategies that result in positive health outcomes.

CHPR 261. Advanced Peer Health Education. 3 Hours.

Students apply a variety of teaching strategies based on the peer concept to health concerns of college students and other young adults.

CHPR 265. HIV/STD Prevention: Global Challenge. 3 Hours.

Addresses personal, social, legal, medical, and cultural aspects of HIV and sexually transmitted diseases and the health education efforts to stem the pandemic.

CHPR 270. Alcohol/Drug Education for Athletes. 3 Hours.

Chemical use and dependency has a significant impact on people in all walks of life. An overview of chemical dependency and current prevention and intervention is presented.

CHPR 275. Substance Abuse: Student Leaders. 3 Hours.

Provides individuals, particularly those in organizational leadership roles, with an understanding of substance abuse, leadership roles, and decision-making skills for organizations.

CHPR 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

CHPR 320. Drug and Alcohol Abuse Prevention. 3 Hours.

Experiences designed to prevent the development of abusive drug-taking relationships by focusing on psychological variables such as self-esteem, coping skills, and development of support networks.

CHPR 331. Accident Prevention and Control Principles. 3 Hours.

Basic course which structures principles, concepts, and methodology of the safety movement into introductory experiences dealing with accident prevention and control efforts recommended for various social institutions and agencies.

CHPR 332. Safety Education Principles and Content. 3 Hours.

PR: CHPR 331 or consent. Study and analysis of content areas usually recommended for instructional programs within the field of safety, with emphasis on structured learning experiences.

CHPR 333. Foundations of Wellness. 3 Hours.

Provide students with physical, mental, emotional, and environmental health concepts and experiences that will expand their knowledge and skills. These relate to the processes and techniques for promoting and maintaining individual and community health changes.

CHPR 365. Men's Health. 3 Hours.

Optimal health is a theme for men across the lifespan. This course will address men's health specific to race, ethnicity and orientation, to provide skills to be an informed consumer of health information.

CHPR 375. Physical Lifestyle Management. 3 Hours.

This course will provide an experience conducive to the understanding, exploration, experience, and development of scientifically sound physical health behaviors within the framework of the Transtheoretical Model of Health Behavior.

CHPR 376. Mental Lifestyle Management. 3 Hours.

This course will provide experience conducive to the understanding, exploration, and development of mental, emotional, and spiritual health processes that comprise and support personal holistic health.

CHPR 380. Women and Health. 3 Hours.

Examination of theories, myths, and practices surrounding women's physical and mental health from both historical and present-day perspectives. Exploration of specific health issues and controversies and the rise of the women's health movement.

CHPR 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

CHPR 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

CHPR 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

CHPR 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

CHPR 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

CHPR 496. Senior Thesis. 1-3 Hours.

PR: Consent.

CHPR 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

CLAS 101. Elementary Latin 1. 3 Hours.**CLAS 102. Elementary Latin 2. 3 Hours.**

PR: CLAS 101. Continuation of CLAS 101.

CLAS 203. Intermediate Latin 1. 3 Hours.

PR: CLAS 102 or two years of high school Latin.

CLAS 204. Intermediate Latin 2. 3 Hours.

PR: CLAS 203 or two years of high school Latin.

CLAS 231. Greek and Roman Civilization and Culture. 3 Hours.**CLAS 232. Greek and Roman Myths. 3 Hours.****CLAS 293. Special Topics. 1-6 Hours.**

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

CLAS 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

CLAS 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

CLAS 492. Directed Study. 1-3 Hours.

Directed study, reading and/or research.

CLAS 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

CLAS 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

CLAS 496. Senior Thesis. 1-3 Hours.

PR: Consent.

CLAS 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

COMM 100. Principles of Human Communication. 1 Hour.

Introduction to the human communication process with emphasis on the principles, variables, and social contexts of communication.

COMM 102. Human Communication in the Interpersonal Context. 2 Hours.

Introduction to interpersonal communication with emphasis upon application of one to one communication in a variety of social contexts.

COMM 103. Presentational Speaking. 1-3 Hours.

A laboratory designed to reinforce behavioral speaking skills based on the theory taught in COMM 104.

COMM 104. Public Communication. 3 Hours.

Introduction to principles of communication in the one-to-many context. Emphasis is given to the creation and refutation of arguments.

COMM 105. Introduction to the Mass Media. 3 Hours.

Critical examination of mass media with special emphasis on ways in which social, economic, and psychological factors influence the structure, functions, and effects of the media.

COMM 112. Small Group Communication. 3 Hours.

Introduction to small-group communication with emphasis on developing understanding of the small group communication process and learning how to communicate effectively when working in a small group.

COMM 122. Human Communication in Contemporary Society. 3 Hours.

This course addresses various social issues faced by young adults in our society and how communication is often part of the problem and how it can be used to solve these problems.

COMM 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

COMM 200. Communication Theory and Research 1. 3 Hours.

PR: Pre-communication studies major. Methods of understanding human communication behavior; issues relating to epistemology and ontology in communication studies; and reviews/critiques of the major approaches and theories of human communication.

COMM 201. Communication Research Methods. 3 Hours.

Emphasis on social science research; the language research, types of research, sampling, design, measurement, observation, and ethics from a communication perspective.

COMM 202. Interpersonal Communication. 3 Hours.

PR: COMM 102. Survey of theoretical and research literature in interpersonal communication. Emphasis on interaction, interpersonal understanding, personal relationships, and self-understanding as outcomes in interpersonal communication.

COMM 203. Communication Cornerstones. 3 Hours.

As an introduction to the study and application of communication, this course addresses the history, theory, and applicable research findings in central disciplinary areas including mediated, interpersonal, organizational, and health communication.

COMM 212. Gender Communication. 3 Hours.

PR: COMM 102 or consent. The similarities and differences of communication variables for males and females. Theoretical implications in the study of the gender variable with practical applications in different contexts.

COMM 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

COMM 300. Interpersonal Communication Theory. 3 Hours.

PR: COMM 203. Analysis of interpersonal communication theories, frameworks, and/or perspectives from a social scientific approach.

COMM 303. Business and Professional Communication. 3 Hours.

PR: COMM 306. Application of the theories of effective communication in organizations. Simulated projects and oral presentations will be used to refine communication skills necessary for entry-level positions within business and industry.

COMM 304. Human Communication and Rational Decisions. 3 Hours.

Argumentation, small group, and persuasion, to the process and outcome of rational decision making in communication. Some emphasis on critical-rational response to manipulative communication.

COMM 305. Appreciation of the Motion Picture. 3 Hours.

Evaluation of motion picture and television film as forms of mediated communication and as art forms involving communication, historical, and aesthetic principles. Emphasis on the feature-length theatrical fiction film.

COMM 306. Organizational Communication. 3 Hours.

Instruction on the role that culture plays in organizations with adaption of one's communication to be successful; understand appropriate and effective communication in the superior-subordinate relationship; evaluate organizational problems with strong communication strategies and the impact of organizational structure on communication.

COMM 307. Life-Span Communication. 3 Hours.

Development of communication from birth through adulthood to later years; study of media, interpersonal relationships, and competence in communication. This course is not open to freshmen.

COMM 308. Nonverbal Communication. 3 Hours.

An examination of the effects of human nonverbal behavior on human communication. Emphasis on specific nonverbal behaviors including touch, time, environmental contexts, physical appearance cues, and social communication cues. This course is not open to freshmen.

COMM 309. Health Communication. 3 Hours.

This course examines the vital role that communication plays in the American health care system and introduces concepts and approaches needed to effectively and ethically communicate about health in a pluralistic and multicultural society. This course is not open to freshmen.

COMM 314. Nonviolence in Communication Behavior. 3 Hours.

Nonviolent resistance as communication behavior. Emphasis on Gandhi's and Dr. King's methods of addressing conflict and injustice. Also, applying their techniques in assessing contemporary protest actions, and our own interpersonal behaviors.

COMM 315. American Diversity in Film. 3 Hours.

This course explores films that show the diversity of individuals who live in the United States of America. Films will show characters of different ages, ethnicity, gender, sexual orientation, race, religion, region, and social class.

COMM 316. Intercultural Communication. 3 Hours.

PR: COMM 100 and 102 or COMM 104. Examines similarities and differences between cultures with regard to norms, values, and practices in verbal and nonverbal communication. Emphasis on communication in Latin America, Asian, African, and Middle Eastern cultures. This course is not open to freshmen.

COMM 317. Communication and Aging. 3 Hours.

Examining the influence of aging on communication, concentrating on persons over age 55. Social, psychological, biological, and sensory communication adjustments. Multidisciplinary approach to aging theories.

COMM 322. Dark Side of Communication. 3 Hours.

This course deals with transgressions and violations of relational rules as well as their communicative and behavioral antecedents and consequences in personal relationships.

COMM 335. Social Media in the Workplace. 3 Hours.

Explores social media technologies and their application in the workplace. Emphasis on collaboration skills.

COMM 342. Interpersonal Relationships & Technology. 3 Hours.

Interpersonal communication in mediated contexts. Emphasis on the uses, functions, and effects of social media and communication technologies in interpersonal relationships.

COMM 393. Special Topics. 1-6 Hours.

COMM 393. Special Topics. 1-6 HR. PR: Consent. Investigation of topics not covered in regularly scheduled courses.

COMM 400. Principles of Communication Education. 3 Hours.

Literature, principles, and current practices of communication education in public schools with directed application. Intended for teachers in communication and language arts.

COMM 401. Advanced Communication Research Methods. 3 Hours.

PR: Communication studies major or consent and COMM 201. Research methods in human communication and related professional areas with emphasis on understanding and evaluating research procedures. Special focus on practical application.

COMM 403. Capstone Seminar. 3 Hours.

PR: Senior status and completion of 24 hours of communication studies coursework or consent. Part one in a two-part sequence aimed at the appraisal and synthesis of communication knowledge and skills. It also prepares students to complete an in-depth applied project related to communication studies.

COMM 404. Persuasion. 3 Hours.

Theory and research in persuasion, emphasizing a critical understanding and working knowledge of the effects of social communication on attitudes, beliefs, and behavior. This course is not open to freshmen.

COMM 405. Effects of Mediated Communication. 3 Hours.

PR: COMM 105. Messages and characteristics of mass media with emphasis on effects of mass communication on society. This course is not open to freshmen.

COMM 406. Advanced Organizational Communication. 3 Hours.

PR: COMM 306. Communication in superior/subordinate and peer relationships; emphasis on application of communication theory to complex organizations and organizational contexts. This course is not open to freshmen.

COMM 408. Advanced Nonverbal Communication. 3 Hours.

PR: COMM 308. Functions of nonverbal communication including status, power, immediacy, relationship development, regulation, turn-taking, leakage and deception, person perception, and emotional expressions.

COMM 409. Advanced Health Communication. 3 Hours.

PR: COMM 309. Advanced study of research and practice of health communication. Students use theory to create and deliver communication campaigns addressing health issues, policy or practices, using mediated, community, group, or one to one interaction.

COMM 410. Family Communication. 3 Hours.

This course explores the components and dynamics of human communication within the family unit. The student will examine research, various communication models, principles and theories that are relevant to family communication.

COMM 416. International Culture and Communication. 3 Hours.

This course provides a hands-on study of the influence of culture on verbal and nonverbal communication, and of the influence of cultural communication norms on conflict and intercultural relations. The course is conducted in the context of a faculty led study abroad experience.

COMM 424. Communication Ethics. 3 Hours.

This course focuses on communication ethics with a particular emphasis in the organizational context. Communication issues and situations are explored from various ethical perspectives.

COMM 425. Computer Mediated Communications. 3 Hours.

Explores the relationships between CMC and various aspects of human activity. Investigates established and emerging CMC-based social, cultural, organizational, and instructional activities.

COMM 426. Organizational Culture. 3 Hours.

This course focuses on organizational culture. Topics include the role of culture and how organizations refine, alter, and reinforce their cultures.

COMM 435. Advanced Social Media. 3 Hours.

Explores the uses and effects of social media for various human activities. The student will examine research and theories relevant to the topic, especially focusing on social networking.

COMM 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

COMM 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 Hr.) Prearranged experimental learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

COMM 492. Directed Study. 1-3 Hours.

Directed study, reading, and/or research.

COMM 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

COMM 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

COMM 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

COMM 496. Senior Thesis. 1-3 Hours.

PR: Consent.

COMM 497. Research. 1-6 Hours.

Independent research projects.

COMM 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

COUN 230. Life Choices. 3 Hours.

Students will examine lifestyle choices typically dictated by unconscious customs rather than research. Covers areas of attitude, relationships, physical lifestyle, health and spirituality. The class consists of lectures and required student participation.

COUN 240. Introduction to Addiction Studies. 3 Hours.

Overview of core concepts related to substance use and substance use disorders. Topics include the history of drug use/addiction, effects on societal members, pharmacology of common psychoactive drugs, theories of addiction, treatment approaches, mutual support, recovery and relapse.

COUN 250. Addiction Screening & Assessment. 3 Hours.

PR or CONC: COUN 240 with a minimum grade of C-. Skills, techniques and tools necessary for preliminary and in-depth evaluation for the presence of substance use disorders. Emphasis on establishing rapport, interviewing skills, diagnostic criteria, recognition of common co-occurring disorders, treatment planning and clinical writing.

COUN 303. Introduction to Helping Professions. 3 Hours.

To assist in evaluating students potential for a career in the helping professions. Exposure is provided to client populations served by helping professionals, along with a selection of intervention strategies used in those professions.

COUN 305. Wellness and Self-Care. 1 Hour.

This course provides undergraduates with an opportunity to establish self-care practices. Students engage in mindfulness meditation and explore the role of nutrition, exercise, and sleep in mood and stress.

COUN 340. Addiction Counseling Techniques. 3 Hours.

PR: COUN 240 with a minimum grade of C-. Theory and skills necessary to support the change process for people with substance use disorders. Emphasis on motivational interviewing and cognitive behavioral strategies to support recovery, prevent relapse, and address behavioral addictions in both individual and group settings.

COUN 350. Families & Addiction. 3 Hours.

PR: COUN 240 with a minimum grade of C-. Overview of the impact addiction has on the family unit and the process of family recovery. Emphasis on the family as a system, attachment, adaptation, enabling and enmeshment, and techniques to support family healing.

COUN 400. Diversity and Human Relations. 3 Hours.

Overview of diversity and relationships. Examination of genetic/cultural diversity. Attention to problems related to diversity in a changing world.

COUN 405. Career and Lifespan Development. 3 Hours.

Overview of lifespan career development theories, including impact of personal growth and life stages. Emphasis on understanding job choices and personal strategies for career decision making.

COUN 410. Interpersonal Communication Skills. 3 Hours.

Overview of interpersonal communication skills. Emphasis on personal and interpersonal strategies for understanding, appreciating, and managing communication skills in personal and career relationships.

COUN 415. Human Services Capstone Experience. 3 Hours.

PR: COUN 303 and COUN 400 and COUN 405 and COUN 410. Field experience in Human Services designed to expose students to the work involved in the human services field(s).

COUN 440. Addiction Studies Capstone. 3 Hours.

PR: COUN 240 and COUN 250 and COUN 340 and PR or CONC: COUN 350 with a minimum grade of C- in each. Integration of addiction studies coursework through study of ethics, selected population research, and community-based service learning, culminating in a research paper and oral presentation.

COUN 483. Workshop in Counseling and Guidance. 1-12 Hours.

PR: Consent. To take care of credits for special workshops and short intensive limit courses on methods, supervision, and other special topics.

COUN 483A. Workshop in Counseling and Guidance. 1-12 Hours.

PR: Consent. To take care of credits for special workshops and short intensive limit courses on methods, supervision, and other special topics.

COUN 483B. Workshop in Counseling and Guidance. 1-12 Hours.

PR: Consent. To take care of credits for special workshops and short intensive limit courses on methods, supervision, and other special topics.

COUN 483C. Workshop in Counseling and Guidance. 1-12 Hours.

PR: Consent. To take care of credits for special workshops and short intensive limit courses on methods, supervision, and other special topics.

COUN 483D. Workshop in Counseling and Guidance. 1-12 Hours.

PR: Consent. To take care of credits for special workshops and short intensive limit courses on methods, supervision, and other special topics.

COUN 483E. Workshop in Counseling and Guidance. 1-12 Hours.

PR: Consent. To take care of credits for special workshops and short intensive limit courses on methods, supervision, and other special topics.

COUN 483F. Workshop in Counseling and Guidance. 1-12 Hours.

PR: Consent. To take care of credits for special workshops and short intensive limit courses on methods, supervision, and other special topics.

COUN 483G. Workshop in Counseling and Guidance. 1-12 Hours.

PR: Consent. To take care of credits for special workshops and short intensive limit courses on methods, supervision, and other special topics.

COUN 483H. Workshop in Counseling and Guidance. 1-12 Hours.

PR: Consent. To take care of credits for special workshops and short intensive limit courses on methods, supervision, and other special topics.

COUN 483I. Workshop in Counseling and Guidance. 1-12 Hours.

PR: Consent. To take care of credits for special workshops and short intensive limit courses on methods, supervision, and other special topics.

COUN 483J. Workshop in Counseling and Guidance. 1-12 Hours.

PR: Consent. To take care of credits for special workshops and short intensive limit courses on methods, supervision, and other special topics.

COUN 483K. Workshop in Counseling and Guidance. 1-12 Hours.

PR: Consent. To take care of credits for special workshops and short intensive limit courses on methods, supervision, and other special topics.

COUN 483L. Workshop in Counseling and Guidance. 1-12 Hours.

PR: Consent. To take care of credits for special workshops and short intensive limit courses on methods, supervision, and other special topics.

COUN 483M. Workshop in Counseling and Guidance. 1-12 Hours.

PR: Consent. To take care of credits for special workshops and short intensive limit courses on methods, supervision, and other special topics.

COUN 483N. Workshop in Counseling and Guidance. 1-12 Hours.

PR: Consent. To take care of credits for special workshops and short intensive limit courses on methods, supervision, and other special topics.

COUN 483O. Workshop in Counseling and Guidance. 1-12 Hours.

PR: Consent. To take care of credits for special workshops and short intensive limit courses on methods, supervision, and other special topics.

COUN 483P. Workshop in Counseling and Guidance. 1-12 Hours.

PR: Consent. To take care of credits for special workshops and short intensive limit courses on methods, supervision, and other special topics.

COUN 483Q. Workshop in Counseling and Guidance. 1-12 Hours.

PR: Consent. To take care of credits for special workshops and short intensive limit courses on methods, supervision, and other special topics.

COUN 483R. Workshop in Counseling and Guidance. 1-12 Hours.

PR: Consent. To take care of credits for special workshops and short intensive limit courses on methods, supervision, and other special topics.

COUN 483S. Workshop in Counseling and Guidance. 1-12 Hours.

PR: Consent. To take care of credits for special workshops and short intensive limit courses on methods, supervision, and other special topics.

COUN 483T. Workshop in Counseling and Guidance. 1-12 Hours.

PR: Consent. To take care of credits for special workshops and short intensive limit courses on methods, supervision, and other special topics.

COUN 483U. Workshop in Counseling and Guidance. 1-12 Hours.

PR: Consent. To take care of credits for special workshops and short intensive limit courses on methods, supervision, and other special topics.

COUN 483V. Workshop in Counseling and Guidance. 1-12 Hours.

PR: Consent. To take care of credits for special workshops and short intensive limit courses on methods, supervision, and other special topics.

COUN 483W. Workshop in Counseling and Guidance. 1-12 Hours.

PR: Consent. To take care of credits for special workshops and short intensive limit courses on methods, supervision, and other special topics.

COUN 483X. Workshop in Counseling and Guidance. 1-12 Hours.

PR: Consent. To take care of credits for special workshops and short intensive limit courses on methods, supervision, and other special topics.

COUN 483Y. Workshop in Counseling and Guidance. 1-12 Hours.

PR: Consent. To take care of credits for special workshops and short intensive limit courses on methods, supervision, and other special topics.

COUN 483Z. Workshop in Counseling and Guidance. 1-12 Hours.

PR: Consent. To take care of credits for special workshops and short intensive limit courses on methods, supervision, and other special topics.

COUN 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

COUN 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

CPE 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

CPE 271. Introduction to Digital Logic Design. 3 Hours.

PR: MATH 156 or consent. Introduction to the design of digital systems. Topics include number systems, coding, Boolean and switching algebra, minimization of logic, analysis and design of combinational and sequential logic circuits.

CPE 272. Digital Logic Laboratory. 1 Hour.

CoReq: CPE 271. Experiments with digital electronic circuits including number systems, design and application of modern digital circuitry for both combinational and sequential logic circuits. (3 hr. lab.).

CPE 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

CPE 310. Microprocessor Systems. 3 Hours.

PR: CPE 271 and CPE 272 and PR or CONC: CPE 311. Theory and design of microprocessors: organization and architecture of modern processors; integration of microprocessors with RAM, ROM, and I/O devices; machine language, assembly language and software development. (3 hr. lec.).

CPE 311. Microprocessor Laboratory. 1 Hour.

CoReq: CPE 310. Machine language, assembly language and hardware and software interfacing. (This includes editing, linking, and debugging.) Memory, I/O and basic techniques of microprocessor interfacing. (3 hr. lab.).

CPE 312. Microcomputer Structures and Interfacing. 3 Hours.

PR: CPE 310 and CPE 311 and EE 251 and EE 252 and CoReq: CPE 313 and CS 350. Design of computer systems with emphasis on interface hardware including communications, high power interface devices, line driver/receiver circuits, A/D and D/A devices, and utilization of software techniques for programmed, interrupt, and direct memory access. (3 hr. lec.).

CPE 313. Microcomputer Structures and Interfacing Laboratory. 1 Hour.

PR: CPE 310 and CPE 311 and CoReq: CPE 312. A microprocessor based single-board computer is designed and built. A semester project is required using standard I/O techniques. (3 hr. lab.).

CPE 412. Mobile Robotics. 3 Hours.

PR: Consent. Introduction to fundamental topics in Mobile robotics; methods of locomotion; common mobile robot sensors, state estimation and navigation algorithms; path planning and obstacle avoidance methods; robot decision making and control processes; and mobile robot systems design.

CPE 435. Computer Incident Response. 3 Hours.

PR: CPE 310 and CPE 311 and (CS 350 or CS 355) or consent. Introduction to computer incident response, forensics, and computer security. Legal basis, proper procedures, and multiple operating systems application.

CPE 442. Introduction to Digital Computer Architecture. 3 Hours.

PR: (MATH 375 or MATH 378) and (CPE 310 or CPE 320). Control, data, and demand-driven computer architecture; parallel processing, pipelining, and vector processing; structures and algorithms for array processors, systolic architectures, design of architectures. (3 hr. lec.).

CPE 462. Wireless Networking. 3 Hours.

PR: EE 327 and (STAT 215 or MATH 448). Design and analysis of modern wireless data networks. Digital modulation techniques, wireless channel models, design of cellular networks, spread spectrum, carrier sense multiple access, ad-hoc networks routing, error control coding, automatic request strategies.

CPE 480. Capstone Project - Design. 2 Hours.

PR: ENGL 102 or ENGL 103 and consent. Penultimate semester group senior design projects with individual design assignments appropriate to student's discipline. Complete system-level designs of the subsequent semester's project presented in written proposals and oral presentations. (Equivalent to BIOM 480, CS 480, and EE 480). (2 hr. lec., 1 hr. conf.).

CPE 481. Capstone Project - Implementation. 3 Hours.

PR: CPE 480. Continuation of CPE 480. Detailed design and implementation of the system including choice of components, algorithm development, interfacing troubleshooting, working in groups, and project management. Also covers professional topics, including ethics, liability, safety, socio-legal issues, risks and employment agreements. (1 hr. lec., 1 hr. conf., 2 hr. lab.).

CPE 484. Real-Time Systems Development. 3 Hours.

PR: CS 350 or working knowledge of C programming language and UNIX. Characteristics of real-time systems, system and software development standards, structured and object oriented development methods for real-time systems, using a computer aided software engineering (CASE) tool in the development of a large engineering project. Emphasis is on real-time systems requirements analysis and design. This is a project based course. (3 hr. lec.).

CPE 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

CPE 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

CPE 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

CPE 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

CPE 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

CPE 496. Senior Thesis. 1-3 Hours.

PR: Consent.

CPE 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

CS 101. Intro to Computer Applications. 4 Hours.

Introduction to spreadsheets and databases for problem-solving in disciplines such as math, science, engineering, business, social sciences, behavioral sciences, and environment: using computer applications to create technical reports and presentations.

CS 110. Introduction to Computer Science. 4 Hours.

PR: (MATH 126 and MATH 128) or MATH 129 or MSAT score of 600 math ACT score of 26. Programming and design; simple data types, variables, and expressions; program modularization through procedures, functions, and classes; repetition, selection through control structures; structured data types including arrays and records; application. (3 hr. lec., 1 hr. lab.).

CS 111. Introduction to Data Structures. 4 Hours.

PR: CS 110 with a minimum grade of C-. Software development with abstract data types; elementary data structures including lists, stacks, queues and binary trees. Object-oriented design and development, dynamic allocation, recursion, design methodology. (3 hr. lec., 2 hr. lab.).

CS 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

CS 210. File and Data Structures. 4 Hours.

PR: CS 111 with a minimum grade of C- or consent for non-majors. Complex internal data structures including hashing, record collision and overflow techniques. Extension of internal data structures to external storage; indexed structures, external sorting and merging, direct access methods.

CS 220. Discrete Mathematics. 3 Hours.

PR: (CS 110 with a minimum grade of C- or CS 122) and (MATH 154 or MATH 155). Mathematical concepts used in computer science such as sets, relations, functions, counting principles, graphs, trees, and automata; introduction to basic graph algorithms and applications. (3 hr. lec.).

CS 221. Analysis of Algorithms. 3 Hours.

PR: WVU sections require CS 111 with a grade of C- or better and CS 220 with a grade of C- or better and MATH 156, WVUIT sections require CS 201 and CS 220 and MATH 156. Introduction to algorithm design and analysis. Growth rate of functions and asymptotic notation. Divide-and-conquer algorithms and recurrences; searching and sorting; graph algorithms including graph searching, minimum spanning trees, and shortest paths.

CS 230. Introduction to Software Engineering. 4 Hours.

PR: CS 111 with a minimum grade of C-. Techniques and methodologies of software engineering; specification, modeling, requirement analysis and definition, design, quality assurance, testing, reuse, development tools and environments.

CS 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

CS 310. Principles of Programming Languages. 3 Hours.

PR: CS 111 with a minimum grade of C- or CS 201. Theoretical and practical aspects of languages including internal representations, run-time environments, run-time storage management; historical, current, special purpose and experimental languages; finite-state automata, regular expressions and context-free grammars, language translation, semantics and paradigms. (3 hr. lec.).

CS 350. Computer System Concepts. 3 Hours.

PR: CS 111 with a minimum grade of C-. System software organization; operating system concepts including processes, threads, memory management, and the user interface; elementary network concepts. (Equivalent to CS 355).

CS 410. Compiler Construction. 3 Hours.

PR: WVU sections require CS 310 with a C- or better or consent for non-majors, WVUIT sections require CS 310 or consent for non-majors. Theory and practice of the construction of programming language translators; scanning and parsing techniques, semantic processing, runtime storage organization, and code generation; design and implementation of interpreter or compiler by students. (3 hr. lec.).

CS 420. Design of Algorithms. 3 Hours.

PR: CS 221 with a C- or better and completed Pre-CS or consent for non-majors. Algorithm design paradigms: divide-and-conquer, dynamic programming, greedy. Advanced data structures: balanced search trees, mergeable heaps, union-find. Introduction to computational complexity. Selected topics such as backtracking, branch-and-bound, amortized analysis, approximation algorithms.

CS 422. Automata Theory. 3 Hours.

PR: WVU sections require CS 220 with a minimum of C- or better or consent for non-majors, WVUIT sections require CS 220 or consent for non-majors. Introduction to formal languages, grammars, and automata; regular expressions and finite automata, context-free and context-sensitive languages; push down and linear-bounded automata; turning machines and recursively enumerable languages.

CS 426. Discrete Mathematics 2. 3 Hours.

PR: CS 221 with a C- or better or consent for non-majors. Applications of discrete mathematics to computer science. Selected topics from algorithmic graph theory, combinatorics, and order theory.

CS 430. Advanced Software Engineering. 3 Hours.

PR: CS 230 with a C- or better or CS 222 or consent for non-majors. Engineering process, project economics, project organizational and management issues, configuration management. (3 hr. lec.).

CS 440. Database Design and Theory. 3 Hours.

PR: CS 230 with minimum grade of C- or consent for non-majors. Database terminology, SQL, stored procedures, the relational and object-relational data model, triggers, and entity-relationship model.

CS 450. Operating Systems Structure. 3 Hours.

PR: CS 350 with a C- or better or CS 355. Support of computer components; device management and interrupts, process scheduling, file management, complete OS structure, OS development and debugging, configuration management, and performance testing. (3 hr. lec.).

CS 453. Data and Computer Communications. 3 Hours.

PR: (CS 350 with a C- or better or CS 355) or consent for non-majors. An in-depth study of the Internet, networking fundamentals, protocols, algorithms, and principles of distributed computing, introduction to network security and management.

CS 455. Computer Architecture. 3 Hours.

PR: CPE 271. Computer structure; emphasis on implications for software design; evolution of computers; elementary digital logic; CPU structures; memory and I/O structures; pipelining and memory management; introduction to parallel and high-level architectures. (3 hr. lec.).

CS 465. Cybersecurity Principles and Practice. 3 Hours.

PR: WVU and PSC sections require CS 350 with a minimum grade of C- and WVUIT sections require CS 321. Covers the principles and practice of cybersecurity. Addresses encryption; malicious code, spyware, and spam; authentication and access control; database security; operating system security; network security; and social engineering. Provides comprehensive overview of the cybersecurity threats, technologies for information assurance, and engineering approaches to build and maintain secure cyber space.

CS 470. Introduction to Computer Graphics. 3 Hours.

PR: CS 201 or CS 210 with a minimum grade of C- or consent for non-majors. Overview of 3D graphics hardware and gaming consoles; focus on developing 3D graphics software; fundamental algorithms for real-time 3D graphics with focus on game engine component development; introduction to three-dimensional game engine development.

CS 472. Artificial Intelligence. 3 Hours.

PR: CS 222 or CS 230 with a minimum grade of C- or consent for non-majors. Survey of AI techniques, heuristic search, game playing, and knowledge representation schemes: logic, semantic net, frames, rule-based; natural language processing, advanced AI techniques/systems: planning, blackboard architecture, neural net model; AI implementation. (3 hr. lec.).

CS 475. Game Development. 3 Hours.

PR: CS 222 or (CS 220 and CS 310 with a minimum grade of C- in each). Design and implementation of games using innovative technology in human-computer interfaces. Principles of game design, physiology and psychology of each of the five senses, and technologies for delivering sensory stimuli.

CS 480. Capstone Project - Design. 2 Hours.

PR: ENGL 102 or ENGL 103 and consent. Penultimate semester. Group senior design projects with individual design assignments appropriate to student's discipline. Complete system-level designs of the subsequent semester's project presented in written proposals and oral presentations. (Equivalent to BIOM 480, CPE 480, and EE 480.) (2 hr. lec., 1 hr. conf.).

CS 481. Capstone Project - Implementation. 3 Hours.

PR: CS 480. Continuation of CS 480. Detailed design and implementation of the system including choice of components, algorithm development, interfacing, troubleshooting, working in groups, and project management. Also covers professional topics, including ethics, liability, safety, socio-legal issues, risks and employment agreements. (1 hr. lec., 1 hr. conf., 2 hr. lab.).

CS 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

CS 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

CS 492. Directed Study. 1-3 Hours.

Directed study, reading, and/or research.

CS 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

CS 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

CS 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

CS 496. Senior Thesis. 1-3 Hours.

PR: Consent.

CS 497. Research. 1-6 Hours.

Independent research projects.

CSAD 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

CSAD 199. Orientation to Speech Pathology and Audiology. 1,2 Hour.

Designed to meet the First Year Experience core objectives for pre-spa students. This course serves as an orientation to the professions of speech pathology and audiology as well as departmental degree programs, requirements, and personnel.

CSAD 200. Introduction to Communication Disorders. 3 Hours.

Survey of speech, language, hearing, and swallowing disorders. Introduction to the discipline of communication sciences and disorders and the professions of speech- language pathology and audiology.

CSAD 222. Phonetics and Phonology. 3 Hours.

PR: CSAD 200 and LING 101 or consent. Description, classification, and transcription of the speech sounds in English. Phonetic and phonological principles will be emphasized in normal, dialectal, and clinical speech and language contexts, particularly as these principles apply to speech-language pathology and audiology.

CSAD 234. Anatomy and Physiology of Speech and Hearing. 4 Hours.

An overview of anatomy, physiology, and neural pathways for the speech and hearing mechanisms. The respiration, phonation, articulation, and resonance systems will be highlighted for speech production. The outer ear, middle, and inner ear will be highlighted for hearing perception.

CSAD 236. Language Science. 3 Hours.

Study of the structure and function of human language. Methodologies used within the field of speech-language pathology to examine oral and written language will be utilized.

CSAD 270. Effective Public Speaking. 3 Hours.

Designed for improvement of the student's speech based upon theory and demonstrated performance of voice and diction skills and public-speaking skills for effective communication in a variety of speaking situations.

CSAD 274. Manual Communication. 3 Hours.

PR: Consent. Development of skills needed to communicate in sign language. The manual alphabet, basic number concepts, and the basic vocabulary of traditional American signs.

CSAD 276. Intermed Manual Communication. 3 Hours.

PR: CSAD 274 or consent. Improve skills needed to communicate in sign language. Includes increasing sign language vocabulary, practicing finger spelling, and communicating with signs.

CSAD 280. Communication Disorder in Film. 3 Hours.

Analysis of selected films to explore the socio-emotional and functional impact of impaired speech, language, hearing, and cognition and the ways in which society views people with communication disorders.

CSAD 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

CSAD 320. Speech Science. 3 Hours.

PR: CSAD 200 and CSAD 234 or consent. Review of the fundamental concepts related to acoustics, perception and production of speech, and associated theoretical models.

CSAD 326. Articulation and Cleft Palate. 3 Hours.

PR: CSAD 322. Characteristics and etiology of articulatory and phonological disorders; survey of diagnostic and therapeutic procedures. Characteristics of articulation and resonance, and survey of evaluation and treatment considerations for cleft palate.

CSAD 336. Language Acquisition 1. 3 Hours.

PR: CSAD 222 and CSAD 236. Normal processes involved in the acquisition of language, including the development of phonological, semantic, morphological, pragmatic and syntactical systems in prelinguistic, emergent, and developing language stages. Application of these processes to the diagnosis and treatment of language disorders.

CSAD 340. Hearing Science. 3 Hours.

PR: CSAD 200 and CSAD 234. The purpose of this course is to provide the student with basic knowledge in two areas of hearing science: the physics of sound (acoustics) and the perception of sound (psychoacoustics). This knowledge will provide a foundation for further study in the field of communication sciences and disorders.

CSAD 342. Introduction To Audiology. 3 Hours.

PR: CSAD 234. Introduction to the profession of audiology; principles of hearing screening, audiological assessment and treatment; disorders of hearing; audiogram interpretation.

CSAD 388. International Experience/Communication Sciences and Disorders. 3 Hours.

Faculty-led exploration of professional practices and perspectives related to communication sciences and disorders in foreign countries and cultures. Offered only through study abroad. Additional fees required.

CSAD 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

CSAD 422. Voice and Stuttering. 3 Hours.

PR: CSAD 200 and CSAD 326. Basic knowledge about and understanding of voice disorders and stuttering; relevant theories, facts, research findings, and clinical practice related to the epidemiology, etiology, course, prevention, diagnosis, and remediation.

CSAD 424. Language Disorders. 3 Hours.

PR: CSAD 336. The nature and etiology of child and adult language disorders are described. Assessment and remediation procedures are examined.

CSAD 426. Introduction to Speech Disorders. 3 Hours.

PR: CSAD 222 and CSAD 320. Introduction to the speech disorders of articulation, fluency, resonance and voice. Characteristics and course of treatment for the different disorder types will be discussed across the lifespan.

CSAD 436. Language Acquisition 2. 3 Hours.

PR: CSAD 336. Normal processes involved in the acquisition of oral and written language, including the later development of semantic, pragmatic, phonological, morphological, and syntactical systems. Application of these processes to the diagnosis and treatment of developmental language disorders.

CSAD 440. Audiological Assessment. 3 Hours.

PR: CSAD 340 and CSAD 342. Application of basic audiological techniques, including puretone and speech audiometry, masking, and immittance testing.

CSAD 442. Aural Rehabilitation. 3 Hours.

PR: CSAD 440 or consent. Communication and hearing impairment; aural rehabilitation evaluation; remediation including amplification, auditory and visual training, and ALD.

CSAD 480. Speech and Language Assisting. 3 Hours.

PR: Consent. Assisting graduate clinicians in the treatment of speech, language, and swallowing disorders.

CSAD 482. Speech and Language Practicum. 3 Hours.

PR: CSAD 480 with a minimum grade of B- and consent. Clinical Practicum in treatment of speech, language, and swallowing disorders.

CSAD 483. Audiology Practicum. 2 Hours.

PR: CSAD 440 with a minimum grade of B- or consent. Clinical practicum in audiology.

CSAD 485. Professional Applications in Communication Sciences and Disorders. 3 Hours.

PR: Required CSAD courses prior to the senior year. CSAD seniors will meet weekly face-to-face and online to develop a clinical research project related to speech, language, or hearing communication disorders.

CSAD 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

CSAD 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

CSAD 496. Senior Thesis. 1-3 Hours.

PR: Consent.

CSAD 497. Research. 1-6 Hours.

Independent research projects.

CYBE 266. Foundations of Cybersecurity. 3 Hours.

PR: CS 111 with a minimum grade of C-. An overview of the foundational areas of cybersecurity: data, software, system, human, and organizational security.

CYBE 366. Secure Software Development. 3 Hours.

PR: CS 230 and CS 350 with a minimum grade of C- in each. Covers the design, implementation, and testing of secure software. The topics include the role of security in the software development lifecycle, designing secure software, best security programming practices, and verification and validation of software applications' security.

CYBE 466. Host Based Cyber Defense. 3 Hours.

PR: CS 453 with a minimum grade of C-. An in depth study of the strategies available to defends hosts (clients, IoT devices, servers) against cyber attacks.

CYBE 467. Practicing Cybersecurity: Attacks & Countermeasures. 3 Hours.

PR: CS 350. Cybersecurity knowledge and practices on security risk management. Current security trends and industrial practices on cybersecurity. Experiments on ethical hacking and practice of cyber defense.

CYBE 480. Capstone Project - Design. 2 Hours.

PR: ENGL 102 or ENGL 103 and consent. Penultimate semester. Group senior design projects with individual design assignments appropriate to student's discipline. Complete system-level designs of the subsequent semester's project presented in written proposals and oral presentations. (Equivalent to BIOM 480, CPE 480, CS 480, and EE 480.) (2 hr. lec., 1 hr. conf.).

CYBE 481. Capstone Project - Implementation. 3 Hours.

PR: CYBE 480. Continuation of CYBE 480. Detailed design and implementation of the system including choice of components, algorithm development, interfacing, troubleshooting, working in groups, and project management. Also covers professional topics, including ethics, liability, safety, socio-legal issues, risks and employment agreements. (1 hr. lec., 1 hr. conf., 2 hr. lab.).

DANC 100. Fundamentals of Dance Techniques. 2 Hours.

Studio class covering fundamental of dance techniques such as Ballet, Modern Dance, Jazz Dance, Tap, Ballroom, Partner dances and other dance and movement vocabulary such as folk and social dances.

DANC 110. Fundamentals of Ballet. 2 Hours.

(May be repeated for a maximum of 4 credit hours.) Topics include basic ballet dance technique, dance vocabulary, dance literacy, proper alignment, musicality, add sound anatomical practices.

DANC 120. Fundamentals of Modern Dance Technique. 2 Hours.

PR: DANC 100 or consent. This course is the study of dance at the fundamental level focusing on modern dance technique and performance.

DANC 130. Fundamentals of Jazz. 2 Hours.

(May be repeated for a maximum of 4 credit hours.) Basic jazz dance fundamentals and techniques; development of coordination, strength, and flexibility through the execution of the elementary jazz warm-ups, movement progressions, and combinations.

DANC 140. Fundamentals of Tap. 2 Hours.

(May be repeated for a maximum of 4 credit hours.) A studio course designed to introduce the student to the genre of tap dancing. The course will introduce and teach the student beginner level models, movement phrases and techniques through styles of the genre.

DANC 170. Introduction to Dance. 3 Hours.

Introductory lecture course, designed to develop an aesthetic appreciation and understanding of dance as a fine art and its impact on society. This course has a practical component so that students have the opportunity to experience various forms of dance.

DANC 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

DANC 200. Dance Practicum. 1 Hour.

PR: By audition only. (May be repeated for a maximum of 6 credit hours.) Students participate as dancers/performers in a dance production. Contact the Director of Dance for audition information.

DANC 210. Intermediate Ballet. 2 Hours.

PR: DANC 110 or consent. (May be repeated for a maximum of 6 credit hours.) Techniques of classical theatrical dancing. Includes barre exercises, adage combinations, and center practice. A theoretical knowledge and technical achievement is stressed.

DANC 220. Intermediate Modern. 2 Hours.

PR: DANC 100 or consent. (May be repeated for a maximum of 6 credit hours.) Topics covered include intermediate modern dance technique, dance vocabulary, dance literacy, proper alignment, musicality, and sound anatomical practices. The course focuses on core styles within the modern dance genre.

DANC 230. Intermediate Jazz. 2 Hours.

PR: Consent. (May be repeated for a maximum of 6 credit hours.) Continuation of jazz dance techniques and concepts with an emphasis on jazz isolations, polyrhythms, and syncopated movement sequences, continued practice in development of the body as an instrument of expression.

DANC 240. Intermediate Tap. 2 Hours.

PR: DANC 140 or consent. (May be repeated for a maximum of 4 credit hours.) A studio course focusing on dance through tap dance technique at the intermediate level. Teaching the student intermediate models, movement phrases and techniques through styles of the Tap Dance genre of movement.

DANC 250. Ballroom Dance. 1 Hour.

Introduction to popular ballroom dancing. Styles will range from fox trot, waltz and swing to Latin dances.

DANC 251. World Dance. 3 Hours.

Introduction to world cultures through the media of dance lecture and movement. Study of global, religious, social, educational and courtship rituals as related to dance.

DANC 252. African Dance. 2 Hours.

Exploring the cultures and techniques of African dance styles.

DANC 255. Dance Styles for Musical Theatre. 1 Hour.

PR: DANC 140 and DANC 130. An introduction to musical theatre repertoire along with gaining a more efficient and proficient way of learning and executing Broadway musical choreography, new and old. This course gives the student the tools needed at an intermediate to advanced level of dance, to complement their singing and acting abilities; learning choreography from notable musicals.

DANC 260. Fundamentals of Choreography. 3 Hours.

PR: DANC 100 or DANC 110 or DANC 130. Introductory study of basic elements of choreography including spatial design, choreographic devices, movement analysis, the creation of movement phrases, and creative problem solving.

DANC 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

DANC 300. Dance Practicum. 1-3 Hours.

PR: By audition only. (May be repeated for a maximum of 6 credit hours.) Students participate as dancers/performers in a dance production. Contact the Director of Dance for audition information.

DANC 310. Advanced Ballet. 2 Hours.

PR: DANC 210 or consent. (May be repeated for a maximum of 6 credit hours.) Topics covered include advanced ballet dance technique, dance vocabulary, dance literacy, proper alignment, musicality, and sound anatomical practices.

DANC 320. Advanced Modern. 2 Hours.

PR: DANC 220 or consent. (May be repeated for a maximum of 6 credit hours.) Topics covered include advanced modern dance technique, dance vocabulary, dance literacy, proper alignment, musicality, and sound anatomical practices.

DANC 330. Advanced Jazz. 2 Hours.

PR: DANC 230. In-depth exploration of both traditional and contemporary jazz techniques and styles; continues progression towards a more advanced level of technical skill as developed and utilized through this specific dance technique.

DANC 350. Modern and Ballet Partnering. 2 Hours.

PR: DANC 210 and DANC 220 or consent. (May be repeated for a maximum of 4 credit hours.) The practical application of partnering work as it pertains to movement and dance through weight sharing and trust training models and movement phrases in modern and ballet genres of dance.

DANC 360. Advanced Choreography. 3 Hours.

PR: DANC 260. Provides opportunity at the advanced level for creative exploration and analysis of principles of dance composition through improvisations and problem solving. Informal presentation of student works will be included.

DANC 370. Dance History. 3 Hours.

PR: DANC 100 or DANC 170. A study of dance history and leading prominent personalities in the field of dance through their legacy of techniques, choreography and performance. The course will also address the contribution of dance to, and the place of dance within, society and the cultural environment.

DANC 371. Creative Dance for Educators. 3 Hours.

PR: DANC 100 or DANC 170. Specific learning experiences for the future of dance education and competencies to be achieved for children's dance. Grades PreK-12. Integration of movement experience with other academic subjects and various cultural heritages emphasized.

DANC 372. Dance Criticism. 3 Hours.

PR: (ENGL 101 and ENGL 102) or ENGL 103. This course is designed for Dance major/minor students and other students interested in reading and writing about dance and dance performance, and viewing performances.

DANC 400. Choreography Practicum. 2 Hours.

PR: DANC 260 and consent. (May be repeated for a maximum of 6 credit hours.) Students participate as choreographers in a dance production. Contact the director of Dance for audition information.

DANC 410. Ballet Repertory. 1 Hour.

PR: By audition only. (May be repeated for a maximum of 4 credit hours.) The study and practice of excerpts from ballets by prominent ballet choreographers. The course covers the historical aspects of each of the segments studied and their place within the larger context of dance history.

DANC 420. Modern Repertory. 1 Hour.

PR: By audition only. (May be repeated for a maximum of 4 credit hours.) The study and practice of excerpts from dances by prominent contemporary choreographers. The course covers historical aspects of each of the segments studied and its place within the larger context of dance history.

DANC 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

DANC 492. Directed Study. 1-3 Hours.

Directed study, reading, and/or research.

DANC 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

DANC 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

DANC 496. Senior Thesis. 1-3 Hours.

PR: Consent.

DANC 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

DISB 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

DISB 304. Special Education in Contemporary Society. 3 Hours.

Special education principles and practices, interactions between disability and diversity in identification and intervention, and influences of family, professional, school, and community infrastructures on educational programs/outcomes for children and adults.

DISB 380. Disability and the Family. 3 Hours.

This course is designed to familiarize the students with developmental disabilities and their impact on families. Interdisciplinary family-centered care is emphasized, along with how to access resources to meet the needs of children and families.

DISB 381. Lifespan Disability Policy. 3 Hours.

Overview of health, education, financial and related policies impacting individuals with disabilities across the lifespan and at the federal, state, and local levels.

DISB 385. Disability and Society. 3 Hours.

This course provides a global, interdisciplinary overview of issues and policies that are the concern of individuals with disabilities (e.g., public policy, health-related issues, employment, and social benefits).

DISB 482. Disability in the Community. 2 Hours.

This course offers service learning experiences in the community with persons who have a disability.

DISB 486. Capstone Portfolio: Disability. 1 Hour.

This undergraduate capstone for the interdisciplinary certificate program or minor in Disability Studies culminates with a written essay, a presentation, and a portfolio.

DSGN 140. Sustainable Living. 3 Hours.

Explores the personal, social, economic and environmental aspects of making sustainable choices. Sustainability principles and practices are discussed along with assessments of consumption and lifestyle decisions. Also listed as PLSC 140 and RESM 140.

DSGN 160. Visual Communications. 3 Hours.

PR: DSM 130 with a minimum grade of C-. Using the design process, this course explores the issues of clarity in graphic communications through 2-dimensional and 3-dimensional representations using computer graphic software. Course also addresses the physical and psychological aspects of human emotions, and non-western social norms and their influence on design process and outcome.

DSGN 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

DSGN 220. Design Thinking. 3 Hours.

This course establishes the value of design thinking, identifies the components of the design thinking process, and helps students develop proficiency by using the process in multiple contexts.

DSGN 280. Sustainable Design and Development. 3 Hours.

An overview of social, environmental and economic aspects of the built environment. Site considerations, infrastructure, green buildings, marketing, financing, community. (Local field trips possible.).

DSGN 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

DSGN 315. Survey of Non-Western Design. 3 Hours.

This course examines design from beyond the tradition of Western civilization. Students will study interior design, architecture, and art as shaped by religious beliefs, political systems, and geographical context.

DSGN 320. Design Ethics and Social Responsibility. 3 Hours.

PR: DSGN 220 with a minimum grade of C-. This course will introduce students to the study of both philosophical and applied ethics as they relate to daily life and design. Additionally, the course will address and define components of personal and corporate social responsibility, and explore their relationship to ethics and design at the micro and macro levels.

DSGN 340. Design for Energy Efficiency. 3 Hours.

An overview of energy efficiency in residential and small commercial settings. Energy, building shell, air leakage, insulation, hvac, lighting, appliances, water heating, indoor air quality. (Local field trips possible.).

DSGN 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

DSGN 420. Professional Preparation. 1 Hour.

PR: DSGN 220 and DSGN 320 with a minimum grade of C- in each. This course challenges students to utilize the design process to identify personal skills and characteristics relevant to their job goals, and create a coherent branded professional identity based on the expectations of their industry. Students will also analyze and synthesize business trends and forecasting predictions, applying that information to future expectations in their field of study.

DSGN 470. Leadership in Energy and Environmental Design Green Building Systems. 3 Hours.

PR: DSGN 280. A detailed study of the LEED green building certification systems, including the various green systems, codes and standards referenced by LEED.

DSGN 480. Designing Innovative Futures. 3 Hours.

PR: ID 330 and DSGN 491A and DSGN 494. This capstone course provides an opportunity to analyze and synthesize information from previous coursework and internship experiences to develop professional proficiency levels in integrated design approaches.

DSGN 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

DSGN 491. Professional Field Experience: Capstone. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

DSGN 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

DSGN 494. Seminar: Capstone. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

DSGN 495. Independent Study. 1-6 Hours.

Faculty-supervised study of topics not available through regular course offerings.

DSM 101. Introduction to Design and Merchandising. 1 Hour.

Provides an introduction to the educational culture in the Division of Design and Merchandising.

DSM 130. Introduction to Design. 3 Hours.

Introduction to design as a process of improving quality of life and a method of problem-solving using design thinking, design theory, and design applications in interdisciplinary contexts.

DSM 199. Orientation to Design and Merchandising. 1,2 Hour.

Orientation to degree programs and requirements, departmental resources, curriculum options, student responsibilities and opportunities.

DSM 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

DSM 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

DSM 410. The Global Context for Design. 3 Hours.

Develops students' abilities to weigh design decisions and engage in design practice in a globalized economy within the parameters of ecological, socio-economic, and western and non-western cultural contexts.

DSM 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

DSM 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

DSM 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

DSM 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

DSM 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

DSM 496. Senior Thesis. 1-3 Hours.

PR: Consent.

DSM 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

DTHY 100. Health Care Terminology. 1 Hour.

This course provides the foundation for understanding common terminology used in health care. The components, pronunciation, proper use, and abbreviations of medical terminology will be discussed. Emphasis will be placed on dental terminology.

DTHY 101. Introduction to Dental Hygiene. 2 Hours.

PR: Consent. Historical evolution of the profession, the professional association, specialties of dentistry and the various roles of a dental hygienist will be emphasized. This course incorporates the University's required first-year experience objectives.

DTHY 185. Oral Anatomy. 2 Hours.

PR: Acceptance into dental hygiene. The human neck bones, muscles, nerves, blood supply, lymphatics, glandular tissue, fascia/spaces, TMJ, and spread of dental infection are the focus of this course.

DTHY 186. Dental Anatomy. 2 Hours.

PR: DTHY 100 and DTHY 185 and NBAN 301. Classroom and laboratory study of normal human dental morphology, tooth anomalies, pulp function, eruption patterns and occlusal relationships.

DTHY 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

DTHY 205. Theory and Practice of Prevention. 2 Hours.

PR: Enrollment in dental hygiene. Philosophy and techniques of preventive dentistry.

DTHY 210. Dental Radiology. 2 Hours.

PR: Enrollment in dental hygiene. Basic principles and procedure in oral radiology techniques and interpretation.

DTHY 211. Dental Radiology. 1 Hour.

PR: DTHY 210. The application of radiology principles and techniques. Clinical integration and case presentations will be emphasized.

DTHY 220. Dental Nursing Techniques. 2 Hours.

PR: Enrollment in dental hygiene. Emergency first aid and principles of nursing applicable to the dental office.

DTHY 225. Dental Hygiene Techniques. 4 Hours.

PR: Enrollment in dental hygiene. Fundamental principles and techniques of dental hygiene are presented through lectures, laboratory, and clinical participation.

DTHY 226. Clinical Dental Hygiene. 1 Hour.

PR: DTHY 225. This course enables the sophomore dental hygiene student to gain proficiency in the treatment of patients.

DTHY 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

DTHY 300. Anesthesia for Dental Hygiene. 1 Hour.

Application of neuroanatomy, physiology, and pharmacology to the administration of regional anesthesia using local anesthetic agents. Management of complications encountered and the techniques of administering these agents will be presented.

DTHY 301. Public Health. 1 Hour.

PR: Enrollment in dental hygiene. Theory and practice of preventive dentistry and community.

DTHY 320. Dental Radiology. 2 Hours.

PR: Enrollment in dental hygiene. Basic principles and procedures in oral radiology techniques and interpretation.

DTHY 322. Dental Radiology. 1 Hour.

PR: DTHY 320. The application of radiology principles and techniques. Clinical integration and case presentations will be emphasized.

DTHY 350. Public Health. 2 Hours.

PR: Enrollment in dental hygiene. Theory and practice of preventive dentistry and community. Methods and techniques utilized in dental hygiene research.

DTHY 351. Dental Health Education. 3 Hours.

PR: Enrollment in dental hygiene. Methods, materials, and resources used in teaching dental health to various population groups.

DTHY 360. Dental Materials. 3 Hours.

PR: Enrollment in dental hygiene. Lecture and laboratory covering the science and manipulation of dental materials.

DTHY 361. Expanded Functions. 2 Hours.

PR: DTHY 360. Lecture and laboratory covering specialty topics in dentistry and four-handed dental assisting. Assisting, and the placing and carving of amalgam and resin restorations in dentiform teeth. (1 hr. lec., 4 hr. lab.).

DTHY 363. Periodontics 1. 1 Hour.

PR: Enrollment in dental hygiene. Tissues of the periodontium, histopathology of periodontal disease with emphasis on etiology, assessment, diagnosis, treatment, and prevention within the scope of dental hygiene.

DTHY 364. Periodontics 2. 2 Hours.

PR: DTHY 363. A sequential course to DTHY 363.

DTHY 366. Technical Expression and Dental Literature. 1 Hour.

PR: Dental hygiene major. Preparation and analysis of professional communications.

DTHY 370. Dental Hygiene Clinical Methods. 2 Hours.

PR: DTHY 225. Principles of oral debridement, instruction in the care of special patients, use of diagnostic aids, and nutritional counseling.

DTHY 372. Clinical Dental Hygiene 1. 2 Hours.

PR: DTHY 225. Clinical application of dental hygiene principles and techniques.

DTHY 374. Clinical Dental Hygiene 2. 3 Hours.

PR: DTHY 370, CoReq: DTHY 372. Clinical application of dental hygiene principles and techniques.

DTHY 378. Dental Hygiene Teaching Methods. 2 Hours.

PR: Enrollment in dental hygiene. Concepts and principles of administration, curriculum, and clinical teaching unique to dental auxiliary education. Emphasis on overall role of the dental hygiene educator.

DTHY 380. Interdisciplinary Approach to Rural Health. 1 Hour.

Fundamental principles of and background information on Appalachian history, poverty, and cultural diversity for the assessment of rural health needs. Assess the delivery of health care services and community development in rural settings.

DTHY 402. Dental Hygiene Ethics and Practice. 1 Hour.

PR: Enrollment in Dental Hygiene. Scope of practice for the dental hygienist including ethical and legal considerations. Public and professional relations as well as practice management are discussed.

DTHY 405. Advanced Clinical Dental Hygiene 1. 4 Hours.

PR: Fourth year in dental hygiene. Principles of advanced clinical dental hygiene and practice in non-traditional settings. Clinical experience in traditional and expanded duties; pre- and post-operative care of surgical patients, and radiology.

DTHY 406. Advanced Clinical Dental Hygiene 2. 3,4 Hours.

PR: Fourth year in dental hygiene. Continuation of clinical practice experience in dental hygiene procedures.

DTHY 407. Advanced Dental Hygiene Methods 2. 2 Hours.

PR: Fourth year in dental hygiene. Principles of advanced clinical dental hygiene and practice in non-traditional settings.

DTHY 409. Clinical Dental Hygiene. 1 Hour.

PR: DTHY 374. This course enables senior dental hygiene student to gain proficiency in the treatment of patients.

DTHY 410. Clinical Dental Hygiene 3. 1-4 Hours.

This course enables the senior dental hygiene degree completion student to maintain proficiency in the treatment of patients.

DTHY 411. Clinical Dental Hygiene 4. 1-4 Hours.

This course enables the senior dental hygiene degree completion student to maintain proficiency in the treatment of patients.

DTHY 440. Senior Integration Seminar. 1 Hour.

PR: Consent. A thorough analysis and integration of didactic, laboratory and clinical content via lectures, discussions and cases in preparation for licensure.

DTHY 445. Applied Pharmacology. 1 Hour.

PR: PCOL 260. Case studies encountered in dental hygiene practice that require critical thinking and decision-making to manage the dental treatment needs and potential complications of patients taking multiple pharmacologic agents.

DTHY 450. Dental Health Education 2. 2 Hours.

PR: DTHY 302. Advanced dental health education with a research component. A problem-based learning experience.

DTHY 451. Dental Health Education 3. 2 Hours.

PR: DTHY 450. Advanced dental health education with field experiences in three settings. Case histories developed and research study completed.

DTHY 478. Clinical Evaluation. 1 Hour.

PR: DTHY 378. Preparation for clinical instruction and evaluation. Emphasis is placed on clinical evaluation procedures, proper instrumentation and the skills/strategies utilized to promote affective and psychomotor skill development in students.

DTHY 482. Intra-Oral Photography. 1 Hour.

PR: DTHY 405. Intra-oral photography is a one-semester course which deals with the principles and techniques of photography and its application to dentistry.

DTHY 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

DTHY 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

DTHY 492. Directed Study. 1-3 Hours.

Directed study, reading, and/or research.

DTHY 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

DTHY 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

DTHY 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

DTHY 496. Senior Thesis. 1-3 Hours.

PR: Consent.

DTHY 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

ECON 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

ECON 200. Survey of Economics. 3 Hours.

Introduction to the analysis of the economic system, pricing system, monetary system, determination of all national income and employment.

ECON 201. Principles of Microeconomics. 3 Hours.

PR: Sophomore standing. Introductory microeconomics analysis. Competitive behavior of firms, price determination, efficiency in production and equity in distribution. Pre-requisite(s) and/or co-requisite(s) may differ on regional campuses.

ECON 202. Principles of Macroeconomics. 3 Hours.

PR: ECON 201 or ARE 150. Introductory macroeconomics analysis, prerequisites are not enforced at WVUIT and Potomac State campuses. Aggregate demand and supply, saving, investment, the level of employment and national income determination, monetary and fiscal policy.

ECON 225. Elementary Business and Economics Statistics. 3 Hours.

PR: MATH 122 or MATH 123 or MATH 126 or MATH 129 or MATH 153 with a minimum grade of C- or MATH 150 or MATH 154 or MATH 155 or MATH 156 with a minimum grade of D-. Basic concepts of statistical models, distributions, probability, random variables, tests of hypotheses, confidence intervals, regression and correlation with emphasis on business and economics examples. (Equivalent to STAT 211.) (Not open to students who have completed STAT 215.)

ECON 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ECON 297. Research. 1-6 Hours.

Independent research projects.

ECON 301. Intermediate Micro-Economic Theory. 3 Hours.

PR: ARE 150 or ECON 201 with a minimum grade of C-. Consumer choice and demand; price and output determination of the firm, and resource allocation, under different market structures; welfare economics, externalities, public goods, and market failure; general equilibrium; other topics.

ECON 302. Intermediate Macro-Economic Theory. 3 Hours.

PR: (ECON 201 or ARE 150) and ECON 202 with a minimum grade of C- in all. Forces which determine the level of income, employment, output, the inflation rate, and the balance of trade. Particular attention to consumer behavior, investment determination, and government fiscal and monetary policy.

ECON 306. History of Economic Thought. 3 Hours.

PR: ECON 201 and ECON 202. Economic ideas in perspective of historic development.

ECON 331. Money and Banking. 3 Hours.

PR: ECON 201 and ECON 202. The U.S. monetary and banking system and its functional relationship to the economic system; monetary theory and policy.

ECON 411. Moral Foundations of Capitalism. 3 Hours.

PR: ECON 201 and ECON 202. Introduction to the moral foundations of capitalism. Compare and contrast alternative ethical systems using economic analysis when relevant.

ECON 421. Introduction to Mathematical Economics. 3 Hours.

PR: ECON 201 and ECON 202 and (MATH 150 or MATH 155 or MATH 156). Principal mathematical techniques including set operation, matrix algebra, differential and integral calculus employed in economic analysis. Particular attention given to static (or equilibrium) analysis, comparative-static analysis and optimization problems in economics.

ECON 425. Introductory Econometrics. 3 Hours.

PR: ECON 201 and ECON 202 and (ECON 225 or STAT 211). Analysis of economic models using basic econometric methods. Specification, computation, and interpretation of linear regression.

ECON 441. Public Economics. 3 Hours.

PR: ECON 202. Economic roles of the public sector. Particular attention to market failure, redistributing income, the financing of public sector activities, relationships between federal, state, and local governments, and public choice.

ECON 443. Law and Economics. 3 Hours.

PR: ECON 201. We will use the tools and reasoning of economics to study the legal system. Legal institutions have been developed to govern our lives. A formal analysis of the outcomes these institutions create is essential to construct policy and institutional changes to promote a prosperous society. We conduct this institutional analysis applying the tools of economics.

ECON 445. Government and Business. 3 Hours.

PR: ECON 201 and ECON 202. Examination of market structure, conduct, and performance. Analysis of market regulation including antitrust laws and regulation of monopolies.

ECON 451. International Economics. 3 Hours.

PR: ECON 201 and ECON 202. Development of trade among nations; theories of trade; policies, physical factors, trends, barriers to trade. Determination of exchange rates. Open economy macroeconomics.

ECON 454. Comparative Economic Systems. 3 Hours.

PR: ECON 201 and ECON 202. Structure and processes of existing economic systems including capitalism, planned socialism, and market socialism. Problems encountered by economies in transition from planned socialism to capitalism.

ECON 455. Economic Development. 3 Hours.

PR: ECON 202. The problems, changes, and principal policy issues faced by non-industrialized countries.

ECON 461. Regional Economics. 3 Hours.

PR: ECON 201 and ECON 202. Analysis of the regional economy's spatial dimension, emphasizing interregional capital and labor mobility, the role of cities, objectives and issues of regional policy, lagging regions and Appalachia, growth poles, and regional growth and income distribution.

ECON 462. Urban Economics. 3 Hours.

PR: ECON 201 and ECON 202. Analyzes growth, decline, and socioeconomic problems of cities. Topics include the development of cities, urban spatial structure and land-use patterns, poverty and discrimination, housing, urban transportation and congestion, local government structure, and urban fiscal problems.

ECON 463. Applied Regional Economics Research. 3 Hours.

PR: ECON 202 and ECON 225 with a minimum grade of B- in each. This course offers a unique experiential learning opportunity in economics in which students will ultimately conduct, package, and publicly present the type of research that is regularly underway in the BBER. In particular, after learning the basics of econometrics and economic forecasting, students will compile and present an economic outlook report for a particular region in West Virginia.

ECON 465. Health Economics. 3 Hours.

PR: ECON 201 and (ECON 225 or STAT 211). Health economics applies the tools of economics and econometrics to issues of the organization, delivery and financing of health care.

ECON 471. Labor Economics. 3 Hours.

PR: ECON 201 and ECON 202. Labor market analysis. Topics include wage and employment determination, human capital theory, discrimination, unemployment, migration, effects of unions and government regulation, and life-cycle patterns of work.

ECON 481. American Economic History. 3 Hours.

PR: ECON 202. Central issues in the development of the American economy.

ECON 482. Applied Economic Research. 3 Hours.

PR: Senior Economics major in final semester. Capstone course that introduces students to applied economic research. Completion and presentation of major research project required.

ECON 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

ECON 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 6 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

ECON 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ECON 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

ECON 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

ECON 496. Senior Thesis. 1-3 Hours.

PR: Consent.

ECON 497. Research. 1-6 Hours.

Independent research projects.

ECON 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

EDHS 100. Orientation to Multidisciplinary Studies in Education and Human Services. 1 Hour.

Introduction to the Bachelor's degree in Multidisciplinary Studies in Education and Human Services, including information about education and human services fields, identification of post-graduation career opportunities, selection of minors to develop knowledge and skills, analysis of problems and issues in education and human services, participation in community service activities, and planning to meet program and university requirements for graduation.

EDHS 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

EDHS 200. Professional Inquiry in Education and Human Services. 3 Hours.

PR: ((ENGL 101 and ENGL 102) or ENGL 103) and EDHS 100. Examination of issues across the fields of education and human services; practical experience in and critical reflection on activities conducted in education and human services settings and their implications for personal and professional growth; development of higher level skills for written communication through submission, revision and resubmission of formal written professional products.

EDHS 489. Capstone Project: Multidisciplinary Studies in Education and Human Services. 3 Hours.

PR: Consent. Integration and application of knowledge and skills acquired in multiple disciplines to understand and respond to problems of professional practice in education and human services through researching information, communicating and collaborating with others, planning, preparing and delivering presentations and written products, giving and receiving performance feedback, and planning and preparing for a future professional career.

EDHS 493. Special Topics. 1-6 Hours.**EDP 101. Learning Strategies for Academic Success. 3 Hours.**

The purpose of the course is to help students develop active learning strategies that are research-based and appropriate for the college curriculum that will enable them to achieve academic success.

EDP 102. Orientation to the Regents Bachelor of Arts. 1 Hour.

PR: Consent. An introduction to the Regents Bachelor of Arts Program (RBA), including the degree structure, benefits of the program, academic success plans, standardized awards, portfolio petitions, Areas of Emphasis, and RBA graduate pathways.

EDP 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

EDP 301. Learning in PreK-Adult Educational Settings. 3 Hours.

Examination and utilization of behavioral and cognitive learning models; consideration of learner characteristics and other factors affecting student learning.

EDP 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

EDP 401. RBA Portfolio Development. 2 Hours.

This course will assist RBA students with professional work experience to prepare and submit portfolios for College Equivalent Credits (CECs).

EDP 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

EDP 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

EDP 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

EDP 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

EDP 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

EDP 496. Senior Thesis. 1-3 Hours.

PR: Consent.

EDP 497. Research. 1-6 Hours.

Independent research projects.

EDP 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

EDUC 100. Education Colloquium. 1 Hour.

Components of and requirements for the teacher preparation program, including specializations, professional organizations, requirements for admission to the major, avenues to program completion, and requirements for work with children or youth.

EDUC 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

EDUC 200. Professional Inquiry in Education. 3 Hours.

PR: ENGL 101 and ENGL 102. The course provides an examination of issues that cut across the field of teaching and the institution of public education. This course also focuses on developing higher-level skills in written communication.

EDUC 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

EDUC 301. Learning in Educational Settings. 3 Hours.

Examination and utilization of behavioral and cognitive learning models; consideration of learner characteristics and other factors affecting student learning.

EDUC 311. Practicum 1/Technology Application. 1 Hour.

PR or CONC: EDUC 200. Application of models and paradigms of learning in content area and instructional technologies through tutoring of individuals and small groups in an assigned public school site.

EDUC 312. Practicum 2/Technology Application. 1 Hour.

PR: EDUC 301 and EDUC 311. Application of paradigms of learning in content area and instructional technologies through tutoring of individuals and small groups in an assigned public school site.

EDUC 400. Instructional Design and Evaluation. 3 Hours.

PR: Admission to the major and a grade of a C or better in EDUC 301. Examination and demonstration of teacher behaviors required to plan classroom instruction, assess student learning, and evaluate instruction; emphasis on instruction, assessment, and evaluation to accommodate a wide range of student needs.

EDUC 401. Managing and Organizing Learning Environments. 3 Hours.

PR: Admission to the major and a grade of C or better in EDUC 400 and PR or CONC: EDUC 410. Examination of research and practice in organizing and managing school learning environments to produce optimal learning; development of management systems congruent with personal philosophy, research, learner characteristics, and content area.

EDUC 410. Practicum 3/Technology Application. 2 Hours.

PR: EDUC 312 and EDUC 400. Planning and implementing content area instruction, applying different instructional models, instructional technologies, and assessment techniques to small and large groups in an assigned public school site.

EDUC 411. Practicum 4: Technology Application. 4 Hours.

PR or CONC: EDUC 410 and (SPED 460 or SPED 461). Planning and implementing content area instruction, applying various management, instruction, instructional technologies, and assessment models to small and large groups in an assigned public school site.

EDUC 414. Promoting Creative Expression in Elementary Classrooms. 3 Hours.

PR: EDUC 312. Includes an examination of creative experiences for children in elementary school, pre-school - grade 6. Topics include the use of the creative arts in learning activities, curriculum development, and instructional strategies.

EDUC 430. Mathematical Methods - Elementary Teacher. 3 Hours.

PR or CONC: EDUC 312. Students will examine the content and pedagogy appropriate for mathematics instruction in the elementary grades. Emphasis is placed on the current reform movements in mathematics education.

EDUC 440. Elementary-Early Childhood Science Methods. 3 Hours.

PR: EDUC 312. Provides students with the knowledge, skills and affective qualities needed to be an effective elementary science teacher and be committed to teaching science in the elementary classroom.

EDUC 450. Issues and Methods for Teaching Elementary Social Studies. 3 Hours.

PR or CONC: EDUC 410. Students examine issues facing social studies education and evaluate and plan lessons and instructional activities that apply learning theory to the philosophy and standards of social studies education for all elementary students.

EDUC 460. Foundations of Language and Literacy. 3 Hours.

PR: EDUC 200 and EDUC 311. This course focuses on foundations of language and literacy development. Students construct philosophies, approaches, and strategies to promote development of literacy in the young child. Focus will include the larger contexts of literacy including home and community.

EDUC 461. Promoting Literacy Connections. 3 Hours.

PR: EDUC 460. This course emphasizes the development of literacy in the elementary setting. Students will develop and refine philosophies, approaches, and strategies to promote the development of literacy in the primary grades. Focus will include the larger contexts of literacy including content literacy, thematic instruction, and the teacher's leadership role.

EDUC 498. Honors. 1-3 Hours.

PR: Students in honors program and consent by the honors director. Independent reading, study or research.

EE 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

EE 221. Introduction to Electrical Engineering. 3 Hours.

PR: WVU and PSC sections require PHYS 111 and MATH 156, WVUIT sections require MATH 156. Electrical engineering units, circuit elements, circuit laws, measurement principles, mesh and node equations, network theorems, operational amplifier circuits, energy storage elements, sinusoids and phasors, sinusoidal steady state analysis, average and RMS values, complex power. Pre-requisite(s) and/or co-requisite(s) may differ on regional campuses.

EE 222. Introduction to Electrical Engineering Laboratory. 1 Hour.

CoReq: EE 221. Design and experimental exercises basic electrical circuits. Use of the digital computer to solve circuit problems. (3 hr. lab.).

EE 223. Electrical Circuits. 3 Hours.

PR: WVU and PSC sections require EE 221 and EE 222 and PHYS 112 and MATH 251 all with a grade of C- or better, WVUIT sections require EE 221 and EE 222 and MATH 251 all with a grade of C- or better. Time response of RC and RL circuits, unit step response, second order circuits, poly-phase systems, mutual inductance, complex frequency, network frequency response, two-port networks and transformers. Fourier methods and Laplace Transforms.

EE 224. Electrical Circuits Laboratory. 1 Hour.

CoReq: EE 223. Design and experimental exercises in circuits. Transient circuits, steady state AC circuits, frequency response of networks. Use of digital computer to solve circuit problems. (3 hr. lab.).

EE 251. Digital Electronics. 3 Hours.

PR: EE 221 and CPE 271 and PHYS 112. Diode and bipolar and field-effect transistor device operation and switching models. Use of bipolar and field-effect transistors and diodes in switching and logic circuits. Switching circuits and logic gates including logic levels, circuit configuration, and interfacing. (3 hr. lec.).

EE 252. Digital Electronics Laboratory. 1 Hour.

CoReq: EE 251. Design, fabrication, and measurement of digital electronic circuits. Modeling and use of discrete devices, logic gates, display devices in switching circuits and timer circuits, Interfacing with integrated logic gates. (3 hr. lab.).

EE 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

EE 327. Signals and Systems 1. 3 Hours.

PR: MATH 261 and EE 223. Introduction to linear system models and solutions in the time and frequency domains. Balanced emphasis is placed on both continuous and discrete time and frequency methods. (3 hr. lec.).

EE 328. Signals and Systems Laboratory. 1 Hour.

PR: EE 327 and CoReq: EE 329. Laboratory experiments in measurement and analysis of systems and signals. (3 hr. lab.).

EE 329. Signals and Systems 2. 3 Hours.

PR: EE 327 and (STAT 215 or MATH 448). Analysis of continuous and discrete time systems. Block diagrams, stability, feedback control. Statistical description of nondeterministic signals, correlation functions, and spectral density, concepts applied to communication and feedback systems. (3 hr. lec.).

EE 335. Electromechanical Energy Conversion and Systems. 3 Hours.

PR: WVU sections require EE 223 and EE 224 and PHYS 112, WVUIT sections require EE 223 and EE 224 and a co-requisite of EE 345. Electric energy sources, fundamentals of electromechanical energy conversion, transformers and rotating machinery.

EE 336. Electromechanical Energy Conversion and Systems Lab. 1 Hour.

Transformers, DC motors and generator performance and characteristics, synchronous machine performance and characteristics.

EE 345. Engineering Electromagnetics. 3 Hours.

PR: WVU sections require MATH 261 and PHYS 112, WVUIT sections require MATH 261 and PHYS 112 and EE 223. Continued use of vector calculus, electrostatics, magnetostatics, Maxwell's Equations, and boundary conditions. Introduction to electromagnetic waves, transmission lines, and radiation from antennas.

EE 355. Analog Electronics. 3 Hours.

PR: EE 223 and EE 251. Electronic devices in analog circuits. Small-signal and graphical analysis of BJT and FET circuits; frequency response, feedback, and stability. Linear and nonlinear operational amplifier circuits. Power amplifiers and power control by electronic devices. (3 hr. lec.).

EE 356. Analog Electronics Laboratory. 1 Hour.

CoReq: EE 355. Design, fabrication, and measurement of analog electronic circuits. Use of discrete devices, integrated circuits, operational amplifiers, and power electronic devices. Study of biasing and stability, frequency response, filters, analog computation circuits, and power control circuits. (3 hr. lab.).

EE 411. Fundamentals of Control Systems. 3 Hours.

PR: EE 327. Introduction to classical and modern control; signal flow graphs; state-variable characterization; time-domain, root locus, and frequency techniques; stability criteria. (3 hr. lec.).

EE 413. Introduction to Digital Control. 3 Hours.

PR: EE 327. Sampling of continuous-time signals and transform analysis. Stat-variable analysis for linear discrete-time systems and design of digital controller. (3 hr. lec.).

EE 425. Bioengineering. 3 Hours.

Introduction to human anatomy and physiology using an engineering systems approach. Gives the engineering student a basic understanding of the human system so that the student may include it as an integral part of the design. Co-listed with MAE 473. (3 hr. lec.).

EE 426. Biometric Systems. 3 Hours.

PR: STAT 215 and MATH 261 and CS 111. It is also suggested (not required) that EE 327 and CS 350 also be taken prior to enrolling in this course. This course presents an introduction to the principles of operation, design, testing, and implementation of biometric systems, and the legal, social and ethical concerns associated with their use.

EE 431. Electrical Power Distribution Systems. 3 Hours.

PR: EE 335 and EE 336 or consent. General considerations; load characteristics; subtransmission and distribution substations; primary and secondary distribution, secondary network systems; distribution transformers; voltage regulation and application of capacitors; voltage fluctuations; protective device coordination. (3 hr. lec.).

EE 435. Introduction to Power Electronics. 3 Hours.

PR: EE 335 and EE 355 and EE 356 or consent. Application of power semiconductor components and devices to power system problems; power control; conditioning processing, and switching. Course supplemented by laboratory problems. (3 hr. lec.).

EE 436. Power Systems Analysis. 3 Hours.

PR: EE 335 and EE 336. Power system network modeling, network calculations by matrices, node equations, node elimination, bus admittance, impedance matrices, and fault calculations. Transmission line inductance, capacitance, network models, and power circle diagrams. Symmetrical and unsymmetrical faults. Load flow and economic dispatch.

EE 437. Fiber Optics Communications. 3 Hours.

PR: EE 329 and EE 345. Fundamentals of optics and light wave propagation, guided wave propagation and optical wave guides, light sources and light detectors, couplers, connections, and fiber networks, modulation noise and detection in communication systems. (3 hr. lec.).

EE 445. Introduction to Antennas. 3 Hours.

PR: EE 345 or equivalent. Development of Maxwell's equations and general electromagnetic theory underpinning broadcast communication systems, wave propagation, antennas and antenna arrays.

EE 450. Device Design and Integration. 3 Hours.

PR: EE 345 and EE 355. Fundamentals of semiconductor materials, p-n junctions, metal-semiconductor junctions, JFET's, MESFET's, MOSFET's, physical device design, device simulation, gate level & CMOS design and layout. (3 hr. lec.).

EE 455. Introduction to Microfabrication. 3 Hours.

PR: EE 355 or consent. Introduction to the physical processes underlying current and emerging microfabrication technology and their selective use in the technology computer aided design (TCAD) and fabrication of electrical, optical, and micromechanical devices and systems.

EE 457. Fundamentals of Photonics. 3 Hours.

PR: EE 345 or equivalent. Basic physics and optical engineering concepts necessary to understand the design and operation of photonic-based systems, including communications, nanophotonics, sensing and display technologies. Scaling, integration, and packaging of optical approaches and their compatibility with micro/nanosystems.

EE 461. Introduction to Communications Systems. 3 Hours.

PR: EE 329. Application of random processes and spectral analysis to the design and analysis of communication systems. Analysis and comparison of standard modulation techniques relative to bandwidth, noise, threshold, and hardware constraints.

EE 463. Digital Signal Processing Fundamentals. 3 Hours.

PR: MATH 251 and EE 327. Theories, techniques, and procedure used in analysis, design, and implementation of digital and sampled data filters. Algorithms and computer programming for software realization. Digital and sampled data realizations, switched capacitor and charge-coupled device IC's. (3 hr. lec.).

EE 465. Introduction to Digital Image Processing. 3 Hours.

PR: EE 251 and EE 327. Introduction to the vision process fundamental mathematical characterization of digitized images, two-dimensional transform methods used in image processing, histogram analysis and manipulation, image and filtering techniques, image segmentation, and morphology. (3 hr. lec.).

EE 467. Digital Speech Processing. 3 Hours.

PR: EE 327 and EE 329. Covers fundamentals in digital speech processing including production, speech analysis, speech coding, speech enhancement, speech recognition and speaker recognition. Emphasize hand-on experience of processing speech signals using MATLAB.

EE 480. Capstone Project - Design. 3 Hours.

PR: ENGL 102 or ENGL 103 and consent. Penultimate semester. Group senior design projects with individual design assignments appropriate to student's discipline. Complete system-level designs of the subsequent semester's project presented in written proposals and oral presentations. (Equivalent to BIOM 480, CPE 480, CS 480) (2 hr. lec., 1 hr. conf.) Note: WVU Tech course is 3 credit hours.

EE 481. Capstone Project - Implementation. 3 Hours.

PR: EE 480. Detailed design and implementation of the system including choice of components, algorithm development, interfacing, trouble shooting, working in groups, and project management. Also covers professional topics, including ethics, liability, safety, socio-legal issues, risks and employment agreements. (1 hr. lec., 1 hr. conf., 2 hr. lab.).

EE 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

EE 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

EE 492. . 1-6 Hours.

Directed study, reading, and/or research.

EE 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

EE 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

EE 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

EE 496. Senior Thesis. 1-3 Hours.

PR: Consent.

EE 497. Research. 1-6 Hours.

Independent research projects.

EE 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

ENCP 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ENGL 1C1. Introduction to Composition and Rhetoric. 3 Hours.

Studies the logical, rhetorical, and linguistic structures of expository prose; develops strategies for analyzing purposes, audiences, and conventions; emphasizes processes for drafting, revising, and editing. Required of all bachelor's degree candidates unless equivalent transfer credit or portfolio credit applies. Qualified students may complete ENGL 103 in place of ENGL 101 and 102. Co-requisites will differ at WVUIT and PSC.

ENGL 1C2. Composition, Rhetoric, and Research. 3 Hours.

PR: ENGL 101 or equiv. Builds on the writing abilities earned in English 101 (or the equivalent). Focuses on the research process, argumentation, and critical inquiry; emphasizes structures, language, documentation, and formats appropriate for specific audiences and purposes. Required of all bachelor's degree candidates unless equivalent transfer credit or portfolio credit applies.

ENGL 101. Introduction to Composition and Rhetoric. 3 Hours.

Studies the logical, rhetorical, and linguistic structures of expository prose; develops strategies for analyzing purposes, audiences, and conventions; emphasizes processes for drafting, revising, and editing. Required of all bachelor's degree candidates unless equivalent transfer credit or portfolio credit applies. Qualified students may complete ENGL 103 in place of ENGL 101 and 102. Co-requisites will differ at WVUIT and PSC.

ENGL 102. Composition, Rhetoric, and Research. 3 Hours.

PR: ENGL 101 or equiv. Builds on the writing abilities earned in English 101 (or the equivalent). Focuses on the research process, argumentation, and critical inquiry; emphasizes structures, language, documentation, and formats appropriate for specific audiences and purposes. Required of all bachelor's degree candidates unless equivalent transfer credit or portfolio credit applies.

ENGL 103. Accelerated Academic Writing. 3 Hours.

PR: Qualifying ACT/SAT verbal score. For students who qualify based on high ACT/SAT verbal scores, English 103 satisfies WVU's introductory writing requirement (English 101 and 102) in a single course. English 103 emphasizes both expository writing and researched argument writing. Students develop the organization, revision, and editing strategies needed to respond to a variety of writing situations, audiences, and purposes.

ENGL 111. Introduction to Creative Writing. 3 Hours.

Instruction in reading and writing fiction, nonfiction and poetry in order to enhance creative writing skills.

ENGL 131. Poetry and Drama. 3 Hours.

An introduction to the genres.

ENGL 132. Short Story and Novel. 3 Hours.

An introduction to the genres.

ENGL 139. Contemporary African Literature. 3 Hours.

A survey of contemporary African poetry, drama, and fiction.

ENGL 154. African American Literature. 3 Hours.

A historical introduction and survey from its beginnings to the present.

ENGL 156. Literature of Native America. 3 Hours.

A historical survey of Native American prose, poetry, song, and story from the beginning to the present.

ENGL 170. Literature of Minds and Selves. 3 Hours.

This course explores the nature of consciousness, selfhood, and humanness through literary and filmic representations of thought and character, especially those that deviate from the norm. Topics will vary by semester and might include disability, trauma, monstrosity, criminality, human rights, queer characters, children's literature, posthumanism, or animal studies, among others.

ENGL 171. Literature of Science and Nature. 3 Hours.

Analyzes the representation of science and nature in literature and film across historical periods and genres.

ENGL 172. Literature of the Human Body. 3 Hours.

Analyzes representations of the human body and its biological and psychological development and decline through literary, expository, and other cultural texts.

ENGL 180. Literature of Love, Sex, and Gender. 3 Hours.

Analyzes representations of love in literature and film across historical periods and genres, with particular attention to narrative representations of sex, gender, and sexual identity.

ENGL 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

ENGL 199. Orientation to English Studies. 1,2 Hour.

Orientation to degree programs and requirements, departmental resources, curriculum options, student responsibilities and opportunities.

ENGL 200. Foundations of Literary Study. 3 Hours.

Study and practice of the analytical, research, and writing skills fundamental to literary studies.

ENGL 201. Advanced Composition. 3 Hours.

PR: (ENGL 101 and ENGL 102) or ENGL 103. Composition for students who wish to further develop their expository and argumentative writing skills.

ENGL 211. Sturm Workshop. 1 Hour.

PR: Consent. Creative writing workshop conducted by Sturm visiting writer in residence.

ENGL 212. Creative Writing: Fiction. 3 Hours.

An open enrollment introduction to the writing of fiction.

ENGL 213. Creative Writing: Poetry. 3 Hours.

An open enrollment introduction to the writing of poetry; practice in the basics of image, metaphor, line, form, sound and voice.

ENGL 214. Creative Writing: Non-Fiction. 3 Hours.

Introductory course in the writing of non-fiction.

ENGL 221. The English Language. 3 Hours.

PR: ENGL 101 and sophomore standing. An introduction to language, its structure in the mind, and its use in the United States.

ENGL 225. Western World Literature. 3 Hours.

Selected readings in the canon of Western world literature, both ancient and modern.

ENGL 226. Non-Western World Literature. 3 Hours.

Selected readings in non-Western world literature, ancient and modern.

ENGL 229. Literary Contexts Abroad. 1-3 Hours.

PR: Consent. Global learning experience combines travel with cultural learning and literary and film analysis with particular emphasis on cultural understanding and social traditions. Location will vary.

ENGL 230. Film Studies. 3 Hours.

Topics in the study of film, or film and literature, in a historical, theoretical and/or cultural context.

ENGL 232. Poetry. 3 Hours.

Appreciation and enjoyment of poems through critical and analytical reading. Studies in the various types of poetry, and of the language, imagery, and techniques of poetic expression.

ENGL 233. The Short Story. 3 Hours.

The short story's structure, history, and contemporary forms.

ENGL 234. Drama. 3 Hours.

The drama's structure, history, and contemporary forms.

ENGL 235. Novel. 3 Hours.

The novel's structure, history, and contemporary forms.

ENGL 236. The Bible as Literature. 3 Hours.

Analysis of the themes, topics and literary genres of the Old and New Testaments. Issues to be discussed include the unity of the text, the status of authorship, translation, and the depiction of God.

ENGL 238. Literature of Place. 3 Hours.

Topics in the study of literature of place in a historical, theoretical, and/or historical context.

ENGL 241. American Literature 1. 3 Hours.

A historical introduction and survey from its beginnings to the mid-nineteenth century.

ENGL 242. American Literature 2. 3 Hours.

A historical introduction and survey from the mid-nineteenth century to the present.

ENGL 251. American Folklore and Culture. 3 Hours.

Introduction to folklore of the USA. Folklore and American culture. Subject groups vary but usually include Native Americans, early European settlers, African Americans, and 20th century immigrants.

ENGL 252. Appalachian Fiction. 3 Hours.

Reading of short stories, novels, and other narratives by Appalachian authors.

ENGL 253. Southern Writers. 3 Hours.

Twentieth-century Southern essayists, poets, short story writers and novelists in relation to ideological background.

ENGL 254. African American Literature. 3 Hours.

Studies in the literature of African American authors, 1845 to the present.

ENGL 255. Multiethnic Literature. 3 Hours.

This course examines literature by Americans of diverse ethnicities including, but not limited to, Asian Americans, Latinos, Native Americans, African Americans, and European Americans of various class/religious/regional backgrounds.

ENGL 257. Science Fiction and Fantasy. 3 Hours.

A study of the history and nature of science fiction from H. G. Wells to the present, with special attention to features of prose narration.

ENGL 258. Popular American Culture. 3 Hours.

A survey of modern popular American culture from 1940 to the present, with special emphasis on popular literature, music, television, movies, radio in its golden age, and comic books.

ENGL 261. British Literature 1. 3 Hours.

A historical introduction and survey from the Middle Ages through the eighteenth century.

ENGL 262. British Literature 2. 3 Hours.

A historical introduction and survey from the late eighteenth century to the present.

ENGL 263. Shakespeare 1. 3 Hours.

Several of Shakespeare's most important plays.

ENGL 272. Modern Literature. 3 Hours.

British and American poetry, drama, and fiction from 1900 to 1960.

ENGL 273. Contemporary Literature. 3 Hours.

An examination of the literature written since 1960 in England and America. Poetry, drama, and fiction. Selections will vary depending on the instructor.

ENGL 275. Justice and Literature. 3 Hours.

An exploration of the concept and practice of justice through a study of literature. Literary works draw from history, theology, philosophy, and legal cases to illustrate the complexity of justice. How has literature reflected and produced understandings of justice? Time period and regional, national, or global focus will vary by instructor.

ENGL 277. Reading Publics: Exploring the Humanities in Public Spaces. 3 Hours.

Reading Publics introduces students to the powerful ways literature and literacy initiatives improve the local community, preserve cultural heritage, and enrich democracy. Students will complete service learning projects in the local community while also reading related works of fiction and non-fiction.

ENGL 285. Images of Women in Literature. 3 Hours.

Representative literary works studied against a backdrop of social and historical documents to examine the effect of images of women in literature on the self-image of women today.

ENGL 288. Sexual Diversity in Literature and Film. 3 Hours.

Representation of lesbians, gay men, and bisexuals in literature and film.

ENGL 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ENGL 301. Writing Theory and Practice. 3 Hours.

PR: (ENGL 101 and ENGL 102) or ENGL 103. Tradition and contemporary approaches to rhetoric and writing theory for professional writing and editing students who wish to develop their abilities to analyze and produce written texts.

ENGL 302. Editing. 3 Hours.

A comprehensive approach to editing, including the correctness and effectiveness of a document, information design, and editorial responsibility. Students gain a realistic perspective on workplace practice through real-world scenarios, case studies, and technological applications.

ENGL 303. Multimedia Writing. 3 Hours.

Study of communication and design issues in multimedia composition. Focuses on communication, creative expression, persuasion, interactivity, and rhetorical principles. Practice in composing multimedia documents such as online publications, interactive literary works, and tutorials.

ENGL 304. Business and Professional Writing. 3 Hours.

PR: (ENGL 101 and ENGL 102) or ENGL 103. Students will analyze different writing contexts, meet the needs of different audiences, and organize and present material in letters, memos, and reports. Includes some research, Internet components, and a review of style, grammar and usage.

ENGL 305. Technical Writing. 3 Hours.

PR: (ENGL 101 and ENGL 102) or ENGL 103. Writing in scientific and technical fields. Introduces students to typical genres, workplace practices, document design, and conventions of writing for experts and non-experts.

ENGL 306. Topics in Humanities Computing. 3 Hours.

Topics include: literary studies (electronic publications, web-based interactive fiction, poetry, drama, nonfiction), creative writing in digital media, composition online, pedagogy, cultural studies of electronic media, online communications, language studies. Topics rotate; check with the instructor for current topic.

ENGL 309. Approaches to Teaching Composition. 3 Hours.

PR: ENGL 200. (May not be taken for both undergraduate and graduate credit.) Surveys attitudes toward and techniques of teaching writing in elementary and secondary schools. Provides experiment in class with methods of teaching writing.

ENGL 312. Creative Writing Workshop: Fiction. 3 Hours.

PR: Grade of B or higher in ENGL 212. Advanced workshop in creative writing for students seriously engaged in writing fiction.

ENGL 313. Creative Writing Workshop: Poetry. 3 Hours.

PR: Grade of B or higher in ENGL 213. Advanced workshop in creative writing for students seriously engaged in the writing of a major group of poems.

ENGL 314. Creative Writing Workshop: Non-Fiction. 3 Hours.

PR: Grade of B or higher in ENGL 212 or ENGL 213 or ENGL 214. Advanced workshop in creative writing for students seriously engaged in the writing of nonfiction.

ENGL 318. Topics in Creative Writing. 3 Hours.

PR: ENGL 212 or ENGL 213 or ENGL 214 with a minimum grade of B-. (May be repeated for a maximum of 9 hours.) Advanced work in creative writing; course content changes with genre: fiction, poetry, non-fiction.

ENGL 321. History of the English Language. 3 Hours.

PR: ENGL 221 or LING 101 or LING 311 or instructor's permission. Study of the nature of the language; questions of origins, language families, development, relationships of English as one of the Indo-European languages.

ENGL 329. Topics in English Language. 3 Hours.

This course rotates a set of topics offering students field- specific approaches to the study of the English language. Students engage the language through active research paradigms focusing on the social context of the language.

ENGL 331. Topics in Genre. 3 Hours.

This variable-topic course will trace formal and thematic conventions in poetry, drama, prose, fiction, and/or nonfiction.

ENGL 337. Study of a Major Author. 3 Hours.

PR: ENGL 102 or ENGL 103. May be repeated for a maximum of 6 credit hours. Study a single author's works with special attention to historical contexts and critical reception. Authors will vary.

ENGL 338. Environmental Criticism. 3 Hours.

PR: ENGL 102 or ENGL 103. This course provides methods for exploring connections between literature and the environment. Topics include nature writing; animal studies; environmental justice; urban ecocriticism; literary cartography; ecological theory.

ENGL 339. Theatre Tour. 3 Hours.

Introduces students to texts in performance by reading dramatic texts and traveling to see those texts in performance. Performance sites may include either international or U.S. locations.

ENGL 339A. Theatre Tour Travel. 1 Hour.

Must be taken with ENGL 339.

ENGL 342. American Drama. 3 Hours.

Representative American dramas and history of theatre in America.

ENGL 343. American Poetry. 3 Hours.

Major American poets of the nineteenth and twentieth centuries.

ENGL 344. Modern American Poetics. 3 Hours.

A close study of those poets who have shaped the aesthetics of contemporary American poetry.

ENGL 345. American Literature to 1800. 3 Hours.

Major genres, authors, themes, and topics in American literature, c. 1500 to 1800.

ENGL 346. American Literature 1800-1865. 3 Hours.

Major genres, authors, themes and topics in American Literature from 1800 to 1865.

ENGL 347. American Literature 1865-1915. 3 Hours.

Major genres, authors, themes, and topics in American Literature from 1865 to 1915.

ENGL 348. Twentieth Century American Literature. 3 Hours.

Major genres, authors, themes, and topics in American literature from 1900 to 1999.

ENGL 349. Contemporary American Literature. 3 Hours.

Completes the American literature sequence with an examination of stories, novels, poetry and drama (stage and screen) of the period from 1960 to present.

ENGL 351. Folk Literature. 3 Hours.

A close study of a range of narrative folklore genres, which may include tales, myths, legends, ballads, proverbs, riddles, jokes, and other forms.

ENGL 352. Topics in Appalachian Studies. 3 Hours.

Studies of authors, genres, themes, or topics in Appalachian literature.

ENGL 354. Topics in African American Literature. 3 Hours.

This course examines a specific aspect of African American literature and/or culture. Topics vary from semester to semester.

ENGL 355. Topics in Multiethnic Literature. 3 Hours.

PR: ENGL 102 or ENGL 103. Specialized topics course reflective of current issues in multiethnic literature and culture. Topics vary per semester.

ENGL 356. Topics in Native American Literature. 3 Hours.

Specialized topics courses reflecting current trends and issues in Native American literature and culture. Subjects vary per semester.

ENGL 360. Literature of the Middle Ages. 3 Hours.

Literature of the period 1066-1485 in relation to the cultural transformations of the time. Course emphases may include (but are not limited to) Arthurian romance, the mystery plays, crusade narratives, political ballads, and women's writings.

ENGL 361. Chaucer. 3 Hours.

Early poems, *Troilus and Criseyde*, and *The Canterbury Tales*. In addition to an understanding and appreciation of Chaucer's works, the student is expected to acquire an adequate knowledge of Chaucer's language.

ENGL 363. Shakespeare 2. 3 Hours.

Advanced studies in Shakespeare's plays and non-dramatic poetry. Methodological emphases vary per semester, including textual, historical, dramaturgical and postcolonial approaches.

ENGL 364. Literature of the Seventeenth Century. 3 Hours.

Studies from Donne to Dryden.

ENGL 365. Milton. 3 Hours.

All of Milton's poems and a few selected prose works.

ENGL 366. Literature of the Eighteenth Century 1. 3 Hours.

Literature of the period 1660-1744 in relation to social, political, and religious movements of the time.

ENGL 367. Literature of the Eighteenth Century 2. 3 Hours.

Continuation of ENGL 366, covering the latter half of the century. May be taken independently of ENGL 366.

ENGL 368. The Romantic Movement. 3 Hours.

A survey of the works of the major British Romantic writers along with an introduction to works of scholarship in British Romanticism.

ENGL 369. Victorian Literature. 3 Hours.

Study of Victorian poets and prose writers with an emphasis on historical, political, and cultural issues. Representative authors may include: Tennyson, the Brownings, Arnold, Dickens, the Brontes, Eliot, and Hardy.

ENGL 371. Modern British/Irish Literature. 3 Hours.

Studies in the late 19th- and 20th-century British and Irish literature, including the works of Yeats, Eliot, Joyce, Woolf, Auden, Beckett, Hughes, Churchill, and Heaney.

ENGL 373. Contemporary British Literature. 3 Hours.

The poems, plays, and fiction read in this course reflect Britain's current multicultural makeup: among them, the North and the Republic of Ireland, Scotland, Wales, England, South Africa, Pakistan, and India.

ENGL 374. Postcolonial Literature. 3 Hours.

This course will address various issues in postcolonial literature, including gender, nationalism, resistance, development, neocolonialism and diasporic identities. In addition, students will examine contemporary literary modes associated with the postcolonial project of revisionist history.

ENGL 381. Literary Criticism. 3 Hours.

Literary criticism from Aristotle to modern times.

ENGL 382. Contemporary Literary Theory. 3 Hours.

An introduction to the predominant schools of literary theory of the twentieth century, including psychoanalytic criticism, Marxist criticism, feminist criticism, deconstruction, postmodernism, and cultural studies.

ENGL 383. Introduction to Cultural Studies. 3 Hours.

Students will explore the ways in which we are all simultaneously users of and used by culture, and the ways in which cultural practices influence how we think, feel, and act in everyday life.

ENGL 384. Introduction to American Studies. 3 Hours.

This course introduces students to methodologies of studying American popular and mass cultures in the past and present. Topics may include film, literature, performance, music, economics, and technology.

ENGL 385. American Women Writers. 3 Hours.

Studies in the literature of American women writers. Syllabi may vary per term; topics may include Jewish American women writers, women writers of the suffrage movement, and 20th century American women writers.

ENGL 386. British Women Writers. 3 Hours.

This course examines fiction, poems, essays, and drama written by British women writers, beginning with the fourteenth-century author Margery Kempe and continuing into the late twentieth century with Nadine Gordimer.

ENGL 387. Topics in Women's Literature. 3 Hours.

Syllabus will vary per term. Topics include women writers outside of Great Britain and the United States; comparative women writers; women's writing on a particular theme or topic.

ENGL 388. Topics in Gay/Lesbian Studies. 3 Hours.

Specialized topics courses reflecting current trends in studies of gay/lesbian history, literature, culture, and theory. Subjects will be taught on a rotation.

ENGL 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ENGL 405. Young Adult Literature. 3 Hours.

A survey of young-adult literature with special attention to literary theories and methodologies that assist its interpretation.

ENGL 407. The Writing of Health and Medicine. 3 Hours.

PR: (ENGL 101 and ENGL 102) or ENGL 103 with a minimum grade of C- in each. Explores genres important to health and medicine. Students read, analyze, and write texts in these genres-considering their audiences, purposes, and conventions as well as the role specific texts play in shaping the practices and experiences of health and medicine. Students may not earn credit for both ENGL 407 and ENGL 507.

ENGL 408. Rhetoric and Science. 3 Hours.

PR: (ENGL 101 and ENGL 102) or ENGL 103. This course explores the relationship between rhetoric and science. Students will analyze the audiences, purposes, and conventions of scientific arguments as well as the role of specific texts in shaping scientific disciplines and debates. No background in science is required.

ENGL 418. Creative Writing Seminar. 3 Hours.

PR: 9 hours of creative writing and consent. Individual projects in creative writing pursued in a workshop setting.

ENGL 423. Introduction to Old English. 3 Hours.

An introduction to Old English grammar and readings. After the basic grammar is mastered, students translate a selection of Old English prose texts and poems.

ENGL 450. Intro to Forensic Linguistics. 3 Hours.

Introduces students to the analysis of language for legal purposes and provides them first-hand experience in forensic linguistics. The course focuses on the application of linguistic theory, research, and procedures to issues of the law. In their final project, students review forensic linguistic case studies.

ENGL 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

ENGL 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

ENGL 491A. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

ENGL 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ENGL 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual interest to students and faculty.

ENGL 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

ENGL 496. Senior Thesis. 1-3 Hours.

PR: Consent.

ENGL 497. Research. 1-6 Hours.

Independent research projects.

ENGL 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

ENGL 499. Global Service Learning. 1-3 Hours.

PR: Consent. Theory and practice of global service-learning. The main objective will be to pair the experiential aspects of meaningful and sustained service in the host community with work from the student's anchor course by offering a methodological framework for cultural immersion and community service as well as adding to the content of the anchor course.

ENGR 100. Introduction to Engineering Applications. 3 Hours.

PR or CONC: MATH 129 or MATH 153. Introduction to basic problem solving of engineering applications using algebra and trigonometry.

ENGR 101. Engineering Problem Solving 1. 2 Hours.

PR or CONC: MATH 154 or MATH 155. Engineering problem solving methodologies and analysis. Use of computers in problem solving, technical report writing, team based project work and presentations.

ENGR 102. Engineering Problem-Solving 2. 3 Hours.

PR: ENGR 101 and (MATH 154 or MATH 155) with a C- in each. Continued development of engineering problem-solving, teamwork, and communication skills with emphases on using the computer as a tool and algorithm development with a high-level language such as MATLAB.

ENGR 103. Introduction to Nanotechnology Design. 3 Hours.

PR: ENGR 101 and (MATH 154 or MATH 155 with a C or better) or Consent. Continued development of engineering problem-solving, teamwork, and communication skills with emphasis on the fundamentals of nanotechnology design, using the computer as a tool, and algorithm development with a high-level language such as MATLAB.

ENGR 112. Professional Development in Engineering. 2 Hours.

Professional development and academic success strategies for first-year students enrolled in the Freshman Engineering summer bridge program - Academy of Engineering Success (AcES).

ENGR 129. Engineering Mathematics. 1 Hour.

PR: Consent. Review of key pre-calculus and early calculus concepts and topics for engineering students.

ENGR 140. Engineering in History. 3 Hours.

Impact of engineering on society throughout history. Developments in warfare, architecture, agriculture, manufacturing, communication, transportation, and their impacts on society.

ENGR 142. Engineering Seminar. 1 Hour.

Faculty, alumni, graduate students, and industry representatives will provide presentations on various engineering research, career, and experience topics. Students will reflect and discuss the presentations on instructor monitored discussion boards.

ENGR 143. Engineering Concepts. 3 Hours.

Course covers engineering approaches to problem solving, design process, understanding technical communication, estimation, international standards and units, manufacturing processes and intellectual property, useful to students pursuing a career related to the engineering profession. Introduces the engineering disciplines and areas of application.

ENGR 150. Academic Success Skills. 1 Hour.

The development of academic skills that are needed to be a successful engineering student.

ENGR 151. Introduction to Engineering Reasoning. 3 Hours.

PR or CONC: MATH 126. An introduction to skills of critical reasoning. Application of reasoning skills to engineering problem solving, research and experimentation in engineering, and to the engineering design process. The course emphasizes the importance of elements of thought, universal intellectual standards, and essential intellectual traits in reasoning.

ENGR 155. Spatial Visualization. 1 Hour.

Introductory course offered to engineering students to strengthen their spatial thinking skills. These 3D visualization skills are beneficial for future engineering classes. Topics Include: isometric drawing, orthographic projections, 3D object rotations, flat pattern developments, and surfaces and solids of revolution.

ENGR 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

ENGR 199. Orientation to Engineering. 1 Hour.

Orientation to degree programs and requirements, departmental resources, curriculum options, students' responsibilities, and opportunities. Development of academic success strategies and University experiences to equip students to make life decisions.

ENGR 210. Engineering Decision Making. 2 Hours.

PR: ENGR 143. Examines engineering ethics, critical reasoning, and problem solving. Applies these ideas to questions, challenges, and issues in a variety of areas, including engineering applications. Covers important and controversial decisions made previously in the engineering field, and the related impacts and consequences.

ENGR 230. Exploring Culture and Technology of Germany Study Abroad. 3 Hours.

PR: Consent. Expose students to engineering as a global profession including language, culture, customs, and history of Germany, especially relating to engineering, through travel to Germany to visit factories, museums and universities.

ENGR 280. Sophomore Nanoscience Seminar. 1 Hour.

PR: ENGR 103. Introduces students to the original nanoscale science and engineering literature, including research on social, ethical and economic issues, and develops skills in interdisciplinary team building.

ENGR 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ENGR 310. Energy Engineering. 3 Hours.

An introduction to the basic principles governing energy use, energy sources, and the impact of energy production on the environment. Examines the amount of energy used by society, fossil fuels and alternative energy sources, and methods of energy production.

ENGR 380. Junior Nanoscience Seminar 1. 1 Hour.

PR: ENGR 280. Familiarizes students with science and engineering that is being carried out in the laboratories at WVU, and helps students understand the importance of other disciplinary approaches to Nanoscale Science and Engineering.

ENGR 381. Junior Nanoscience Seminar 2. 1 Hour.

PR: ENGR 380. This course matches students with appropriate host laboratories in preparation for their senior research project. It fosters appreciation for the importance of the disciplinary fundamentals learned in the development of nanoscale science and engineering.

ENGR 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ENGR 450. Technology Entrepreneurship and Enterprise Development. 3 Hours.

PR: Senior level or consent. Introduction to concepts, methods, and strategies involved in starting a successful business that is based upon new technology, products, and services. The course assists in identifying opportunities for existing markets, understanding how investors look at technology companies, managing intellectual property, financial and legal issues, commercializing real technologies, and information required for preparing a business plan to guide the enterprise.

ENGR 463. Find an Engineering Job/Internship. 1 Hour.

Assist engineering or computer science students in finding an engineering job or internship. Topics covered are resume and cover letter writing, interviewing skills, looking for a job, and assessing job offers.

ENGR 470. Fluid Mechanics Videos 1. 1 Hour.

Videos and discussion illustrate phenomena such as turbulence, compressibility and surface tension. Supplements MAE 331 and MAE 335 and CE 321 and CE 322 and CE 522. Does not satisfy AE, CE or ME technical elective requirement.

ENGR 471. Fluid Mechanics Videos 2. 1 Hour.

Videos and discussion illustrate phenomena such as turbulence, compressibility and surface tension. Supplements MAE 331 and MAE 335 and CE 321, CE 322 and CE 522. Does not satisfy AE, CE, or ME technical elective requirement.

ENGR 488. Cooperative (Co-Op) Education Experience. 1-18 Hours.

PR: Consent. Prearranged co-op experience in student's major. Involves placement in public or private enterprise, supervision, and evaluation for credit by faculty and employer.

ENGR 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

ENGR 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ENGR 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

ENGR 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

ENGR 496. Senior Thesis. 1-3 Hours.

PR: Consent.

ENGR 497. Research. 1-6 Hours.

Independent research projects.

ENGR 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study, or research.

ENLM 150. Introduction to Energy Land Management. 3 Hours.

Comprehensive review of the field of energy land management and how it relates to the natural gas and petroleum extraction processes with an emphasis on shale gas development. Examples of property transfers, mineral ownership, and leasing and the distinction between surface and mineral rights.

ENLM 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

ENLM 200. Principles of Energy Land Management. 3 Hours.

The science of energy land management with an emphasis on petroleum, natural gas, coal, solar, wind, hydropower, and biomass energy production. Complexities of energy systems and how surface and mineral management techniques compare and/or contrast to those found in traditional energy systems.

ENLM 220. Energy Production & Operations. 3 Hours.

Overview of energy development with a focus on oil and gas wellhead operations. Review of drilling technologies, gas extraction processes, fracturing, waste water treatment, gas transportation and other factors involved in the extraction and marketing of natural gas and oil. Class will also develop understanding of wellhead functions, surface equipment, separation and dehydration, compression, oil and gas measurement and gauging.

ENLM 250. Managing Non-Technical Risks. 3 Hours.

Identification, management, and communication of social risks in energy management. Exploration of media relations, crisis communication, advocacy, community education, and government relations as they relate to the energy industry. Risk management and communication skills development through case studies, presentations, and experiential exercises.

ENLM 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ENLM 300. Ethics and Negotiations for Energy Land Managers. 3 Hours.

PR: ENLM 250 with a minimum grade of C-. Basic negotiation components including negotiating positions, techniques, and styles, and how they are used in energy land management. Emphasis placed on the legal and ethical aspects of negotiation and include a complete review of the AAPL code of Ethics and Standards of Practice.

ENLM 390. Land and Lease Analysis. 3 Hours.

PR: ENLM 200 with a minimum grade of C-. Course will cover the theory and practice of real property title and genealogical research. Students will be required to complete and construct a mineral title packet; demonstrate analysis and drafting of oil & gas leases; and develop a solid foundation in heirship research. Students will also develop skills managing complex land records using software systems.

ENLM 393. Special Topics. 1-6 Hours.

Investigation of topics not covered in regularly scheduled courses.

ENLM 400. Energy Land Management Contracts 1. 3 Hours.

PR: ENLM 300 with a minimum grade of C-. Introduction to mineral and environmental law with specific emphasis on titles, deeds, and leasing instruments commonly used in an exploration effort. Examination of land ownership, estates, land measurement, and leasing including a broad overview of the role of the energy land manager during the exploration and development of energy resources.

ENLM 415. Midstream Energy Planning and Development. 3 Hours.

PR: ENLM 220 with a minimum grade of C-. The science of midstream energy with a focus on site and transportation infrastructure development and best management practices for minimizing potential surface and water impacts. Complexities of energy systems with an emphasis on agreements, regulatory framework and techniques for reducing environmental impacts of development in both traditional and renewable energy systems.

ENLM 420. Energy Land Management Contracts 2. 3 Hours.

PR: ENLM 400 with a minimum grade of C-. Continuation of oil and gas contracts with emphasis on lease examination, execution, payment, and development. Complexities of lease management and permitting including an overview of federal, state, and local regulations and how they pertain to oil and gas development.

ENLM 441. Applied Geographic Information Systems and Energy Land Management. 1 Hour.

PR or CONC: RESM 440. Use of Geographic Information Systems (GIS) foundations to solve problems related directly to Energy Land Management. Incorporation of GIS skills in a holistic manner to develop spatial solutions to a real-world challenge in the planning, acquisition, and development of a petroleum/natural gas resource play.

ENLM 442. GIS Skills for Energy Land Management. 3 Hours.

PR: ENLM 200 with a minimum grade of C-. This class will provide students with background in the use of fundamental GIS skills to solve problems directly related to Energy Land Management. GIS skills will be used to develop spatial solutions to a real-world challenge in the planning, acquisition, and development of a petroleum/natural gas resource play.

ENLM 450. Energy Land Management Strategic Planning. 3 Hours.

PR: ENLM 420 with a grade of C or higher. Preparation for the challenges faced when developing energy properties from initial definition to production, including answering targeted questions, writing concise reports, and relaying findings and opinion. Strategic planning includes initial geologic concept, prospect economics, lease acquisition, drilling initial discovery well, reservoir analysis, drilling of development wells, gas marketing, and prospect divestment.

ENLM 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

ENLM 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated for a maximum of 18 Hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

ENLM 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ENLM 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

ENLM 496. . 1-3 Hours.

PR: Consent.

ENLM 497. Research. 1-6 Hours.**ENTO 101. Bugs and Humans. 3 Hours.**

Bugs or insects will be related to humans; their impact on human civilization and religion, the impact of insect-borne diseases on human society and history, development of insect societies, and edible insects will be presented.

ENTO 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ENTO 301. Apiculture. 3 Hours.

PR: BIOL 101 and BIOL 103 and BIOL 102 and BIOL 104. Development, physiology, and behavior of the honey bee with emphasis on colony management, pollination of crops, diseases of bees, properties of honey and beeswax, and marketing of honey bee products.

ENTO 302. Apiculture Laboratory. 1 Hour.

PR or CONC: ENTO 301. Identification and anatomy of honey bees, assembly and use of beekeeping equipment, field management of honey bees, examination for diseases and pests, production of queens and nuclei. (1-3 hr. lab.).

ENTO 401. Forensic Entomology. 3 Hours.

Study of entomology in legal investigations; processing of specimens at crime scene /morgue; identification of arthropods from forensic cases; determination of post-mortem intervals; evaluation of case studies.

ENTO 404. Principles of Entomology. 4 Hours.

PR: BIOL 101 and BIOL 103 and BIOL 102 and BIOL 104 or equiv. Basic course dealing with the anatomy, morphology, physiology, reproduction, systematics, ecology, and management of insects.

ENTO 412. Pest Management. 4 Hours.

PR: ENTO 404 or consent. An in-depth look at current problems and solutions in controlling insect pests in an environmentally compatible manner. Management techniques include cultural, mechanical, physical, biological, regulatory, and chemical practices. (Also listed as ENVP 412.).

ENTO 450. Insect Ecology. 3 Hours.

PR: ENTO 404 or consent. Ecology of insects as individuals, populations, and components of communities and ecosystems. Emphasis on the role of insects in agroecosystems and applications of insect ecology.

ENTO 470. Forest Pest Management. 4 Hours.

PR: FMAN 311 and (BIOL 101 and BIOL 103 and PLSC 206) or (BIOL 115 and and BIOL 117). Relationship of insects and disease organisms to the forest ecosystem; recognition of agents that affect forest health; management strategies for regulating their damage. (Also listed as PPTH 470.).

ENTO 471. Urban Tree and Shrub Health. 1 Hour.

PR: PPTH 470 or ENTO 470 or (PPTH 401 and ENTO 404). Presents the unique problems associated with managing trees and woody shrubs in an urban environment; management options will be evaluated.

ENTO 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

ENTO 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

ENTO 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ENTO 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

ENTO 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

ENTO 496. Senior Thesis. 1-3 Hours.

PR: Consent.

ENTO 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

ENTR 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

ENTR 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ENTR 300. Creativity and Idea Generation. 3 Hours.

This course is about enhancing your personal creativity: seeing what others do not see, thinking what others do not think; coming up with new ideas.

ENTR 340. Survey of Entrepreneurship. 3 Hours.

PR: BUSA 202 or ACCT 201. This course offers a study of the concepts necessary to become a successful small business entrepreneur. The course work includes practical application of marketing and management skills.

ENTR 380. Survey of Business Planning. 3 Hours.

PR: ENTR 340. This course will provide the student with an in-depth understanding of the issues involved in the planning and creation of a new venture. The student will be exposed to the various roles of the entrepreneur.

ENTR 400. Fundamentals of Entrepreneurship. 3 Hours.

PR or CONC: BCOR 350 and BCOR 370. Fundamental principles and practices related to entrepreneurship. Focuses on areas such as leadership, motivation, human resource management as they apply to entrepreneurship.

ENTR 405. Entrepreneurial Creativity & Innovation. 3 Hours.

This course offers an in-depth study of theories and models of creativity to solve problems and identify opportunities in entrepreneurial business contexts. Students will synthesize their course experiences and develop a set of creative business ideas, which will be incorporated into feasibility assessments, financial analyses, and business plans in subsequent entrepreneurship major courses.

ENTR 415. Entrepreneurship in Action. 3 Hours.

PR: ENTR 335. This course focuses strategy formation/implementation for an entrepreneurial business. Students will participate in a simulated real world experience in managing an entrepreneurial business enterprise.

ENTR 416. Social Entrepreneurship. 3 Hours.

PR: ENTR 400. This course will expose students to the topics and concepts in the emerging field of social entrepreneurship. The primary topic - how social entrepreneurs use business models to create sustainable enterprises.

ENTR 420. Entrepreneurial Finance. 3 Hours.

PR: (BCOR 340 or FIN 325) and (ENTR 400 or SBEN 310) and (ACCT 331 or FIN 320 or ACCT 431). Fundamental principles and practices in finance related to entrepreneurship. Focuses on areas such as accounting, budgeting, and financial management as they apply to entrepreneurship.

ENTR 425. Risk Assessment and Contracts. 3 Hours.

PR or CONC: ENTR 420. This course teaches students to assess risks in entrepreneurial enterprises that lead to business failures. Students will learn to develop business models, implement operational strategies, and structure legal agreements that mitigate exposure to risk in new ventures and emerging growth entities.

ENTR 430. Business Analysis and Planning. 3 Hours.

PR: ENTR 420 or SBEN 410. This course addresses the unique entrepreneurial experience of conceiving, evaluating and developing a full business plan for a new small business start up through the appropriate concepts and methodologies.

ENTR 436. Family Business. 3 Hours.

PR: ENTR 400. This class focuses on the different aspects of family businesses that facilitate competitive advantage while maintaining ethical and socially responsible principles. The objectives of this course are to create an awareness of family business issues, understand the role of familial relationships in a business context, and develop critical thinking skills in the context of family business challenges.

ENTR 440. Entrepreneurship Practicum. 3 Hours.

PR: ENTR 430 or SBEN 438. This course provides practical experience in the development of formal policies and procedures and solutions to address identified business issues in a small business or entrepreneurial environment.

ENTR 460. Entrepreneurial Strategy: Managing New Entry, Innovation & Growth. 3 Hours.

PR or CONC: ENTR 440. This course will incorporate concepts from strategy and organizational design to address how entrepreneurs can strategically manage new entry, innovation, and growth.

ENTR 489. Student Business Plan Competition. 3 Hours.

This course provides an in-depth instruction on writing a comprehensive business plan and presenting the plan to a group of potential investors. Only current finalists competing in the student business plan competition are eligible to enroll.

ENTR 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

ENTR 492. Directed Study. 1-3 Hours.

Directed study, reading, and/or research.

ENTR 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ENTR 495. Independent Study. 1-6 Hours.**ENVP 119. Soil in the City. 3 Hours.**

Study of soil as a natural resource in urban environments; influence of soils on urban development; study of environmental problems related to soils in urban land uses.

ENVP 155. Elements of Environmental Protection. 3 Hours.

An introduction to land and water resources and their management and protection. An evaluation of the relationships between human activities and natural environments and the interaction between natural resource utilization and development.

ENVP 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

ENVP 255. Elements of Environmental Management. 3 Hours.

PR: ENVP 155. An introduction to the various regulations promulgated by the United States Environmental Protection Agency. The main goal of this course is to provide the student with a foundation of knowledge that will allow them to read and interpret environmental regulations as well as all types of regulations and codes.

ENVP 325. Principles of Water Resources. 3 Hours.

PR: MATH 124 or higher. This course provides students an opportunity to increase their knowledge pertaining to the role(s) that water plays in human and environmental systems by examining the geographic distribution/redistribution, quantity, and quality of water resources. Students are introduced to water management evaluation policies, law and economics used to explore the decision-making challenges surrounding water resources.

ENVP 355. Environmental Sampling and Analysis. 3 Hours.

PR: BIOL 101 and BIOL 102 and BIOL 103 and BIOL 104 and CHEM 115 and CHEM 116. Introduction to environmental sampling methods and analysis. Lecture and hands-on experience will include sampling plan development, sample point selection, sampling equipment use, containers and preservatives, sample analysis, chain-of-custody and protective equipment.

ENVP 401. Environmental Microbiology. 4 Hours.

PR: AEM 341 or consent. Microbiology as applied to soil, water, wastewater, sewage, air, and the general environment. Occurrence, distribution, ecology, and detection of microorganisms in these environments. (Also listed as AEM 401.).

ENVP 412. Pest Management. 3 Hours.

PR: ENTO 404 or consent. An in-depth look at current problems and solution in controlling insect pests in an environmentally compatible manner. Management techniques include cultural, mechanical, physical, biological, regulatory, and chemical practices. (Also listed as ENTO 412.).

ENVP 415. Hazardous Waste Training. 3 Hours.

Introduction to hazardous waste training. Lectures and hands-on experience with health and safety plan development, selecting personal protective equipment, air monitoring, incident command, site characterization, decontamination and toxicology. Includes two full-scale disaster exercises.

ENVP 420. Soil Microbiology. 3 Hours.

PR: AEM 341. Microbiology and biochemistry of the soil environment. Occurrence, distribution, ecology, and detection of microorganisms in soil. (Also listed as AEM 420 and AGRN 420.).

ENVP 425. Environmental Soil Management. 3 Hours.

PR: AGRN 202 and AGRN 203. This course provides a foundation for utilizing creative solutions and technical knowledge in preserving and enhancing soil and water quality. Soil conservation, precision agriculture and nutrient management for protection of soil and water quality are covered. (Also listed as AGRN 425).

ENVP 451. Principles of Weed Science. 3 Hours.

PR: PLSC 206 and AGRN 202 and AGRN 203 or consent. Fundamental principles of weed science including identification, ecology and control in crops. (Also listed as AGRN 451.).

ENVP 455. Reclamation of Disturbed Soils. 3 Hours.

PR: Junior standing or above. Principles of soil science, geology, hydrology, and engineering will be applied to surface mine planning, overburden handling during mining, soil replacement and amendments, revegetation practices, acid mine drainage control and treatment, hazardous wastes, and land management of disturbed areas. (Field trip required.) (Also listed as AGRN 455.).

ENVP 460. Environmental Impact Assessment. 3 Hours.

PR: BIOL 101 and BIOL 102 and BIOL 103 and BIOL 104 and CHEM 115 and CHEM 116. Application of physical, biological and social science principles to assess environmental impacts. Review and prepare environmental assessments, permits, site assessments and ecological risk assessments for environmental decision-making.

ESL 140. English as a Second Language Academic Reading/Writing. 3 Hours.

For undergraduate (and graduate) international students. Develops the skills necessary to improve academic reading skills to write well-organized and self-edited essays in a variety of rhetorical modes.

ESL 240. English as a Second Language Research and Writing. 3 Hours.

Provides undergraduate and graduate international students with the skills, strategies, and procedures necessary for researching a topic and writing a well-organized and logical research paper.

ESL 250. Speaking and Listening. 3 Hours.

For undergraduate and graduate international students. Provides guidance and practice in general and academic speaking and listening skills and improves oral comprehensibility through pronunciation activities.

ESL 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ESL 350. International Teaching Assistants Fluency. 3 Hours.

Designed for graduate students wishing to become International Teaching Assistants (ITAs). Course focuses on the characteristics of effective oral communication in English in order to improve SPEAK test scores and comprehensibility in the classroom.

ESL 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

ESL 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

ESL 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ESL 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

ESL 496. Senior Thesis. 1-3 Hours.

PR: Consent.

ESL 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

EXCG 201. Student Exchange Program. 0 Hours.

EXCG 202. Study Abroad Program. 0 Hours.

EXCG 492. Directed Study. 1-3 Hours.

Directed Study, reading, and/or research.

EXPH 100. Orientation: Exercise Physiology 1. 1 Hour.

Orientation to degree requirements, departmental resources, curriculum options, and student responsibilities in Exercise Physiology. Promoting academic success strategies and exposing students to future career opportunities in Exercise Physiology.

EXPH 101. Introduction to Exercise Physiology. 1 Hour.

A broad and foundational look at the function and adaptation of the systems of the human body in response to exercise.

EXPH 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

EXPH 230. Exercise in American Culture. 3 Hours.

Covers issues of exercise in America, specifically themes integral to American culture such as age, class, race, gender, and beauty.

EXPH 235. Introduction to Global Issues in Exercise Physiology. 3 Hours.

History, concepts, theories, and ethics of development, colonialism, and charity as they impact health and wellness locally, in the United States, and across the world. Topics such as poverty, food insecurity, women's rights, disease outbreaks, and NGOs are discussed to provide a broader perspective on how the past has impacted our present.

EXPH 240. Medical Terminology. 1 Hour.

PR: Sophomore standing. The study of medical language with special emphasis given to terms used in the field of exercise physiology.

EXPH 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

EXPH 364. Kinesiology. 3 Hours.

PR: MATH 124 or higher or (ACT math score of 26 or SAT math score of 580 and (QRA Part 1 score of 15 and QRA Part 2 score of 9)) and sophomore standing or consent. Anatomical, mechanical, and musculoskeletal study of the human body as the instrument for efficient performance of motor activities. (Laboratory work included.).

EXPH 365. Exercise Physiology 1. 3 Hours.

PR: Junior standing or consent. The study of the functioning of body systems during exercise and the acute and chronic adaptations that occur from exercise stress.

EXPH 368. Lab Techniques and Methods. 3 Hours.

PR: Junior standing and EXPH 364 and EXPH 365 or consent. Techniques and methods for designing and conducting exercise programs for asymptomatic, healthy individuals.

EXPH 369. Strength/Conditioning Methods. 4 Hours.

PR: EXPH 364 and EXPH 386. Scientific foundations of strength and conditioning with skills and methods to apply that knowledge in clinical exercise training.

EXPH 370. Writing for Exercise Science. 3 Hours.

PR: (ENGL 101 and ENGL 102) or ENGL 103 and PR or CONC: EXPH 386. Writing for medical scientific fields. Students will develop a book review, analyze discipline-specific texts, and write scientific literature reviews. Includes a review of style and language use.

EXPH 386. Advanced Physiology of Exercise 1. 3 Hours.

PR: ((BIOL 101 through BIOL 104) or (BIOL 115 and BIOL 117)) and CHEM 115 and PHYS 101. The study of the major systems of the body and how they function during acute and chronic adaptations that occur from exercise stress. Special focus is given to metabolism and the neuromuscular, respiratory, and cardiovascular systems.

EXPH 387. Advanced Physiology of Exercise 2. 3 Hours.

PR: EXPH 386 and EXPH 388. A study of the functioning of body systems during exercise and the acute and chronic adaptations that occur from exercise stress. Special focus is given to the endocrine system, obesity and body composition, exercise throughout the lifespan, environmental exercise stress, and clinical exercise physiology.

EXPH 388. Physiology of Exercise Laboratory 1. 1 Hour.

PR or CONC: EXPH 386 with a minimum grade of C-. A study of the laboratory techniques and methods used in clinical and athletic settings by exercise professionals specifically as they relate to those topics covered in EXPH 386.

EXPH 389. Advanced Physiology of Exercise Lab 2. 1 Hour.

PR: EXPH 386 and EXPH 388. A study of the laboratory techniques and methods used in clinical and athletic settings by exercise professionals specifically as they relate to those topics covered in EXPH 387.

EXPH 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

EXPH 440. Anatomy for Exercise Physiology. 3 Hours.

PR: (BIOL 101 and BIOL 102 and BIOL 103 and BIOL 104) or BIOL 115, with a minimum grade of C-. Provides students an in-depth integrative understanding of human anatomy. A regional approach will be used to learn typical and atypical anatomical structures of the human body. Clinical correlations will be made throughout each topical area.

EXPH 441. Gross Anatomy Laboratory for Exercise Physiology. 2 Hours.

PR: ((BIOL 101 and BIOL 102 and BIOL 103 and BIOL 104) or BIOL 115) and PR or CONC: EXPH 440 with a minimum grade of C- in all and Junior level status. Provides an in-depth integrative understanding of human anatomy. Lab dissection activities associated with co-requisite lectures will be used to learn typical and atypical anatomical structures of the human body.

EXPH 450. Theory of Aquatic Therapy. 4 Hours.

PR: Junior standing or consent. An introduction to aquatic therapy. It covers the historical perspective, biophysiologic response to water immersion, and application of aquatic therapy to specific physical diagnoses.

EXPH 451. Application of Aquatic Therapy. 3 Hours.

PR: Junior standing and EXPH 450 and consent. Design and implementation of aquatic exercise prescriptions to meet rehabilitation goals. Aquatic therapy techniques will be demonstrated and practiced.

EXPH 452. Aquatic Therapy Facility Management. 3 Hours.

PR or CONC: EXPH 450 and Junior standing and consent. Facility design, water chemistry, water safety, and aquatic programming for special populations including rehabilitation, community re-entry, and wellness programs in a comprehensive continuum of care.

EXPH 460. Pathophysiology. 3 Hours.

PR: EXPH 386 and EXPH 387 and PR or CONC: PSIO 241 or PSIO 441 and junior standing or permission. The study of disease etiology and the physiological changes that occur from disease, with special emphasis given to the use of exercise in disease prevention and therapy.

EXPH 470. Research Methods. 3 Hours.

PR: Senior standing. CoReq: EXPH 496. The study of the scientific method and research design as it relates to the field of exercise physiology and preventive medicine.

EXPH 475. Industry Organization in Exercise Physiology. 3 Hours.

Prepares exercise physiology students to work in health care fitness related fields and promotes knowledge on how to build a business plan for entrepreneurship.

EXPH 480. Tissue Biomechanics. 3 Hours.

PR: EXPH 350 with a minimum grade of C- or consent. An introduction to the biomechanical properties and behavior of human tissues and joints. Human tissue behavior under various loading conditions, including, sitting, standing, gait, and fundamental movement skills will be discussed. In addition, the development and etiology of fractures, strains, sprains, and arthroplasty will be presented and discussed.

EXPH 481. Applied Neuromechanics. 3 Hours.

PR: EXPH 350 with a minimum grade of C- or consent. An introduction to the study of the nervous system control of muscle activation and movement outcomes. Relationships among neural and muscle tissues, neural elements and force production, acute and chronic adaptations to stress, neural plasticity, neural elements of movement disorders, prevention of and recovery from injury will be discussed.

EXPH 482. Dance Injury Prevention. 3 Hours.

PR: EXPH 440 with a minimum grade of C-. Designed for students to understand anthropometrics, movement mechanics, overtraining, environmental and situational factors related to the development of dance injuries and methods used to prevent dance injury and injury progression.

EXPH 483. Seminar in Applied Anatomy for Dance Movements. 1 Hour.

PR: EXPH 440 with a minimum grade of C-. Presentation and discussion of topics of mutual concern to students and faculty. Current topics in the literature include those that are associated with anatomical limitations and movement demands of multiple dance forms.

EXPH 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

EXPH 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experimental learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

EXPH 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

EXPH 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

EXPH 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

EXPH 496. Senior Thesis. 1-3 Hours.

PR: Consent.

EXPH 497. Research. 1-6 Hours.

Independent research projects.

EXPH 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

EXPH 499. Global Service Learning. 1-3 Hours.

PR: Consent. Theory and practice of global service-learning. The main objective will be to pair the experiential aspects of meaningful and sustained service in the host community with work from the student's anchor course by offering a methodological framework for cultural immersion and community service as well as adding to the content of the anchor course.

FCLT 160. Spanish Civilization. 3 Hours.

This course provides students with an understanding of and an appreciation for Spanish culture throughout history.

FCLT 161. The Many Latin Americas. 3 Hours.

Introduction to Latin American Studies. Surveys primary documents from Latin American history and a range of disciplinary perspectives on Latin America's past and present.

FCLT 206. Introduction to Japanese Culture. 3 Hours.

A survey course taught in English that introduces Japanese institutions, language, philosophy, religion, theater, family and marriage, and Japanese social etiquette.

FCLT 210. Chinese Civilization and Culture. 3 Hours.

This is a survey course taught in English that introduces Chinese institutions, language philosophy, religion, art, literature, family and marriage, and Chinese social etiquette.

FCLT 240. Italian-American Experience. 3 Hours.

This course will investigate literary and historical perspectives on the experience of Italians in the United States and their contributions to U.S. culture. The approach will be multidisciplinary. This class will be taught in English.

FCLT 241. Contemporary Italy. 3 Hours.

Study Abroad Course. This course is centered upon the critical study of various aspects of Italian culture. Students will focus on the social, historical, and socio-political issues of Italy in the last two centuries with a concentration on contemporary issues. The course will be taught entirely in English.

FCLT 250. Russian Fairy Tales. 3 Hours.

Introduces a wide selection of Russian fairy tales and examines the aesthetic, social, and psychological values that they reflect, a general introduction to the study of folklore with a broad spectrum of approaches (psychoanalysis, structuralism, feminism).

FCLT 260. Cultures of Mexico. 3 Hours.

An in-depth survey of contemporary Mexican culture, including Mexico's complex history and regional subcultures, Mexican art and literature, linguistic diversity, geography, and politics.

FCLT 280. Science Fiction: East and West. 3 Hours.

Comparison of science fiction texts, and TV from Eastern and Central Europe and the US and UK, analyzing works that posit Fantastic spatial, temporal, social, and biological explorations beyond those currently verified by science.

FCLT 281. Vampire: Blood and Revolution. 3 Hours.

This course examines the phenomenon of vampirism in verbal and visual culture, vampirism is examined from different periods in various cultures and from a variety of critical perspectives. It contextualizes the works in the cultures that produce them.

FCLT 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

FCLT 298. Honors. 1-3 Hours.

PR: Student in Honors Program and consent by the honors director. Independent reading, study or research.

FCLT 306. Japanese Culture and Cinema. 3 Hours.

An overview of Japanese cinema. This course will discuss the development of Japanese cinema as an art form and the social influences that affected it.

FCLT 307. Japanese Culture Immersion. 3 Hours.

Faculty-led study abroad course combining travel with cultural learning. Students learn Japanese culture, traditions, and customs through lectures, workshops, visits to historical and religious sites, and interaction with local Japanese people.

FCLT 310. Chinese Cinema. 3 Hours.

A study of representative Chinese films from the early twentieth century to the present; films subtitled, readings and discussion in English.

FCLT 311. The Chinese Experience. 3 Hours.

Faculty-led study abroad course covering Chinese culture, traditions, costumes, and the development of modern Chinese society through lectures, workshops, visits to historical landmarks, and interaction with the local Chinese people.

FCLT 321. Norse Mythology. 3 Hours.

Examination of the historical events, peoples, cultural artifacts and traditions of medieval Scandinavian civilization, as well as, literature in translation from 400 C.E. to the end of the Viking Age in roughly 1066 C.E.

FCLT 322. The Vikings & Early Germanic Civilization. 3 Hours.

Examination of pagan culture of the former Germanic tribal areas (Scandinavia and what is known today as Germany) prior to their conversion to Christianity. Students will become acquainted with renowned warriors, kings, and queens and the spiritual and secular lives of medieval Germanic peoples through the examination of archaeological discoveries, historical texts, eyewitness documentation, sagas, and folk traditions.

FCLT 323. German Cinema. 3 Hours.

Course provides historical overview of 100 years of German cinema. Selected films shown with English subtitles. Discussions, readings, and written work in English.

FCLT 324. Weimar and the Third Reich in Literature and Film. 3 Hours.

Examination of the history and culture of four vital periods in German history: the Kaiserreich, the Weimar Republic, the Third Reich, and the post-war period. Students will become acquainted with the historical and sociopolitical events that led Germany into two devastating wars in a period of less than thirty years during the twentieth century.

FCLT 340. Italian Cinema 1945 to Present. 3 Hours.

Introduces students to key topics of modern Italian culture and history as explored through cinema. It will focus on a selection of Italian films from World War II to the present.

FCLT 342. The Italian Mafia: History and Legend. 3 Hours.

Investigation of the history of the mafia, the harsh reality of life in the mafia, and the ways in which it reaches into every aspect of Italian politics. Exploration and discussions of the myths pervasive in popular culture.

FCLT 360. Latin American Cinema. 3 Hours.

Examination of film from Latin America in socio-cultural context.

FCLT 380. Holocaust: Eastern Europe Film and Literature. 3 Hours.

Extending beyond familiar representations of the Holocaust in the context of several nations of Eastern Europe.

FCLT 381. Contemporary Polish Cinema. 3 Hours.

This course studies contemporary Polish cinema from World War II to present, examining films in both their aesthetic and sociohistorical contexts as part of European and Polish national cinematic traditions.

FCLT 382. Polish Cinema: Kieslowski. 3 Hours.

Studies the cinematic career of one of Poland's most important directors of the past 50 years; designed to allow both cinema devotees and untrained filmgoers to appreciate Kieslowski's oeuvre.

FCLT 383. Faculty Led Travel: Romania. 1 Hour.

Faculty-led study abroad trip combining travel with cultural learning, at various locations throughout the country. Students visit important landmarks and learn about Romanian history, culture, and folk beliefs.

FCLT 384. Faculty-Led Travel: Prague. 1 Hour.

Faculty-led study abroad course combining travel with cultural learning. Students visit architectural landmarks in Prague and selected Czech cities.

FCLT 385. Faculty-Led Travel: Polish Culture. 1 Hour.

Faculty-led study abroad trip combining travel with cultural learning, in Warsaw, Krakow, and Lodz. Students visit important landmarks and attend lectures. Also includes visit to Auschwitz-Birkenau.

FCLT 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

FCLT 425. Art and Politics in Early German Cultures. 3 Hours.

Survey of German cultural history from 1500-1800. Includes an examination of selected works of art, architecture, music, and literature. Readings and discussions in English.

FCLT 460. Sexuality and Gender in Hispanic Cinema. 3 Hours.

Analyzes perspectives of gender and sexuality in Hispanic culture using portrayals of those issues in films from/about Latin America, Spain and the US Latino/a community. Applies theoretical and social/cultural constructs to evaluating explicit and implicit messages in these films and the role of media portrayals in both reflecting and shaping social norms in Hispanic culture.

FCLT 488. Capstone Latin American Studies. 3 Hours.

Capstone experience required for all Latin American Studies majors. Options include study abroad, internships, service learning, and a senior research project.

FCLT 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

FCLT 491. Professional Field Experience. 1-18 Hours.

PR: Consent (may be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

FCLT 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

FCLT 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

FCLT 495. Independent Study. 1-6 Hours.

PR: Consent. Faculty supervised study of topics not available through regular course offerings.

FCLT 498. Honors. 1-3 Hours.

PR: Student in Honors Program and consent by the honors director. Independent reading, study or research.

FDM 110. Introduction to Fashion Business. 3 Hours.

This course introduces the fashion business by exploring its production and distribution systems with a focus on basic merchandising, design, marketing, and retail concepts.

FDM 130. Design Concepts of Dress. 3 Hours.

Introduction to design theory and methodology, elements of design, principles of composition, and universal design related to dress. Practical application included.

FDM 131. Fashion Design. 3 Hours.

Market trend research and fabric/trim sourcing are used to design a women's wear collection. Studio work helps develop fashion illustration skills, create a collection, and drape one original design.

FDM 135. Figure and Fabric Drawing. 3 Hours.

Basic examination and analysis of illustration techniques related to the human figure and various fabrics.

FDM 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

FDM 211. Introduction to Textiles. 3 Hours.

PR: (MATH 124 or MATH 126) with a minimum grade of D- in each and PR or CONC: FDM 110 with a minimum grade of C-. The course focuses on textiles intended for use in apparel and soft goods applications. Students examine all stages of the textile supply chain - from fiber to finishes - with opportunity for hands-on exploration. Sustainability and technological innovation in the textile industry are also addressed.

FDM 220. Fashion, the Body, and Culture. 3 Hours.

Students examine the intersection of fashion, the body, and culture to appreciate the role of dress in everyday life. Students explore dress practices through the lens of economics, politics, religion, and gender, among other social factors. The course emphasizes critical thinking and cross-cultural exploration through group discussion and personal reflection.

FDM 221. Dress History: 1850-Present. 3 Hours.

This course offers a survey of Western dress history from 1850 to present day with an emphasis on the contextual factors that influenced how dress changed over time. The rise and influence of fashion designers in the 20th and 21st century is discussed. Students gain hands-on experience in historical research methodologies.

FDM 222. Fashion Styling Workshop. 3 Hours.

PR: Sophomore or higher. Overview of fashion items needed to attract media attention for a fashion magazine and its editorials. Students produce a photo shoot for a specific target audience with live models, on location, in a professional studio.

FDM 225. Introduction to Italian Culture. 3 Hours.

PR: Sophomore or higher. Exploration of Italian history, culture, art and design through lecture and experiential learning. Field trips such as: Florence, Rome, Siena, San Gimignano, and Monteriggioni. Conversational Italian language included. Students conduct an individual design research project.

FDM 230. Apparel Production and Fit. 3 Hours.

PR: FDM 140 and (MATH 124 or higher) and PR or CONC: FDM 130 and fashion design major. Basic principles of apparel production, pattern alterations, and fitting. CAD introduction.

FDM 232. Fashion Design Workshop. 3 Hours.

PR: Sophomore or higher and instructor consent. Students research a typical theme or trend to design a small coordinated collection including notebook/sketchbook, mood board, finished and flat drawings, and an original garment. Theoretical lessons, practical lessons, and field trips.

FDM 233. Fashion Accessories Workshop. 3 Hours.

PR: Sophomores or higher and instructor consent. Students research a topical theme or trend to design a small coordinated collection including notebook/sketchbook, mood board, finished, and flat drawings, and an original garment. Theoretical lessons, and field trips.

FDM 250. Flat Pattern Design. 3 Hours.

PR: FDM 210 and FDM 220 and FDM 230. Creative expression through pattern design is studied using the flat pattern method. Original apparel is designed and constructed.

FDM 260. Visual Merchandising. 3 Hours.

PR: FDM 220 and PR or CONC: FDM 150 with a minimum grade of C- in each. This course explores a wide range of visual merchandising activities in relation to the elements of design and principles of composition including display, store design, theft prevention, and promotion. A teamwork approach is used to create and analyze visual merchandising scenarios.

FDM 261. Fashion Management Workshop. 3 Hours.

PR: Sophomore or higher and instructor consent. Fashion business fundamentals; fashion industry sourcing, supply chain, and fashion buying cycle; management of supplier portfolio; vendor selection and buying decision criteria; retail fashion brand marketing; internationalization of fashion retailing; international branding and flagship stores.

FDM 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

FDM 310. Merchandising Practicum. 3 Hours.

PR: FDM 260 with a minimum grade of C- and consent. This course provides a prearranged, on-site supervised work experience to afford practical insight into the textile, apparel, and merchandising profession.

FDM 311. Fashion Study Tour. 1 Hour.

PR: FDM 260 with a minimum grade of C-. This course focuses on the apparel and retail industries through visits to apparel firms and showrooms, retail establishments, and museums including an historic costume collection.

FDM 330. Fashion Design and Illustration. 3 Hours.

PR: FDM 130 and PR or CONC: FDM 210 and FDM 230. Techniques of drawing fashion figures, media, and apparel design presentation techniques explored. Design vocabulary and sources of inspiration examined in the creation of original apparel design renderings and flats for specific target consumers.

FDM 350. Draping. 3 Hours.

PR: FDM 235 and FDM 330. Creative and technical pattern development using the draping method. Original apparel designs patterned and constructed.

FDM 360. Fashion Merchandising. 3 Hours.

PR: FDM 260 or PR or CONC: FDM 211 with a minimum grade of C- in each. This course serves as an introduction to the role and responsibilities of the buyer in relation to merchandise planning and control. Sourcing, negotiation strategies, and current merchandising practices are explored via the case study method.

FDM 361. Merchandise Planning and Control. 3 Hours.

PR: FDM 360 with a minimum grade of C-. This course covers merchandising activities performed on the retail level including planning sales and assortments, selecting merchandise for resale, controlling inventories, and determining profit. Basic mathematical formulas involved in merchandising are practiced.

FDM 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

FDM 411. Fashion Consumer Behavior. 3 Hours.

PR: FDM 110 and FDM 211 and FDM 220 with a minimum grade of C- in each. This course will offer an understanding of the consumer-centric nature of the fashion industry. Students will learn consumer behavior theories and models that are applicable to the purchase and usage of fashion products, including the consumer decision making process.

FDM 412. Fashion Sourcing and Supply Chain Management. 3 Hours.

PR: FDM 360 or FDM 361 with a minimum grade of C- or consent. This course evaluates key issues facing fashion businesses in the global marketplace. It includes an examination of internal and external forces affecting political, economic, social, environmental and ethical production, and distribution of textile and apparel products.

FDM 421. Dress History: Prehistory-1850. 3 Hours.

PR: FDM 220 and FDM 221 with a minimum grade of C- in each or consent. This course explores the history of fashion and dress from antiquity through 1850 within the corresponding social, cultural, technological, and economic contexts. Explores both Western and Eastern dress and textile histories and how they have influenced each other over time.

FDM 422. Fashion Theory. 3 Hours.

PR: FDM 220 and FDM 221 (or equivalent) with a minimum grade of B- in each or Senior or Graduate student status or instructor approval. This is an advanced readings course that examines the underpinnings of 'fashion' as a social phenomenon through a cultural theory perspective in a group discussion format. The course introduces students to the academic discipline of fashion studies including a review of the key fields (e.g. anthropology, sociology, psychology, communication studies, art history, etc.) that have contributed to its evolution.

FDM 424. Functional Apparel. 3 Hours.

PR: ENGL 101 and ENGL 102 and FDM 220 and FDM 230. Physical, sociological, and psychological clothing needs of individuals with functional needs. Historical developments and research needs explored. Students conduct a service-learning project.

FDM 430. Fashion Design Portfolio. 3 Hours.

PR: FDM 330 and FDM 350. Techniques of portfolio presentation from introductory page through development of lines that focus on target consumer. Includes development of concept plates, illustrations, flats, and presentation plates.

FDM 435. Product Development. 3 Hours.

PR: FDM 110 and FDM 211 with a minimum grade of C- in each and MATH 124 or higher, Senior standing required. This course will offer an understanding of the step by step decision making of pre-production processes involved in creating new products from design concept to the final consumer.

FDM 460. Sustainability in Fashion. 3 Hours.

PR: FDM 411 with a minimum grade of C- or consent. This course examines sustainability in the context of cultural, economic, environmental, social, and technological policies and procedures of fashion industries. Factors analyzed include ethics, government policies, international labor standards, environmental regulations, company priorities, consumer responsibilities, economic impact, and worker rights.

FDM 461. Omni-Channel Fashion Retailing. 3 Hours.

PR: FDM 211 or FDM 360 with a minimum grade of C- or consent. This course provides an overview of various channels of fashion retail distribution including catalogs, e-commerce, broadcast and brick & mortar formats. It will examine the principles and strategies applied by fashion retailers that market goods and/or services using an omni-channel retail business model.

FDM 471. Fashion Promotion. 3 Hours.

PR: FDM 260 with a minimum grade of C- or ADV 215 or consent. In this course, students gain an understanding of promotion methods used in the fashion industry. It examines fashion forecasting and the creation of brand campaigns using a variety of different media. Students develop skills to communicate effectively within different fashion markets.

FDM 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practices as a tutor or assistant.

FDM 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Pre-arranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

FDM 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

FDM 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

FDM 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

FDM 496. Senior Thesis. 1-3 Hours.

PR: Consent.

FDM 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study, or research.

FDST 200. Food Science and Technology. 3 Hours.

Up-to-date basics of food science and technology, including; food industry outlook, degrees and careers, food chemistry, food processing and engineering, food microbiology and food safety, food biotechnology, and sensory evaluation of foods.

FDST 308. Food Plant Sanitation. 3 Hours.

PR: CHEM 111 or CHEM 115. Students will learn basic concepts of food processing and the laws and regulations governing it as well as good manufacturing practices involved in order to ensure the quality of food that is sold to the public.

FDST 365. Muscle Foods Technology. 3 Hours.

Emphasis on muscle of slaughtering, cutting, breaking, manufacturing, structure and composition, conversion of muscle to muscle food, processing food animals (cattle, sheep, hogs, poultry, and fish) and products to ensure quality and safety from processing through storage, fresh and value-added processing and nutritional value.

FDST 367. Muscle Foods Technology Laboratory. 1 Hour.

COREQ: FDST 365. Laboratory training in the processing of carcasses derived from food animals including red meat, poultry, and fish species. Microbiology, cookery, and storage of fresh products. Basic techniques in processed muscle foods production.

FDST 445. Food Microbiology. 3 Hours.

The relationships of microorganisms to food-borne illness and intoxications, microbial food safety and food quality, food spoilage, food preservation and bio-processing. The emerging food preservation technologies and predictive microbiology will be introduced.

FDST 449. Food Microbiology Lab. 1 Hour.

PR: FDST 445. Laboratory training in methods used in microbiological examination of foods. This laboratory will provide a hands-on experience for students who take or have taken FDST 445.

FDST 450. Food Chemistry. 3 Hours.

PR: CHEM 116 or HN&F 171. The course applies basic and applied scientific principles to food chemistry and practical applications. Chemical/biochemical reactions of carbohydrates, lipids, proteins, and other constituents in fresh and processed foods are discussed with respect to food quality control. Reaction conditions and processes that affect color, flavor, texture, nutrition, and safety of food are emphasized.

FDST 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

FDST 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

FDST 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

FDST 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

FDST 495. Independent Study. 1-6 Hours.

Faculty-supervised study of topics not available through regular course offerings.

FDST 496. Senior Thesis. 1-3 Hours.

PR: Consent.

FDST 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study, or research.

FHYD 444. Watershed Management. 3 Hours.

PR: FMAN 212 and FMAN 311. (Primarily for forest management majors.) Influences of silvicultural practices and forest management activities on the hydrology of forested catchments.

FHYD 454. Field Watershed Hydrology. 3 Hours.

PR: FHYD 444. A quantitative understanding of measurement theory, field techniques, instrumentation, and data analysis including technical computational programming used to study hydrologic systems including climate, streams, riparian areas, hill slopes, shallow groundwater, and watersheds.

FHYD 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

FHYD 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

FHYD 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

FHYD 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

FHYD 496. Senior Thesis. 1-3 Hours.

PR: Consent.

FHYD 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study, or research.

FILM 101. The Art of Film 1. 3 Hours.

A survey of the history of cinema from its earliest forms and experimentation through the end of the monopoly of the studio system (c. 1960).

FILM 102. The Art of Film 2. 3 Hours.

A survey of the history of cinema from the rise of the auteur (c. 1960) to present trends, specifically examining American cultural dominance.

FIN 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

FIN 305. Intermediate Finance. 3 Hours.

PR: BCOR 340 or FIN 325 with a minimum grade of B-. Continuation of BCOR 340. Use of computers to help solve extended problems and/or short cases.

FIN 310. Investments. 3 Hours.

PR: (BCOR 340 or FIN 325) with a minimum grade of B- and PR or CONC: FIN 330. Investment analysis and management for the individual and the financial institution.

FIN 320. Financial Statements Analysis. 3 Hours.

PR: (BCOR 340 or FIN 325) with a minimum grade of B-. This course analyzes financial accounting statements from the perspective of users for the purpose of making sound decisions in business and financial investment.

FIN 330. Financial Institutions. 3 Hours.

PR or CONC: BCOR 340 with a minimum grade of B-. The role of financial institutions in our nation's financial markets and the economy. Analysis of interest rate, financial markets and federal revenue policy.

FIN 340. Real Estate. 3 Hours.

PR: BCOR 340 or FIN 325. Principles and practices of real estate business.

FIN 350. General Insurance. 3 Hours.

Theory of risk and its application to insurance; principles underlying insurance- life, property, casualty, fire, and surety.

FIN 370. Personal Finance. 3 Hours.

PR: BCOR 340 with a minimum grade of B-. Develops a life financial plan for students. Topical coverage includes self-assessment of financial planning acumen, cash/credit management, insurance coverage, investing components, tax planning, retirement/estate planning and special circumstance planning.

FIN 410. Security Analysis and Portfolio Management. 3 Hours.

PR: FIN 310 with a minimum grade of B and FIN 305. The systematic selection, assessment, and ranking of corporate securities in a portfolio framework through a synthesis of fundamental analysis, technical analysis, and the random walk perspective.

FIN 411. Derivatives. 3 Hours.

PR: FIN 310 and FIN 305. Examines derivatives markets with an emphasis on options. Introduces the concept of arbitrage and the implications for derivatives equilibrium pricing. Applications of derivatives in financial risk management.

FIN 420. Business Valuation. 3 Hours.

PR: FIN 305. Develop the basic knowledge necessary to value an entire company or division of a company using a variety of models. Extend the valuation techniques to project valuation.

FIN 421. Mergers and Acquisitions. 3 Hours.

PR: FIN 420 with a minimum grade of C and FIN 305. Mergers and acquisitions are value drivers in financial markets, allowing the companies to grow and reinvent themselves. This course provides students with the skills necessary to measure and enhance corporate valuation in equity markets.

FIN 422. Advanced Financial Statement Analysis. 3 Hours.

PR: FIN 320 with a minimum grade of B- or instructor approval. This is an experiential learning course intended primarily for Finance and Accounting majors who wish to expand their ability to interpret financial information relating to private, public and not-for-profit entities.

FIN 430. Energy Financial Economics. 3 Hours.

PR: BCOR 340 with a minimum grade of B-. Introduces students to ways in which legal/regulatory systems affect the energy industry, and to important economic and political concerns that underlie the regulation of production and sale of energy. The course will be comparative: that is, while much of our focus will be on the American regulatory system, we will consider regulatory regimes from other countries as well.

FIN 431. Energy Law and Regulations. 3 Hours.

PR: BCOR 340 with a minimum grade of B-. A brief history of energy development, the law and regulations governing that development, and a look at the policy behind our current system. We will look at ownership of energy sources relating to production, basic legal, ethical, and policy decisions regarding markets and regulations, methods of production, and the externalities associated with specific source development.

FIN 432. Energy Financial Accounting. 3 Hours.

PR: BCOR 340 with a minimum grade of B-. The course is designed to give students the tools to interpret and analyze external financial information from the viewpoint of investors and creditors. The energy sector has a unique perspective from other industry sectors. In particular, the role of mark to market accounting techniques will be emphasized in your application of financial statement analysis to the energy sector.

FIN 433. Energy Financial Risk Management. 3 Hours.

PR: FIN 411 with a minimum grade of C-. The course investigates the evolving and expanding practice of financial risk management in the energy sector. Risk management is a complex process of identifying, quantifying and managing various risk exposures. The course analyzes and discusses the various sources of risk. Particular attention is devoted to the main risk management techniques such as Value at Risk (VaR), volatility models, and correlation.

FIN 450. Working Capital Management. 3 Hours.

PR: (BCOR 340 or FIN 325) and ECON 225 and PR or CONC: FIN 305. Management of current assets and liabilities. Topics include the management of cash, marketable securities, accounts receivable, inventories, trade accounts payable, and short term bank borrowings. Decision models are used extensively.

FIN 451. Life and Health Insurance. 3 Hours.

PR: ECON 201 and ECON 202 and FIN 350 with a minimum grade of C-. The basics of life and health insurance products and practices are introduced. Students will learn the rationale and importance of the use of these products in various scenarios.

FIN 452. Employee Benefit Plans. 3 Hours.

PR: FIN 350 with a minimum grade of C-. Use, design and regulation of group life insurance, health care and pensions, including their federal tax consequences. Study of the available contracts in each area and financing alternatives and practices.

FIN 453. Life Insurance and Estate Planning. 3 Hours.

PR: FIN 350 with a minimum grade of C-. Principles of life and health insurance protection; application of life insurance to individual, family, business, and societal needs; study of trusts, wills and estates, integrating of income programming into estate management.

FIN 454. Property and Liability Insurance. 3 Hours.

PR: FIN 350 with a minimum grade of C-. Study of the use and production of property and liability insurance, including evaluation of insurance contracts and current insurance practices; legal and regulatory environment affecting use and production of insurance.

FIN 455. Risk Management. 3 Hours.

PR: FIN 350 with a minimum grade of C-. Transferable risks with which the entrepreneur must deal. Emphasis on the process by which decisions are made for handling these risks, including an examination of contributions and limitations of insurance system.

FIN 460. Bank Management. 3 Hours.

PR: (BCOR 340 or FIN 325) and PR or CONC: FIN 305. (May not be taken for both undergraduate and graduate credit.) Management of bank funds. Principles of organization lending and investment. Policy relationships to bank productivity, organization, and profitability; preparation of financial reports; management of a simulated bank in a changing environment.

FIN 461. Advanced Bank Management. 3 Hours.

PR: FIN 460. An advanced course in commercial banking involving problems of management of the money position, loan and investment portfolio and capital adequacy. The student simulates actual bank operation, conducts case studies, and analyzes bank performance.

FIN 465. Applied Investment Management. 3 Hours.

PR: FIN 310 with a minimum grade of A-. This course is an application based investments course covering topics ranging from fundamental and technical analyses, economic fundamentals, and active portfolio management strategies and techniques. The course is designed to provide students with hand-on experience with capital markets, asset allocation, and the use of the Bloomberg terminal to make investment decisions.

FIN 470. Advanced Finance. 3 Hours.

PR: FIN 305. Integrative course in finance to be taken during the final semester before graduation.

FIN 480. International Finance. 3 Hours.

PR: BCOR 340 or FIN 325. Course extends standard corporate finance concepts to the global arena, helping to understand the additional opportunities and challenges faced by a global firm.

FIN 485. Advanced Topics in Financial Planning. 3 Hours.

PR: FIN 370. Advanced topics in financial planning including synthesis of income tax planning, investments, insurance planning, estate planning, and retirement planning into a comprehensive, application driven process.

FIN 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

FIN 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 6 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

FIN 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

FIN 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

FIN 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

FIN 496. Senior Thesis. 1-3 Hours.

PR: Consent.

FIN 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

FIS 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

FIS 194. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

FIS 199. Orientation to Forensic Investigative Science. 1,2 Hour.

Orientation to degree programs and requirements, departmental resources, curriculum options, student responsibilities and opportunities.

FIS 201. Introduction to Forensic Identification. 3 Hours.

A survey course in forensic science including overview of the various scientific disciplines that handle crime scene evidence and the systematic method of evidence analysis. Students learn about the collection, preservation, and methods of analysis of biological, chemical, and physical evidence.

FIS 202. Crime Scene Investigation Overview. 3 Hours.

PR: FIS 201 with a minimum grade of C-. An overview of the crime scene investigation process for the non-examiner. Course topics include: safety, evidence collection, processing, and documentation. Virtual scenarios will serve as teaching aids.

FIS 301. Science/Technology of Fingerprint Identification. 1-3 Hours.

PR: FIS 201. Introduces basics of fingerprint analysis and comparisons. Focuses on basis patterns used in fingerprint comparisons and classifications of each fingerprint type, including Henry, National Crime Information Center, Integrated Automated Fingerprint Identification System pattern classification codes.

FIS 302. Crime Scene Investigation 1. 3 Hours.

PR: FIS 201. An introductory course providing basic competencies required for crime scene examiners. The course will focus on developing a consistent approach to the processing of a crime scene with a major focus on recovery/processing evidence.

FIS 303. Crime Scene Investigation 1 Laboratory. 1 Hour.

PR or CONC: FIS 302; Must have declared FIS major. The laboratory extension of an introductory course in crime scene investigation, covering skills from initial scene assessment through debriefing and clean-up. Scientific and practical methods of securing, collecting and analyzing this evidence will be taught and practiced.

FIS 305. Biological Evidence for Forensic Examiners. 3 Hours.

PR: FIS 202 or FIS 302 with a minimum grade of C- in each. This is an elective course for students in the Forensic & Investigative Science major and minor. The course focuses on the collection and testing of body fluids as well as death scene investigation procedures.

FIS 306. Expert Testimony Perspectives. 3 Hours.

PR: FIS 201. A comprehensive review of expert testimony that broadens perspectives of the role of the scientist in the courtroom as well as improving expert witness capabilities.

FIS 314. Introduction to Microscopy. 3 Hours.

PR: CHEM 116 and PHYS 102 or PHYS 112. Laboratory-based introduction to theory and practice of light microscopy, polarizing light microscopy, imaging, particle manipulation, comparison microscopy, and simple microscopy. Open to non-FIDP majors and pre-admits on space available basis. (3 hr. lab.).

FIS 330. Principles of Forensic Photography. 3 Hours.

PR: FIS 201. Introduces basic principles of forensic photography for the non-investigator. Includes the history of photography, theories behind photography, and techniques for photographing type of crime scenes and evidence.

FIS 335. Forensic Photography. 3 Hours.

PR: FIS 201. Students focus on the fundamentals of photography, how to handle a camera, and expose film correctly. Include unique forensic environments encountered in forensic work includes fingerprints, crime scenes, and disaster scenes.

FIS 340. Forensic Chemical Analysis. 3 Hours.

PR: CHEM 233 and CHEM 235 with a minimum grade of C- in each. Students develop critical thinking, writing and communication skills related to fundamental concepts of analytical instrumentation and its application to the forensic discipline.

FIS 341. Forensic Chemical Analysis Laboratory. 1 Hour.

PR or CONC: FIS 340 with a minimum grade of C-. Students develop laboratory skills with analytical instrumentation as applied in forensic science.

FIS 380. Social Relations of Forensic and Law Professionals. 3 Hours.

PR: FIS 201 with a minimum grade of C-. Introduction to the relationships among attorneys, experts, and law enforcement professionals: how individuals work together for the investigative process from the initial investigation to the courtroom.

FIS 386. Forensic Identification Internship. 3-6 Hours.

PR: FIS 201 and CHEM 235 and CHEM 236 and completion of one of the following sets of courses: (FIS 301 and FIS 302 and FIS 303 and FIS 335) or (FIS 340 and FIS 341) or (BIOL 432 and BIOL 434) with a minimum grade of C- in all. Supervised field or research experience in a forensic, research, or law enforcement setting. Provides students with relevant professional experience based on their forensic interest, skills, and knowledge. Develops professional and networking skills.

FIS 393. Special Topics. 1-6 Hours.

Investigation of topics not covered in regularly scheduled courses.

FIS 401. Professional Forensic Communication. 3 Hours.

PR: ENGL 103 or (ENGL 101 and ENGL 102) and FIS 201. Familiarizes students with forensic literature, literature searching techniques, bibliographic software; and provides students with the writing and presentation skills essential to forensic professionals.

FIS 402. Crime Scene Investigation 2. 3 Hours.

PR: FIS 302. An extension of FIS 302. This course will outline procedures for collection of biological and trace evidence using scientific and practical methods of securing, collecting, analyzing this evidence, in accordance with known standards.

FIS 404. Law and Evidence. 3 Hours.

PR: FIS 201. This course presents a comprehensive review of criminal law relating to evidence in court cases and the student's ability to relate legal precedents to procedures in collecting, processing, and securing evidence used in criminal cases.

FIS 405. Latent Fingerprint. 3 Hours.

PR: FIS 301 and in the major. A course designed to teach identification techniques used in fingerprint development for processing crime scenes and evidence for latent prints, focusing on latent print development and preservation, including crime scene processing and blood prints.

FIS 406. Court Testimony. 3 Hours.

PR or CONC: FIS 404. A skills intensive course that combines in-class instruction with practical experience in the area of court testimony, legal writing presentation, and creation and presentation of exhibits in an actual court setting.

FIS 409. Blood Stain Pattern Analysis. 3 Hours.

PR: FIS 402. Scientific analysis of blood patterns at crime scene investigations and their applications in solving crimes.

FIS 414. Trace Evidence Examination. 3 Hours.

PR: FIS 314 and FIS 341 with a minimum grade of C- in each. Introduces students to fundamental concepts for the identification, collection, examination and interpretation of trace evidence. Students become familiar with the forensic analysis of glass, paint, tape, hairs, fibers, inks and firearm discharge residues.

FIS 416. Trace Evidence Examination Laboratory. 1 Hour.

PR: FIS 314 and PR or CONC: FIS 414 with a minimum grade of C- in each. Develops laboratory skills for forensic examination of trace evidence, including collection, recovery, preservation, analysis, and interpretation of trace materials commonly analyzed in crime laboratories (glass, paint, tapes and adhesives, gunshot residues, inks and paper, soil, fibers and hair).

FIS 435. Advanced Forensic Photography. 3 Hours.

PR: FIS 335. A more in-depth photography course for students who wish to pursue forensic photography as a possible employment option upon graduation.

FIS 450. Computational Forensics. 3 Hours.

PR: MATH 155 or consent. An introductory-level course exposing students to non-traditional and technology driven approaches to forensic analysis, with specific emphasis on forensic imaging, analytical modeling, and computer programming.

FIS 451. Arson and Explosives Analysis. 3 Hours.

PR: FIS 340 and FIS 341 and PR or CONC: FIS 452 with a minimum grade of C- in each. Examines the chemistry of combustion and the chemical analysis of ignitable liquids, explosives and post-combustion residues. The course relies heavily on instrumental methods of analysis, including various forms of chromatography and mass spectrometry. A laboratory component provides hands-on experience with interpreting data involving ignitable liquid residues and explosives.

FIS 452. Arson and Explosives Analysis Lab. 1 Hour.

PR: FIS 340 and FIS 341 and PR or CONC: FIS 451 with a minimum grade of C- in each. Develops laboratory skills related to chemical analysis of ignitable liquids, explosives and post-combustion residues. Emphasis on instrumental methods of analysis, including various forms of chromatography and mass spectrometry and extensive hands-on experience interpreting data derived from analyzing ignitable liquid residues and explosives.

FIS 460. Analysis of Seized Drugs. 3 Hours.

PR: FIS 340 and FIS 341 and PR or CONC: FIS 461 with a minimum grade of C- in each. Develops students' abilities to properly conduct seized drug analyses, including: 1) the history and origin of drugs of abuse; 2) the appropriate handling and storage of evidence/samples; 3) selecting appropriate analytical schemes for the identification of seized drugs; 4) the scheduling of controlled substances; 5) techniques to understand the synthetic pathways and distribution networks of seized drugs.

FIS 461. Analysis of Seized Drugs Laboratory. 1 Hour.

PR: FIS 340 and FIS 341 and PR or CONC: FIS 460 with a minimum grade of C- in each. Develops laboratory skills applicable to the chemical analysis of seized drugs. Emphasis on instrumental methods of analysis, including various forms of chromatography and mass spectrometry, and extensive hands-on experience with the interpretation of data involving analysis of unknown seized drugs.

FIS 470. Analytical Forensic Toxicology. 3 Hours.

PR: FIS 460 and FIS 461 and PR or CONC: FIS 471 with a minimum grade of C- in each. Application of fundamental principles of mode(s) of action of different drugs, the primary mechanisms of drug administration and distribution, drug metabolism and the excretion of xenobiotics. Current and historical cases.

FIS 471. Analytical Forensic Toxicology Laboratory. 1 Hour.

PR or CONC: FIS 470 with a minimum grade of C- in each. Develops laboratory skills applicable to forensic toxicological analysis of drugs. Students practice using sample preparation strategies such as liquid-liquid extraction, solid phase extraction, derivatization, and instrumental analysis techniques for screening and confirmation via chromatography and mass spectrometry.

FIS 480. Forensic Quality Assurance. 2 Hours.

PR: FIS 201. Quality assurance in a laboratory setting to include quality control/assurance, management, and application of statistics. ASCLD-LAB and ISO accreditation and professional certification procedures.

FIS 485. Professional Ethics in Forensic Science. 3 Hours.

Foundational ethical concepts as they relate to forensic science and other associated professional cultures. Applied case-study examples are used to analyze ethical and moral boundaries of practice.

FIS 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

FIS 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

FIS 492. Directed Study. 1-3 Hours.

Directed Study, reading, and/or research.

FIS 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

FIS 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

FIS 497. Research. 1-6 Hours.

Independent research projects.

FIS 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

FLIT 135. Introduction to French Literature. 3 Hours.

Major writers and representative movements in French literature from its beginning to present.

FLIT 200. Latin Literature Translation 1. 3 Hours.**FLIT 201. Latin Literature Translation 2. 3 Hours.****FLIT 203. Japanese Literature Translation. 3 Hours.**

Survey of selected works of Japanese literature from ancient period to the mid-nineteenth century and an introduction to a few works of the modern period.

FLIT 216. Chinese Literature Translation 1. 3 Hours.

Readings in the literature of China from its beginnings through the end of the imperial era in 1922; attention to major writers and genres; focus on literary history. Readings, and discussion in English.

FLIT 217. Chinese Literature in Translation 2. 3 Hours.

Selected Chinese literary works since 1911; attention to major writers and genres; readings and discussion in English.

FLIT 226. German Fairy Tales: Nationalism and Supernaturalism during the Romantic Era. 3 Hours.

An introduction to the German fairy tale tradition. Students apply different theoretical perspectives to the study of fairy tales collected by the Grimm Brothers, analyze variations of the same tales produced in other countries and over a span of centuries, and learn about the significance that folk and art fairy tales held for German Romanticism.

FLIT 227. German Literature in Translation 1. 3 Hours.

Selected German works from 800 A.D. to the period of Naturalism. Readings and discussion in English.

FLIT 228. German Literature in Translation 2. 3 Hours.

Selected German works from the period of Naturalism to the present. Readings and discussion in English.

FLIT 229. German Literature Since World War II. 3 Hours.

Selected German literature from 1945 to present. Readings and discussion in English.

FLIT 235. French Literature in Translation 1. 3 Hours.

Selected French works from the middle ages to the end of the eighteenth century. Readings and discussions in English.

FLIT 236. French Literature in Translation 2. 3 Hours.

Selected French works from the beginning of the nineteenth to present. Readings and discussions in English.

FLIT 237. French Women Writers. 3 Hours.

Selected works of French women writers.

FLIT 238. African Women Writers. 3 Hours.

Selected works by African Women Writers.

FLIT 239. Francophone Literature in Translation. 3 Hours.

Works by French-speaking authors from Africa and the Caribbean. French majors will read selections in the original.

FLIT 240. Italian Women Writers. 3 Hours.

An overview of Italian women writers active during the nineteenth and twentieth century, highlighting such issues as gender relationships, the experience of motherhood, the Italian family, the role of traditions, and feminism against the background of social and political circumstances of nineteenth and twentieth-century Italy. All readings and assignments will be in English.

FLIT 245. Italian Literature Translation 1. 3 Hours.

Selected Italian works from the twelfth century to the end of the eighteenth century. Readings and discussion in English.

FLIT 246. Italian Literature Translation 2. 3 Hours.

Selected Italian works from the nineteenth and twentieth centuries. Readings and discussion in English.

FLIT 256. Russian Literature Translation 1. 3 Hours.

Major works of Russian authors from the beginning to 1880, including those of Pushkin, Lermontov, Gogol, Turgenev, Dostoevsky, and Tolstoy. Russian major will read selections in the original.

FLIT 257. Russian Literature Translation 2. 3 Hours.

Major literature of Russia/Soviet Union from 1880 to the present. Russian majors will read selections in the original.

FLIT 264. Spanish Literature Translation 1. 3 Hours.

Selected Spanish works from the twelfth century to the end of the eighteenth century. Readings and discussions in English.

FLIT 265. Spanish Literature Translation 2. 3 Hours.

Selected Spanish works from the nineteenth and twentieth centuries. Readings and discussion in English.

FLIT 266. Latin American Literature. 3 Hours.

An introduction to the diverse literary traditions of Latin America, this survey explores the historical roots that gave rise to modern Latin American literature.

FLIT 267. Women Writers of Spain. 3 Hours.

Major women writers of Spain from the earliest existing manuscripts to the present focus on 20th century works. Spanish majors will read selections in the original.

FLIT 268. Spanish American Literature in Translation 1. 3 Hours.

Selected Spanish American works from the sixteenth century to the end of the nineteenth century. Readings and discussion in English.

FLIT 269. Spanish American Literature in Translation 2. 3 Hours.

Selected Spanish American works from the nineteenth and the twentieth centuries. Readings and discussions in English.

FLIT 285. Brazilian Literature Translation. 3 Hours.

Survey of Brazilian literary masterworks in English translation concentrating heavily on prose forms (novel, novelette, short story, play) dating from the mid-nineteenth century.

FLIT 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

FLIT 298. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

FLIT 311. The Chinese Experience. 3 Hours.

Faculty-led study abroad course covering Chinese culture, traditions, costumes, and the development of modern Chinese society through lectures, workshops, visits to historical landmarks, and interaction with the local Chinese people.

FLIT 315. Modern Arabic Literature. 3 Hours.

Introduces students to major Arabic authors and acclaimed selections from Arabic literature of the 20th and 21st centuries, as well as historical landmarks that have contributed to the evolution of this literature. Taught in English.

FLIT 316. Arab Women Writers. 3 Hours.

Study of works by Arab women writers, created originally in Arabic and English, selected to introduce students to the literary traditions and historical contexts within which Arab women's writings are situated and to explore the themes and genre issues of those writings.

FLIT 360. Discovering Mesoamerica. 3 Hours.

PR: ENGL 102 and ENGL 103. Analyses cultural and linguistic diversity of Mesoamerica through in-depth study of the Aztec and Maya peoples, using literature and cultural artifacts, including pre-Colombian empires, wars of conquest, and centuries of resistance to Europeanization.

FLIT 361. Latin American Literature and Violence. 3 Hours.

Examination of key works of Latin American cultural production in translation related to contexts of physical and structural violence.

FLIT 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

FLIT 426. Love and War in German Literature. 3 Hours.

Survey of German literature from 1800-1960. Readings and discussions in English.

FLIT 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

FLIT 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

FLIT 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

FLIT 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

FLIT 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

FLIT 496. Senior Thesis. 1-3 Hours.

PR: Consent.

FLIT 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

FMAN 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

FMAN 212. Forest Ecology. 3 Hours.

PR: FOR 205. Forest and environment factors; site and type characteristics.

FMAN 222. Forest Mensuration. 4 Hours.

PR: MATH 155 and STAT 211. Estimating volume and growth of trees and forest stands with emphasis on the mathematical and statistical techniques involved. Laboratories include practical field experience.

FMAN 251. Forest Fire Protection. 2 Hours.

Prevention, detection, and control of wildfires. Forest fuels, fire weather, and wildfire behavior. Use of fire for forest management purposes.

FMAN 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

FMAN 311. Silvicultural Systems. 4 Hours.

PR: FOR 205 and ((FMAN 212 and FMAN 222) or WMAN 313). The theory and practice of controlling forest stand establishment, composition, structure, and growth. Systems include: reproduction methods, release operations, and intermediate treatments. Pre-requisite(s) and/or co-requisite(s) may differ on regional campuses.

FMAN 315. Survey of Arboriculture. 1 Hour.

PR: HORT 260 or FOR 205. A self-study seminar that surveys the principles and practices involved in the field of arboriculture with major emphasis on the urban landscape.

FMAN 320. Arboriculture and Urban Trees. 3 Hours.

This course will discuss the biology and management (selection, installation, maintenance and preservation) of landscape trees. Students will learn how to prune, install, evaluate risk and preserve individual trees in the landscape.

FMAN 322. Advanced Forest Measurements. 3 Hours.

PR: FMAN 222 or equivalent. Measurement and computer simulation of forest growth; principles of growth and yield; statistical methods applied to forest measurement problems.

FMAN 330. Principles of Forestry Economics. 4 Hours.

PR: (ECON 201 or ARE 150) and ECON 202. Production, distribution and use of forest goods and services. Emphasis on methods and problem solving techniques in the economic aspects of forestry.

FMAN 400. Forest Resources Management Field Practice. 6 Hours.

PR: CE 200 and FMAN 322. Application and study of forest management practices with emphasis on field problems, including a one-week trip to observe forestry outside the Appalachian hardwood region. (Course will be taught during five consecutive six-day weeks.).

FMAN 413. Regional Silviculture. 3 Hours.

PR: FMAN 212 and PR or CONC: FMAN 311 or FOR 310 and Forestry major or consent. Major forest types of the United States; their composition, management, problems, and silvicultural treatment.

FMAN 423. Urban Forest Management. 3 Hours.

We will discuss the management of trees in the developed landscape. The focus will include trees growing along city streets, residential landscapes, parks and corporate/academic campus.

FMAN 433. Forest Management. 3 Hours.

PR: FMAN 400 and FMAN 311 and FMAN 330. Principles of sustained yield forest management: organization of forest areas, selection of management objectives, application of silvicultural systems, and regulation of cut. Principles of sustainable forestry and ecosystem management.

FMAN 434. Forest Resources Management Planning. 3 Hours.

PR: FMAN 322 and FMAN 400 and FMAN 311 and PR or CONC: (ENTO 470 or PPTH 470) and FMAN 330. Integrated planning of long-term management of forest resources. Development of a management plan for an actual forest tract. Emphasis on biological, social, economic and ethical considerations in decision-making.

FMAN 440. Forestry Consulting. 3 Hours.

PR: FMAN 311 and FMAN 330 or consent. The application of forest management principals and business concepts to the consulting forestry profession. Topics include: natural resource inventories, timberland appraisals, timber sale administration, and forest management planning.

FMAN 450. Forest Valuation and Investment. 3 Hours.

PR: FMAN 330. Asset valuation concepts, with special emphasis on forests. Financial analyses of forest operations. Concepts and strategies in forestland investment and portfolio management.

FMAN 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

FMAN 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

FMAN 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

FMAN 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

FMAN 496. Senior Thesis. 1-3 Hours.

PR: Consent.

FMAN 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

FOR 101. Careers in Natural Resources Management 1. 1 Hour.

(Required only for students who rank as freshman in the Division of Forestry.) An introduction to professional activities in forest resources management, recreation and parks management, wildlife and fisheries management, and wood science and utilization. Survey of major issues in natural resources management and conservation.

FOR 140. West Virginia's Natural Resources. 3 Hours.

Survey of policies and practices in development and use of soil, water, forest, wildlife, mineral, and human resources in West Virginia.

FOR 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

FOR 203. Careers in Natural Resources Management 2. 1 Hour.

Planning a career in forestry and natural resources professions. Developing a career strategy, resume building, and conducting a successful job search.

FOR 205. Dendrology. 3 Hours.

Classification and silvical characteristics of North American forest trees.

FOR 206. Winter Dendrology. 1 Hour.

PR: FOR 205 or equivalent. Field identification and classification of North American forest trees during leaf-off condition.

FOR 240. Introduction to Computing in Natural Resources. 3 Hours.

Introduction to computer applications in natural resource management. Emphasis on MS Excel statistical analysis tools, MS Access, Visual Basic Programming, hand held PCs and application examples.

FOR 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

FOR 310. Elements of Silviculture. 3 Hours.

PR: FOR 205 Basics of mensuration, site quality, tree and stand growth, forest structure, and development, intermediate treatments, natural disturbances and regeneration ecology, silviculture systems.

FOR 326. Remote Sensing of Environment. 3 Hours.

PR: (MATH 126A or MATH 126B or MATH 126C) and MATH 128. Measurement and interpretation of natural resources and environment from photography and radar, infrared, and microwave imagery.

FOR 340. Natural Resource Entrepreneurship. 3 Hours.

Principles of small business start-up, organization, marketing, finance, and management with an emphasis on natural resource-based enterprises.

FOR 411. Sugarbush Management and Maple Syrup Production. 3 Hours.

Introduces students to modern maple syrup production. Students will participate in all aspects of the WVU maple syrup operation, from sap collection to making finished syrup. Students will also perform an end of year financial assessment.

FOR 421. Renewable Resources Policy and Governance. 3 Hours.

PR: Consent. Forest, wildlife, fisheries, and recreation resource policies of world, with an emphasis on the U.S.: important federal and state laws; governance of public and private lands and renewable natural resources. (Crosslisted with WMAN 421.).

FOR 424. Vegetation of West Virginia. 3 Hours.

PR: FOR 205. Basics of plant taxonomy and community ecology use of technical field keys, study of selected plant families, field trips to unusual and/or important plant communities and forest types in West Virginia. (Summer, off campus.).

FOR 425. Global Forest Resources. 3 Hours.

Significance of renewable natural resources on a global scale and the ecological, economic, and social contexts in which they are managed. Emphasis is on world forest resources, including timber, wildlife, and social uses.

FOR 426. Global Forest Resources Practicum. 3 Hours.

PR: Consent. An intensive field practicum abroad provides students with experiential learning opportunities of global approaches to forest management, and imparts the historical context necessary for an appreciation of cultural diversity.

FOR 438. Human Dimensions Natural Resource Management. 3 Hours.

This class is designed to provide junior-and-senior level forestry and natural resource management majors with a repertoire of social and communication knowledge and skills such as public facilitation, public participation, social impact assessment, conflict management, and collaborative planning techniques.

FOR 470. Problems in Forestry, Wood Science, Wildlife, or Recreation. 1-4 Hours.

PR: Forestry senior or consent.

FOR 470A. Problems in Forestry, Wood Science, Wildlife, or Recreation. 1-4 Hours.

PR: Forestry senior or consent.

FOR 470B. Problems in Forestry, Wood Science, Wildlife, or Recreation. 4 Hours.

PR: Forestry senior or consent.

FOR 470C. Problems in Forestry, Wood Science, Wildlife, or Recreation. 4 Hours.

PR: Forestry senior or consent.

FOR 470D. Problems in Forestry, Wood Science, Wildlife, or Recreation. 4 Hours.

PR: Forestry senior or consent.

FOR 470E. Problems in Forestry, Wood Science, Wildlife, or Recreation. 4 Hours.

PR: Forestry senior or consent.

FOR 470F. Problems in Forestry, Wood Science, Wildlife, or Recreation. 4 Hours.

PR: Forestry senior or consent.

FOR 470G. Problems in Forestry, Wood Science, Wildlife, or Recreation. 4 Hours.

PR: Forestry senior or consent.

FOR 470H. Problems in Forestry, Wood Science, Wildlife, or Recreation. 4 Hours.

PR: Forestry senior or consent.

FOR 470I. Problems in Forestry, Wood Science, Wildlife or Recreation. 4 Hours.

PR: Forestry senior or consent.

FOR 470J. Problems in Forestry. 4 Hours.

PR: Forestry senior or consent.

FOR 470K. Problems in Forestry, Wood Science, Wildlife, or Recreation. 4 Hours.

PR: Forestry senior or consent.

FOR 470L. Problems in Forestry, Wood Science, Wildlife, or Recreation. 4 Hours.

PR: Forestry senior or consent.

FOR 470M. Problems in Forestry, Wood Science, Wildlife or Recreation. 4 Hours.

PR: Forestry senior or consent.

FOR 470N. Problems in Forestry, Wood Science, Wildlife, or Recreation. 4 Hours.

PR: Forestry senior or consent.

FOR 470O. Problems in Forestry, Wood Science, Wildlife, or Recreation. 4 Hours.

PR: Forestry senior or consent.

FOR 470P. Problems in Forestry, Wood Science, Wildlife, or Recreation. 4 Hours.

PR: Forestry senior or consent.

FOR 470Q. Problems in Forestry, Wood Science, Wildlife, or Recreation. 4 Hours.

PR: Forestry senior or consent.

FOR 470R. Problems in Forestry, Wood Science, Wildlife, or Recreation. 4 Hours.

PR: Forestry senior or consent.

FOR 470S. Problems in Forestry, Wood Science, Wildlife, or Recreation. 4 Hours.

PR: Forestry senior or consent.

FOR 470T. Problems in Forestry, Wood Science, Wildlife, or Recreation. 4 Hours.

PR: Forestry senior or consent.

FOR 470U. Problems in Forestry, Wood Science, Wildlife, or Recreation. 4 Hours.

PR: Forestry senior or consent.

FOR 470V. Problems in Forestry, Wood Science, Wildlife, or Recreation. 4 Hours.

PR: Forestry senior or consent.

FOR 470W. Problems in Forestry, Wood Science, Wildlife, or Recreation. 4 Hours.

PR: Forestry senior or consent.

FOR 470X. Problems in Forestry, Wood Science, Wildlife, or Recreation. 4 Hours.

PR: Forestry senior or consent.

FOR 470Y. Problems in Forestry, Wood Science, Wildlife, or Recreation. 4 Hours.

PR: Forestry senior or consent.

FOR 470Z. Problems in Forestry, Wood Science, Wildlife, or Recreation. 4 Hours.

PR: Forestry senior or consent.

FOR 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

FOR 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

FOR 492. Directed Study. 1-3 Hours.

Directed study, reading, and/or research.

FOR 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

FOR 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

FOR 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

FOR 496. Senior Thesis. 1-3 Hours.

PR: Consent.

FOR 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

FRCH 100. Intensive Elementary French. 6 Hours.

PR: Appropriate score on the Departmental Placement Test or departmental consent. Equivalent of FRCH 101 and 102 combined into one course. (Course presumes no prior knowledge of the language.).

FRCH 101. Elementary French 1. 3 Hours.

PR: Appropriate score on the Departmental Placement Test or departmental consent. Introduction to the sound and writing systems of the language, with emphasis on listening, speaking, reading, and writing within an authentic cultural context. (Course presumes no prior knowledge of the language.).

FRCH 102. Elementary French 2. 3 Hours.

PR: FRCH 101 or appropriate score on the Departmental Placement Test or departmental consent. Continuation of French 101.

FRCH 200. Intensive Intermediate French. 6 Hours.

PR: FRCH 102 or FRCH 100 or appropriate score on the Departmental Placement Test. FRCH 203 and FRCH 204 combined into one course. Last course in the basic French curriculum sequence and foundation for advanced French study. Emphasis on written and oral communication within an authentic cultural context.

FRCH 203. Intermediate French 1. 3 Hours.

PR: FRCH 100 or FRCH 102 or appropriate score on the Departmental Placement test. This is the third course in the basic French curriculum sequence and prepares students for FRCH 204.

FRCH 204. Intermediate French 2. 3 Hours.

PR: FRCH 203 or appropriate score on the Departmental Placement Test. This is the last course in the basic French curriculum sequence and serves as the foundation for advanced French study. Emphasis on written and oral communication within an authentic cultural context.

FRCH 274. Virtual Vendee. 3 Hours.

PR: FRCH 203 or appropriate score on the Departmental Placement Test. Taught on-line in conjunction with WVU-Vendee. Can count as FRCH 204 or as elective for French major/minor. French culture through podcasts, readings, and writings. Taught in French.

FRCH 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

FRCH 301. Language Through Civilization. 3 Hours.

PR: FRCH 200 or FRCH 204 or FRCH 274 or adequate score on the Departmental Placement Test. Development of oral and written communicative skills in the context of the origins, development, and contributions of French and Francophone civilizations.

FRCH 302. Language Through Culture. 3 Hours.

PR: FRCH 200 or FRCH 204 or FRCH 274 or adequate score on the Departmental Placement Test. Development of oral and written communicative skills in the context of contemporary values, institutions and contributions of the French and Francophone world.

FRCH 303. Structure and Communication. 3 Hours.

PR: FRCH 200 or FRCH 204 or FRCH 274 or adequate score on the Departmental Placement Test. Development of communicative competencies with emphasis on French language structures, speaking, and writing within an authentic cultural context.

FRCH 304. Advanced Readings. 3 Hours.

PR: FRCH 200 or FRCH 204 or FRCH 274 or adequate score on the Departmental Placement Test. Development of communicative competencies with emphasis on authentic texts and documents from the French- speaking world.

FRCH 370. French Culture in France. 6 Hours.

PR: FRCH 200 or FRCH 204 or adequate score on the placement test. Overview of French language and culture taught on location as part of the faculty-led summer program in France.

FRCH 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

FRCH 401. Oral Expression. 3 Hours.

PR: Six hours at the 300-level, including either FRCH 301 or FRCH 302 or consent. Course not open to graduate students. Intensive practice of oral skills with emphasis on discussion, debate, recitation, reading aloud, etc.

FRCH 402. Phonetics and Pronunciation. 3 Hours.

PR: Six hours at the 300-level, including either FRCH 301 or FRCH 302 or consent.

FRCH 403. Introduction to French Stylistics. 3 Hours.

PR: FRCH 303 and (FRCH 301 or FRCH 302 or FRCH 304). Introduction to advanced grammar structures, stylistic techniques and oratory skills necessary to write and speak at an advanced level of language.

FRCH 421. Survey of Literature 1. 3 Hours.

PR: Six hours at the 300-level, including either FRCH 303 or FRCH 304 or consent. Course not open to graduate students. A cultural and historical survey from its beginning to the end of the eighteenth century.

FRCH 422. Survey of Literature 2. 3 Hours.

PR: Six hours at the 300-level, including either FRCH 303 or FRCH 304 or consent. Course not open to graduate students. A cultural and historical survey from the beginning of the nineteenth century to the present.

FRCH 431. French Civilization. 3 Hours.

PR: Six hours at the 300-level, including either FRCH 301 or FRCH 302 or consent. A survey of major themes, movements, ideas, and figures in the development of French civilization from prehistory to the twentieth century.

FRCH 432. Contemporary Culture. 3 Hours.

PR: Six hours at the 300-level, including either FRCH 301 or FRCH 302 or consent.

FRCH 433. Francophone Cultures. 3 Hours.

PR: Six credit hours of FRCH courses at the 300-level. An examination of products, practices, and perspectives characteristic of various cultures of the French-speaking world.

FRCH 450. French Cinema. 3 Hours.

PR: Six hours at the 300-level, including either FRCH 301 or FRCH 302 or consent. Film literacy, vocabulary, and technique in the context of French cinema. Emphasis may vary among origins, poetic realism, surrealism, film noir, nouvelle vague, current movements. May be repeated with permission. Taught in French.

FRCH 461. Commercial French 1. 3 Hours.

PR: Six hours at the 300-level, including either FRCH 301 or FRCH 302 or consent. Development of advanced speaking, reading and writing skills appropriate for business contexts within the French-speaking world.

FRCH 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

FRCH 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

FRCH 492. Directed Study. 1-3 Hours.

Directed study, reading, and/or research.

FRCH 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

FRCH 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

FRCH 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

FRCH 496. Senior Thesis. 1-3 Hours.

PR: Consent.

FRCH 498. Honors. 1-3 Hours.

PR: Students in the Honors Program and consent by the honors director. Independent reading, study or research.

GEN 101. Beginner's Guide-Genetics. 3 Hours.

General introduction to concepts in genetics for nonmajors, examining the role of molecules, genes and chromosomes on inheritance, aging, disease, and gender. Case studies show application to agriculture, ecological/environmental issues, medicine, and forensics.

GEN 120. Genetics and Society. 3 Hours.

Origin of life, selection, mutation, eugenics, genetic engineering, genetics and evolution, genetics and medicine, genetics and politics, decision making, social, and ethical issues in human genetics. For students interested in heredity and heritage.

GEN 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

GEN 286. Computational Genetics. 2 Hours.

PR: GEN 101 or BIOL 115 with a minimum grade of C-. Development of computational and bioinformatics skills used in academic, biotech, and pharmaceutical laboratories to analyze and interpret genetic data.

GEN 330. Conservation Genetics. 3 Hours.

PR: BIOL 101 and BIOL 102 or equivalent or higher and MATH 124 or higher. Introduction to the principles of modern genetics needed to understand and manage important challenges in conservation of biodiversity including game, non-game, and endangered/threatened species. Also listed as WMAN 330.

GEN 371. Principles of Genetics. 4 Hours.

PR: 8 hours of biological science. The fundamentals of inheritance.

GEN 440. Genetic Engineering Technologies. 3 Hours.

PR: GEN 101 or BIOL 115. This course presents agricultural technologies produced by genetic engineering (GE) are available to consumers in the global marketplace and teaches the genetic concepts and manipulations that were used for their production.

GEN 450. Applied Developmental Genetics. 3 Hours.

PR: GEN 101 or BIOL 115. Exploration of current topics in applied developmental genetics through the use of case studies and investigation of underlying concepts that lay at the basis of applied genetics.

GEN 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

GEN 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

GEN 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

GEN 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

GEN 496. Senior Thesis. 1-3 Hours.

PR: Consent.

GEN 497. Research. 1-6 Hours.

Independent research projects.

GEN 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

GEOG 102. World Regions. 3 Hours.

Comparison and relationships of world regions. Geographical perspectives of contemporary global problems. Developing regions contrasted with modernized regions and the consequences of their interactions.

GEOG 106. Physical Geography Laboratory. 1 Hour.

PR or CONC: GEOG 107. Introduction to global environmental systems operating on the earth's surface, emphasizing weather and climate, soils, natural vegetation, and geomorphology, and examination of human interaction with these natural processes.

GEOG 107. Physical Geography. 3 Hours.

Introduction to global environmental systems operating on the earth's surface, emphasizing weather and climate, soils, natural vegetation, and geomorphology, and examination of human interaction with these natural processes.

GEOG 108. Human Geography. 3 Hours.

This course introduces students to geographic dimensions of important topics in today's world. Students will learn about multiple approaches within human geography, including: cultural, economic, political, and urban geography. Students will use these approaches to understand and think critically about current issues in the world around them, from local to global scales.

GEOG 110. Environmental Geoscience. 3 Hours.

Physical aspects of the earth with emphasis on natural resources, environmental degradation and hazards. Registration in GEOG 111 meets requirements for a 4-hr. credit in laboratory science. (Also listed as GEOL 110.) (Students may not receive credit for GEOG 110 and GEOL 101 or GEOL 110.).

GEOG 111. Environmental Geoscience Laboratory. 1 Hour.

PR or Conc: GEOG 110. (Also listed as GEOL 111.) (Students not receive credit for GEOG 111 and GEOL 102 or GEOL 111.).

GEOG 149. Digital Earth Lab. 1 Hour.

Introduction to geographic information systems software using basic principles of mapping and analysis of geographic information.

GEOG 150. Digital Earth. 3 Hours.

PR or CONC: GEOG 149. Recent advances in technology and data availability have increased our knowledge about the world. This class surveys key concepts of geospatial technologies (GIS, remote sensing, spatial analysis) in the context of social and environmental change.

GEOG 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

GEOG 199. Orientation to Geography. 1,2 Hour.

For majors, pre-majors, and potential majors; discussion of the discipline, curriculum requirements, areas of specialization, internships and career opportunities. (1 hr. lec., pass/fail only.).

GEOG 205. Natural Resources. 3 Hours.

Introduces the concept of natural resources and surveys such topics as land, soil, rangeland, forests, water, atmosphere, minerals, and energy. Emphasis is on the United States within the context of the global environment.

GEOG 207. Climate and Environment. 3 Hours.

Examination of atmospheric processes and the impact of human activity on climate.

GEOG 209. Economic Geography. 3 Hours.

PR: GEOG 108. Examination of the world economy particularly the spatial patterns of agriculture, manufacturing and services.

GEOG 210. Urban Geography. 3 Hours.

PR: GEOG 101 or GEOG 102 or GEOG 108. Introduction to the geography of the city incorporating consideration of urban systems and city-region linkages, patterns and processes of urban land use, the social geography of the city, and contemporary urban problems.

GEOG 240. United States and Canada. 3 Hours.

Regional study of the United States and Canada emphasizing such geographic features as climate, natural vegetation, topography, natural resources, population distribution and trends, agriculture, manufacturing, transportation systems, and regional culture.

GEOG 241. Geography of Europe. 3 Hours.

PR: GEOG 108. Study of contemporary human and physical geography of Europe. Insight to political, economic and social dimensions of transition in this region.

GEOG 243. Geography of Africa. 3 Hours.

Systematic and regional characteristics and geographic problems of political, social, and economic development.

GEOG 244. Geography of the Middle East. 3 Hours.

This course is designed to provide students with a detailed understanding and ability to analyze the geography of the Middle East (including North Africa). Special topics on current geographical issues will also be covered.

GEOG 245. Geography of Latin America. 3 Hours.

This course introduced students to geographic approaches to studying the natural, historical, social, political, economic, and cultural issues of Latin America, analyzed from multiple perspectives of how place is created, experienced, and imagined. The course takes a focus on some of the ongoing current events that are dramatically changing the geopolitics of the region, in Cuba, Venezuela, and Puerto Rico.

GEOG 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

GEOG 298. Honors. 1-3 Hours.

PR: Students in Honors Program and consent from the honors director. Independent reading, study, or research.

GEOG 300. Geographical Data Analysis. 3 Hours.

Quantitative techniques for collection, classification, and spatial analysis of geographical data with emphasis on map analysis and application of spatial statistics.

GEOG 302. Political Geography. 3 Hours.

Examines the interrelationship between politics and the environment, human territoriality, the political organization of space, geopolitical aspects of the nation-state and international problems.

GEOG 303. Cultural Geography. 3 Hours.

This course engages students in current research in cultural geography. What does a geographic approach contribute to understandings of culture? These perspectives are relevant to analyzing the politics of race, gender, the environment, and our place in it. Cultural geographers critically and creatively explore the ways humans develop a sense of place and their struggles over place and culture.

GEOG 307. Biogeography: Theory and Method. 3 Hours.

PR: GEOG 107. An introduction to the field of biogeography including the study of the distribution and diversity of life, how species migrate, the importance of natural and human disturbances in ecosystems.

GEOG 310. Global Issues. 3 Hours.

PR: GEOG 102 or GEOG 108. Themes of spatial equity and justice in an increasingly interdependent world system. Contemporary issues concerning location, place, movement, and region.

GEOG 312. Migration and Human Rights. 3 Hours.

Examines the characteristics and causes of contemporary migration, the geopolitical dimensions of migration control, and the role of human rights in shaping human mobility.

GEOG 317. Climatological Analysis. 3 Hours.

PR: GEOG 207 or Consent. Statistical analysis and interpretation of climatological data and application to physical and human problems across the globe using user-friendly tools. (Also listed as GEOG 517).

GEOG 321. Geomorphology. 3 Hours.

PR: GEOL 101 and GEOL 102. An examination of earth-surface processes and landforms, with emphasis on environmental geomorphology, streams, floods, glaciers, and landslides. (Required field trip at student's expense; also listed as GEOL 321.).

GEOG 333. Qualitative Methods in Human Geography. 3 Hours.

PR: ENGL 102 and (GEOG 102 or GEOG 108). The theories of science at the ground of human geography and the qualitative methods used to carry out human geographical research.

GEOG 350. Geographic Information Systems and Science. 4 Hours.

PR: GEOG 150. Explores concepts, principles and practice of acquiring, storing, analyzing, display and use of geographic information.

GEOG 361. Cartography. 3 Hours.

An introduction to mapping from concepts to production, including historical developments, coordinate systems, projections, generalization, symbolization, map design and computer- assisted mapping. (2 hr. lec., 1 hr. lab.).

GEOG 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

GEOG 407. Environmental Field Geography. 3 Hours.

PR: GEOG 107 and GEOG 307. An introduction to field methods used in environmental and physical geography. Course uses a problem based approach.

GEOG 411. Rural and Regional Development. 3 Hours.

PR: GEOG 102 or GEOG 108. An investigation into rural and regional development in developed and underdeveloped regions. The relationship between development theory and policy is explored.

GEOG 412. Geography of Gender. 3 Hours.

PR: GEOG 108 or consent. An exploration of how gender affects spatial patterns and processes. Theoretical and empirical aspects of feminism are analyzed including women and employment, third world feminism, sexuality and space, and gender in academia.

GEOG 415. Global Environmental Change. 3 Hours.

PR: GEOG 107 or equivalent or consent. A geographic analysis of the Earth system emphasizing the interdependence and feedback mechanisms of the hydrologic cycle, ecosystems, climate, and human activities.

GEOG 425. Urban and Regional Planning. 3 Hours.

PR: GEOG 210 or POLS 220 or consent. Explores concepts, techniques, and processes of physical and socioeconomic planning and their application to urban and regional problems.

GEOG 443. African Environment and Development. 3 Hours.

Detailed examination of the intersection of environmental and development studies in sub-Saharan Africa with critical assessments of current practice.

GEOG 452. Geographic Information Science: Applications. 3 Hours.

PR: GEOG 350. GIS uses, needs, analysis, design, and implementation. Operational institutional and management topics of GIS for planning, locational decision making in business, government, and research contexts. (2 hr. lec., 1 hr. lab.) (Also listed as GEOL 452.).

GEOG 453. Geographic Information Science: Design and Implementation. 3 Hours.

PR: GEOG 350 and consent. Geographic database design and implementation using contemporary GIS software.

GEOG 454. Environmental Geographic Information Systems. 3 Hours.

Provides background and hands-on experience needed to answer scientific questions about the environment within a raster-based GIS framework. Students should have introductory-level GIS background.

GEOG 455. Introduction to Remote Sensing. 3 Hours.

Theory, technology and applications of photo-interpretation and digital image analysis of aerial photography and multispectral images. (2 hr. lec., 1 hr. lab.) (Also listed as GEOL 455.).

GEOG 456. Remote Sensing Applications. 3 Hours.

PR: GEOG 455 or GEOL 455 or consent. Survey of remote sensing applications, focusing on the type of information obtained and methods used.

GEOG 457. Open-Source Spatial Analytics. 3 Hours.

PR: GEOG 300 or GEOG 350. Introduction to the free statistical software tool R and investigation of the use of this software for working with data in general and geographic data in particular.

GEOG 461. Web GIS. 3 Hours.

PR: GEOG 350. The World Wide Web has become a valuable means to display, collect, and share geographic data and maps. This course will explore the use of web technologies for developing web map applications. Students will learn to produce audience appropriate maps in the web environment using a variety of technologies and methods.

GEOG 462. Digital Cartography. 3 Hours.

PR: GEOG 361 or consent. Computer-assisted mapping emphasizing the appropriate uses of software in thematic and topographic map design, annotation, symbolization, color, design, display and reproduction.

GEOG 463. Crime Geography. 3 Hours.

PR: GEOG 150 or GEOG 350. Exploring the interactions between crime, society, and space through GIS, mapping, and geographical concepts of crime and law enforcement.

GEOG 485. Methods of Geographic Research. 3 Hours.

PR: Consent. Geographic analysis as problem-solving activity. Practical experience in field techniques, library research, hypothesis formation and testing, and report preparation and presentation. Students will acquire skills in literary and numerical approaches to geographic data analysis.

GEOG 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

GEOG 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

GEOG 492. Directed Study. 1-3 Hours.

Directed study, reading, and/or research.

GEOG 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

GEOG 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

GEOG 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

GEOG 496. Senior Thesis. 3 Hours.

PR: Consent.

GEOG 497. Research. 1-6 Hours.

PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.).

GEOG 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

GEOG 499. Global Service Learning. 1-3 Hours.

PR: Consent. Theory and practice of global service learning. The main objective will be to pair the experiential aspects of meaningful and sustained service in the host community with work from the student's anchor course by offering a methodological framework for cultural immersion and community service as well as adding to the content of the anchor course.

GEOL 101. Planet Earth. 3 Hours.

Composition and structure of the Earth and the physical processes that change Earth's surface. GEOL 102 not required with GEOL 101. (Accompanied by registration in GEOL 102, class meets requirements for 4 hr. credit in a laboratory science in geology.) (Students cannot receive credit for GEOL 101 and GEOL 110 or GEOG 110.).

GEOL 102. Planet Earth Laboratory. 1 Hour.

PR or CONC: GEOL 101. Laboratory study of the Earth using rocks, minerals and maps. (2 hr. lab.) (Students cannot receive credit for GEOL 102 and GEOL 111 or GEOG 111.).

GEOL 103. Earth Through Time. 3 Hours.

PR: GEOL 101 or GEOL 110 or GEOG 110. Evolution of the Earth and its inhabitants. (Accompanied by registration in GEOL 104, class meets requirements for 4 hr. credit in a laboratory science in geology.).

GEOL 104. Earth Through Time Laboratory. 1 Hour.

PR or CONC: GEOL 103. Laboratory study of sedimentary rocks, fossils, and geologic maps and their use in interpreting Earth history. (2 hr. lab.).

GEOL 111. Environmental Geoscience Laboratory. 1 Hour.

PR or CONC: GEOL 110. (Also listed as GEOG 111.) (Students may not receive credit for GEOG 111 and GEOL 102 or GEOG 111.).

GEOL 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

GEOL 200. Geology for Environmental Scientists. 4 Hours.

PR: (GEOL 110 and GEOL 111) or (GEOG 110 and GEOG 111) or (GEOL 101 and GEOL 102 and GEOL 103 and GEOL 104). Fundamentals of mineralogy, sedimentation, stratigraphy, petrology, and structural geology needed by environmental scientists to understand earth materials. (Required field trips partial student expense.) (3 hr. lec., 1 hr. lab.).

GEOL 203. Physical Oceanography. 3 Hours.

(Not open to upper division geology majors.) The geography and geology of ocean basins and margins, the chemical and physical properties of sea water, and the examination of the source and location of resources in the sea.

GEOL 225. Planetary Geoscience. 3 Hours.

An examination of the geologic and geochemical processes at work in the solar system from the perspectives supplied by space age exploration of the planets and other solar system bodies.

GEOL 230. Fossils and Evolution. 3 Hours.

PR: GEOL 101 or BIOL 101. Evolutionary history of plants, marine invertebrates, fish, amphibians, reptiles, dinosaurs, birds, and mammals; emphasis on unique contribution of fossil record to evolutionary theory. (2 hr. lec., 1 hr. lab.) (Credit cannot be obtained for both GEOL 103 and GEOL 230.).

GEOL 275. Geologic Field & Computer Methods. 3 Hours.

PR: GEOL 101 and GEOL 102 and GEOL 103 and GEOL 104. Introduction to geologic methods necessary to describe, measure, map, sample, and report on Earth materials in the field and in the laboratory. Develops communication skills necessary to organize and present data as formal, technical reports and presentations. Includes required field trips during class time and on weekends.

GEOL 284. Mineralogy. 3 Hours.

PR: GEOL 101 and GEOL 102 and PR or CONC: CHEM 111 or CHEM 115. Elements of crystallography and the systematic study of minerals, identification of minerals in hand specimens according to physical properties. (Required weekend field trip covered by the lab fee.).

GEOL 285. Introductory Petrology. 3 Hours.

PR: GEOL 284. Introduction to the study of igneous, sedimentary and metamorphic rocks, including mineralogy, processes of formation, tectonic setting, and description and identification of rocks in hand specimens. (Required weekend field trip. Students will be required to pay a portion of the expenses.).

GEOL 286. Introduction to Minerals & Rocks. 4 Hours.

PR: GEOL 101 and GEOL 102 with a minimum grade of C- in each and (CHEM 110B or PR or CONC: CHEM 115). An introduction to the fundamentals of mineralogy and petrology, focusing on how minerals and rocks form, and how different minerals and rocks are identified, classified, and related to one another through plate tectonic theory and physio-chemical processes. (Required weekend field trip.).

GEOL 293. . 1-6 Hours.**GEOL 300. Geology of West Virginia. 3 Hours.**

PR: GEOL 103 and GEOL 104. Journey through geologic history of West Virginia with emphasis on the geology of public lands and fossil fuels. Local and overnight field trips are a required part of this course.

GEOL 302. Geology of the National Parks. 3 Hours.

PR: GEOL 103 and GEOL 104. Explore the geology of selected National Parks with emphasis on the plate tectonic setting and in-depth analysis of surface features. One overnight field trip is required as part of this course.

GEOL 311. Stratigraphy and Sedimentation. 4 Hours.

PR: GEOL 103 and GEOL 104 and (GEOL 285 or GEOL 286). Study of sediments and sedimentary rocks with an emphasis on the analysis of facies.

GEOL 321. Geomorphology. 3 Hours.

PR: (GEOL 101 and GEOL 102) or (GEOL 110 and GEOL 111) or (GEOG 110 and GEOG 111). An examination of earth-surface processes and landforms, with emphasis on environmental geomorphology, streams, floods, glaciers, and landslides. (Required field trip at student's expense; also listed as GEOG 321.).

GEOL 331. Paleontology. 3 Hours.

PR: GEOL 103 and GEOL 104 and STAT 211. Uses of paleontological data in geology; biostratigraphy, paleoecology, evolution, extinction, and biogeography; lab emphasis on identification and utilization of marine invertebrate fossils. (Required weekend field trip at student's expense.).

GEOL 341. Structural Geology. 4 Hours.

PR: GEOL 103 and GEOL 104 and GEOL 286 and PR or CONC: (PHYS 101 or PHYS 111). Introduction to rock deformation processes and the interpretation of geologic structure, with applications to the structure and tectonic evolution of the Appalachian Mountains. (Several one-day field trips required.).

GEOL 342. Structural Geology for Engineers. 3 Hours.

PR: GEOL 101 and PHYS 111. Introduction to rock deformation processes and the development and interpretation of geologic structures. (Several one-day field trips required.).

GEOL 351. Geomathematics. 3 Hours.

PR: GEOL 101 and (MATH 154 or MATH 155). Mathematical methods and applications in geology, geochemistry, geophysics, and environmental science. Review of basic mathematics, differential and integral calculus. Use of computers (Excel) as geological problem-solving tools.

GEOL 365. Environmental Geology. 3 Hours.

PR or CONC: GEOL 321. Principles, practice, and case histories in application of earth science to environmental problems. Includes: water quality; landslides; subsidence; waste disposal; legal aspects; and geological aspects of land-use planning. (Field trips and independent field project required.).

GEOL 373. Introduction to Petroleum Geology. 3 Hours.

PR: GEOL 101. Origin, geologic distribution, methods of exploration and exploitation, uses and future reserves of petroleum and natural gas in the world.

GEOL 376. Research Methods. 3 Hours.

PR: Completion of Introductory Geology sequence, GEOL 101 and GEOL 102 and GEOL 103 and GEOL 104. Research Methods is a one-semester, three-hour course in the required WVUteach sequence. It is one of several content courses specially designed to meet the needs of future teachers. WVUteach students pursuing degrees in Geology or Environmental Geoscience should register for the GEOL section of BIOL/CHEM/GEOL/PHYS 376.

GEOL 386. Igneous and Metamorphic Petrology. 3 Hours.

PR: GEOL 284 or GEOL 286 with a minimum grade of C-. An investigation of the processes that produce igneous, volcanic, and metamorphic rocks on Earth and the terrestrial planets, with special emphasis on how processes fit into the plate tectonic paradigm. Labs will focus on the description and interpretation of igneous and metamorphic rocks in hand specimen and thin sections. (Required weekend field trip.).

GEOL 388. Introduction to Geochemistry. 3 Hours.

PR: GEOL 101 and CHEM 115. This course is an introduction to the big-picture of geochemistry focused on using chemical tools to understand earth processes from the very old to very new, the very small to very large.

GEOL 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

GEOL 400. Environmental Practicum. 1 Hour.

PR: GEOL 200 and PR or CONC: GEOL 331 or GEOL 365 or GEOL 376 or GEOL 411 or GEOL 455 or GEOL 463 or GEOL 472 or GEOL 486 or GEOG 317 or GEOG 443 or GEOG 454 or GEOG 455 or GEOG 456 or GEOG 461. Capstone Seminar. Students prepare for a career as Environmental Geoscientists; critically reflect on the curriculum in the major; orally present their research projects carried out in the co-requisite. Research-intensive Geology and Geography course.

GEOL 404. Geology Field Camp. 6 Hours.

PR: GEOL 311 and GEOL 341 and consent. Practical experience in detailed geological field procedures and mapping. (Living expense in addition to tuition must be paid at time of registration.).

GEOL 411. Deep Time Earth Systems. 3 Hours.

PR: GEOL 103 and GEOL 104 and PR or CONC: GEOL 311. Interrelationships of Earth Systems - the lithosphere, the hydrosphere, the atmosphere, and the biosphere - through space and time.

GEOL 419. Advanced Petroleum Geology. 3 Hours.

PR: GEOL 341 and PR or CONC: GEOL 311. Topics include petroleum source rocks, primary and secondary migration of oil, porosity and permeability development in reservoirs. Focus on the nature of hydrocarbon resources, their importance to civilization, and on the role of the petroleum professional in the industry and society.

GEOL 454. Environmental and Exploration of Geophysics 1. 3 Hours.

PR: PHYS 102 and (MATH 156 or GEOL 351). Basic theory, computer modeling, and use of gravitational, magnetic, resistivity, and electromagnetic methods in the evaluation of shallow targets of interest to environmental, hydrological, and hazardous waste site investigations.

GEOL 455. Introduction to Remote Sensing. 3 Hours.

Theory, technology and applications of photo-interpretation and digital image analysis of aerial photography and multispectral images. (2 hr. lec., 1 hr. lab.) (Also listed as GEOG 455.).

GEOL 460. Physical Volcanology. 3 Hours.

PR: GEOL 286 with a minimum grade C- and (MATH 128 or PR or CONC: MATH 129 or MATH 153 or MATH 154 or MATH 155). An investigation of the physical processes that produce volcanic eruptions and their deposits on Earth and in our solar system. Labs will focus on the description, analysis, and interpretation of rocks and deposits, and geospatial and numerical analysis of volcanological data.

GEOL 462. Introductory Hydrogeology. 3 Hours.

PR: (GEOL 101 and GEOL 102) or (GEOL 110 and GEOL 111) or (GEOG 110 and GEOG 111) and (MATH 126 and MATH 128) and (CHEM 110 or (CHEM 110A and CHEM 110B) or CHEM 111 or CHEM 115). Basic principles of hydrogeology, emphasizing geologic occurrence of ground water, vadose (soil) water, wells, springs, ground water interaction with streams, and ground-water chemistry, pollution, and pollution restoration.

GEOL 463. Physical Hydrogeology. 3 Hours.

PR: GEOL 101 and MATH 126. Principles of ground-water hydrology, emphasizing the physical occurrence and movement of ground water. Topics include aquifer properties, flow net analysis, and hydraulic aquifer testing.

GEOL 466. Cave and Karst Geology. 3 Hours.

PR: (GEOL 101 and GEOL 102) or (GEOL 110 and GEOL 111) or (GEOG 110 and GEOG 111) and (CHEM 110 or (CHEM 110A and CHEM 110B) or CHEM 111 or CHEM 115). Study of the nature and origins of cave and karst landforms, terrains, geomorphology, hydrogeology, environmental hazards, and petroleum and mineral ore deposits. (Two required field trips.).

GEOL 469. Applied Hydrogeology Seminar. 1 Hour.

A review of professional practices and opportunities in hydrogeology. Seminar talks by hydrogeological professionals from WVU, industry, and government agencies. Field trips to examine hydrogeological practices and techniques.

GEOL 472. Energy Geology. 3 Hours.

PR: GEOL 101 and GEOL 102 and GEOL 103 and GEOL 104. Energy needs will continue to increase as the human population grows and the quality of life increases for the world. To provide these energy needs, humans draw on a wide portfolio of renewable and nonrenewable energy resources. Examination of the geologic aspects and science of energy and present a balanced view of humanity's past, present and future energy resource options.

GEOL 479. Log Analysis-Reading the Rocks. 3 Hours.

PR: Consent. The Geosciences require knowledge of the sub-surface properties. Students learn the theory and practice behind a range of subsurface methods. Experience with challenges in geology.

GEOL 484. Minerals and the Environment. 3 Hours.

PR: GEOL 284 or GEOL 200. Study of the importance of minerals in human health and the environment. Includes examples of environmental problems that are caused by minerals and solutions to environmental problems that involve minerals.

GEOL 486. Environmental Isotopes. 3 Hours.

PR: CHEM 111 or CHEM 115. Isotopes are excellent natural tracers and integrators of important environmental, geological and ecological processes. Topics include basic principles of stable isotope geochemistry and their applications in environmental sciences, hydrology, plant/animal ecology, climate reconstruction, and energy.

GEOL 488. Environmental Geochemistry. 3 Hours.

PR: GEOL 351 and CHEM 116. Basic review of physical and aqueous chemistry, discussion of basic geochemical processes; calcium carbonate chemistry, diagenetic processes, weathering, the silicate and iron system.

GEOL 489. Junior-Senior Seminar. 1 Hour.

The presentation and discussion of topics regarding graduate school and career preparation for geology majors. Grading will be Pass/Fail.

GEOL 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

GEOL 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

GEOL 492. Directed Study. 1-3 Hours.

Directed study, reading and/or research.

GEOL 493. Special Topics. 6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

GEOL 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

GEOL 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

GEOL 496. Senior Thesis. 1-3 Hours.

PR: Consent.

GEOL 497. Research. 1-6 Hours.

Independent research projects.

GEOL 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

GER 101. Introduction to German Language and Culture 1. 3 Hours.

PR: Score of G1 on placement test or no prior study of the language or Consent. Introduction to the German language and German-speaking cultures. This course focuses on the development of cultural knowledge as well as interpretive, interpersonal, and presentational communication skills through speaking, listening, reading, and writing activities.

GER 102. Introduction to German Language and Culture 2. 3 Hours.

PR: GER 101. A continuation of GER 101 that focuses on the continued development of cultural knowledge as well as interpretive, interpersonal, and presentational communication skills through speaking, listening, reading, and writing activities.

GER 203. Intermediate German 1: The German-Speaking World. 3 Hours.

PR: GER 102 or equivalent. A continuation of GER 102 that develops intermediate interpretive, interpersonal, and presentational communication skills through extended practice in speaking, listening comprehension, reading, and writing activities. The course focuses on cultural practices and perspectives unique to German-speaking regions today.

GER 204. Intermediate German 2: Life in Germany. 3 Hours.

PR: GER 203 or Consent. A continuation of German 203 that builds on students' understanding of German-speaking culture and that hones interpretive, interpersonal, and presentational communication skills. The course focuses on topics relating to the history and contemporary life of German-speaking regions and the development of reading skills through work on more advanced texts.

GER 222. German Pronunciation. 3 Hours.

PR or CONC: GER 203. Designed to strengthen pronunciation through listening and speaking exercises focusing on intonation and diction. Students will improve their ability to hear differences in sounds, understand sound formation, and reproduce sounds in their own speech.

GER 246. Introduction to German Film. 3 Hours.

PR or CONC: GER 203. Historical overview of German cinema through viewing films (in German) and reading supplementary theoretical texts, students will learn about the history of film-making in Germany during the twentieth and twenty-first centuries.

GER 271. The German Experience 1. 3 Hours.

Beginning to intermediate culture course that practices speaking and writing skills while documenting the study abroad experience and increases students understanding of the target culture.

GER 272. German Grammar 1. 3 Hours.

Review of basic elements of German grammar while studying abroad.

GER 293. Special Topics. 6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

GER 301. Language and Society. 3 Hours.

PR: GER 204 or equivalent. Advanced communication course that focuses on German history from 1800-1950. Students will develop all four language skills and review important grammatical structures.

GER 302. Conversations in Context 2: Germany Today. 3 Hours.

PR: GER 204. Advanced communication course that focuses on current events in Germany. Students will develop all four language skills and review important grammatical structures.

GER 303. Youth Culture in German-Speaking Countries. 3 Hours.

PR: GER 204. Advanced communication course that focuses on the exploration of identity, politics, history, and literature through the stories and experiences of young people in German-speaking cultures.

GER 304. Culture and Science in German-speaking Countries. 3 Hours.

PR: GER 204. Advanced communication course that focuses on inventors and innovations of German-speaking countries, the role of science in the lives of human beings, and the ethical implications of scientific research and advancement on individuals and global societies.

GER 361. German for Professional Purposes. 3 Hours.

PR: GER 204 or Consent. Advanced communication course that explores professional life in Germany. Students will develop practical communication skills while developing a broad understanding of the professional climate in Germany and the role of Germany in commerce and industry.

GER 362. Professional Life in Germany. 3 Hours.

PR: GER 204. Course designed to prepare students for work or an internship in a German-speaking country. Students will become familiarized with the etiquette, culture, and practices within a professional setting in German and develop the necessary language skills and vocabulary to carry out professional transactions.

GER 393. Special Topics. 1-6 Hours.

PR: Consent Investigation of topics not covered in regularly scheduled courses.

GER 401. TurboDeutsch: Intensive German in Review. 3 Hours.

PR: GER 301 or GER 302 or GER 303 or GER 304. TurboDeutsch is an advanced German language course that examines the fundamentals of the German language. Students will review basic structures and learn more complex forms in the language. This structural review will be contextualized through the study of current events in Germany.

GER 431. German Literature: Fables/Fairy Tales/Enlightenment -Romanticism. 3 Hours.

PR: One 300-level GER course or equivalent. Advanced German literature course that examines representative works, literary-historical periods, genres, and authors from 1700-1830.

GER 432. German Literature: Since Romanticism. 3 Hours.

PR: One 300-level GER course or equivalent. Advanced German literature course that examines representative works, literary-historical periods, genres, and authors from 1830-1955.

GER 440. German Cultural History: 350-1700. 3 Hours.

PR: One 300-level GER course or equivalent. Advanced course on German civilization that examines religious, cultural and social practices from the Germanic period through the Baroque era.

GER 441. German Cultural History Since 1945. 3 Hours.

PR: One 300-level GER course or equivalent. Advanced course on German civilization that examines historical and cultural divisions and developments since World War II.

GER 471. The German Experience 2. 3 Hours.

PR: GER 204 or consent. Advanced culture course that practices speaking and writing skills while documenting the study abroad experience and increases students' understanding of the target culture.

GER 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

GER 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

GER 492. Directed Study. 1-3 Hours.

Directed study, reading, and or research.

GER 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

GER 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

GER 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

GER 496. Senior Thesis. 1-3 Hours.

PR: Consent.

GER 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

GERO 212. Introduction to Gerontology. 3 Hours.

Survey of biological, psychological and sociological issues and problems associated with human aging. Selected social policies impacting quality of life for the elderly are presented.

GERO 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

GERO 310. The Aging Women. 3 Hours.

Does gender make a difference in the aging process? This course examines the female experience of growing older. Lecture, discussion, review of literature, with focus on selected works of literature and the creative arts.

GERO 410. Rural Gerontology. 3 Hours.

Overview of health, social, and policy issues that impact the quality of life of older adults living in rural environments, contrasted with those in urban areas. (Equivalent to GERO 681.).

GERO 412. Public Policy of Aging. 3 Hours.

Policy analysis of major public programs for senior citizens - Older American Act, Medicare-Medicaid and Social Security. Discussion of future of these programs and societal response. Emphasis on senior programs in West Virginia. (Equivalent to GERO 512.).

GERO 418. Aging, Women and Culture. 3 Hours.

This course will use a multidisciplinary approach to examine the impact of gender, race/ethnicity, and culture on aging, the aging population and individual experiences of aging.

GERO 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experimental learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

GERO 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

GERO 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

GSCM 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

GSCM 350. Sourcing and Supply Management. 3 Hours.

PR or CONC: BCOR 360. Critical managerial issues in sourcing and supply management operations, structure, and processes, and supporting tools. Ethical, legal, and contractual issues pertaining to the global scope of this important set of business processes.

GSCM 355. Logistics and Distribution Management. 3 Hours.

PR or CONC: BCOR 360. Critical managerial issues in the implementation and control of forward and reverse flow and storage of goods, services, and related information between the point of origin and the point of consumption.

GSCM 360. Supply Chain Analytics. 3 Hours.

PR: GSCM 350 with a grade of C- or better and GSCM 355 with a grade of C- or better. A survey of the broad spectrum of mathematical modeling methodologies available to supply chain analysts for solving supply chain problems.

GSCM 370. Transportation Management. 3 Hours.

PR: GSCM 350 with a grade of C- or better and GSCM 355 with a grade of C- or better. An introductory study of the wide range of issues facing supply chain professionals in transportation. This includes the impact of transportation systems in the economy, regulations, and management of distinct transportation modes with focus on the U.S. domestic transportation systems.

GSCM 425. Supply Chain Network Design. 3 Hours.

PR: GSCM 360 and GSCM 370. An in-depth study of how to parse supply chain problems into a network design formulation and how to collect appropriate data to use on these models. Students will also learn how to validate, debug, and test the sensitivity of models to various input and model assumptions.

GSCM 430. Supply Chain Technology. 3 Hours.

PR: GSCM 370. A comprehensive study of the strategic and operational use of main supply chain technologies. This includes dependencies and linkages between the various technologies, best practices, and potential pitfalls.

GSCM 450. Supply Chain Quality Management. 3 Hours.

PR: GSCM 350 and GSCM 355. Critical managerial issues in the organizational and behavioral dimensions of quality management systems and their application to simplify and improve supply chain processes, as well as key supporting methodologies and tools.

GSCM 455. Project Management. 3 Hours.

PR: BCOR 330 and PR or CONC: BCOR 360. Critical managerial issues in the planning, scheduling, organization, and management of projects. Project management process and tools and the effects of management style on the success of a project.

GSCM 470. Global Supply Chain Systems. 3 Hours.

PR: GSCM 425 and GSCM 450. Analysis and problem solving of sourcing, operations, and logistics issues from a systems-perspective, and discussion of managerial issues in those areas in the international context from an integrated supply chain network perspective. The course encompasses the design, simulated operation, improvement, and analysis of a supply network.

GSCM 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated for a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

GSCM 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

GSCM 495. Independent Study. 1-6 Hours.

Faculty-supervised study of topics not available through regular course offerings.

HIIM 110. Introduction to U.S. Healthcare Delivery System. 3 Hours.

Overview of Federal, State, and local agencies and their role in the healthcare system. Emphasis on cost, access, quality and types of organizations and services provided.

HIIM 112. Fundamentals of Health Information Management. 3 Hours.

Introduction to the health information management profession and the health record. An overview of the health record, data format, structure, and documentation requirements including accreditation, licensure, regulatory standards and ethical standards of practice.

HIIM 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

HIIM 231. Health Information Management Applications. 2 Hours.

PR: CS 101 with a minimum grade of C-. A study of Electronic Health Records (EHR) and clinical, financial, and administrative applications. Includes a survey of implementation techniques for collecting, storing, retrieving and managing healthcare data.

HIIM 233. Health Informatics and Information Management Disease Fundamentals and Management. 3 Hours.

PR or CONC: PATH 200 or PALM 200. A study of the nature and cause of disease and management, including qualifications and pharmaceutical interventions relevant to HIIM tasks.

HIIM 235. Coding and Classification of Diseases. 3 Hours.

PR: WVU sections require PR or CONC: ((NBAN 205 or PALM 205) and (NBAN 206 or PALM 206)) with a minimum grade of C- in both, PSC sections require PR or CONC: BIOL 230 with a minimum grade of C-. Basic coding using the latest edition of the International Classification of Diseases. Applications of classifications, taxonomies, nomenclatures, terminologies, and vocabularies to include evaluation and auditing for disease coding.

HIIM 237. Introduction to Professional Practice. 1 Hour.

Exploration of Health Informatics and Health Information Management careers, certifications and requirements, resources, curriculum options, student responsibilities, and opportunities for volunteer service. Observation of practitioners in a variety of facility settings.

HIIM 240. Classification of Healthcare Procedures. 3 Hours.

PR: HIIM 235. Basic coding of healthcare procedures using government approved classification systems and nomenclatures. Applications of classifications, taxonomies, nomenclatures, terminologies, and vocabularies to include evaluation and auditing for procedure coding.

HIIM 242. Healthcare Reimbursement and Revenue Cycle Management. 2 Hours.

A study of systems used for professional and institutional reimbursement in various healthcare settings. Application of revenue cycle principles.

HIIM 244. Principles of Health Informatics and Information Management Quality Management. 2 Hours.

A survey of quality measures, techniques, and theories including utilization review, risk management, patient outcomes, and medical staff credentialing.

HIIM 246. Fundamentals of Clinical Documentation Improvement. 3 Hours.

A study of clinical documentation improvement practices and the management of the clinical documentation process.

HIIM 247. Registries in Healthcare. 2 Hours.

A study of healthcare registry management and the operational components of registries. Registry types and registry policy are included.

HIIM 248. Health Informatics and Information Management Professional Practice 1. 1 Hour.

PR: HIIM 237. Clinical practice experience with a focus on coding and classifications systems, revenue and quality management, clinical documentation improvement and the application and use of technologies associated with these domains.

HIIM 351. Data Privacy, Confidentiality, and Security. 3 Hours.

Fundamentals of consumer privacy, confidentiality, and security. Provides an in-depth study of patient verification and identity management, E-discovery, data security, mobile device security, disaster recovery, and principles related to the release of personal health information.

HIIM 353. Healthcare Information System Analysis and Design. 3 Hours.

Study and evaluation of health information systems and networks. Concepts, techniques, and tools associated with the systems development life cycle, workflow analysis, network design, systems evaluation and maintenance.

HIIM 355. Health Informatics and Information Management Legal Issues. 3 Hours.

Study of the U.S. legal structure and legal theories that apply to health information practice and the electronic record environment. Study and application of the essentials of compliance and fraud surveillance.

HIIM 357. Focus on CPT/HCPCS Taxonomies. 3 Hours.

PR: HIIM 235 and HIIM 240. Advanced in-depth review of the practical application of healthcare taxonomies (CPT) including reimbursement and guidelines. Prepares the student for national coding certificate exam.

HIIM 360. Application of Healthcare Classification Systems. 3 Hours.

PR: HIIM 235 and PR or CONC: HIIM 240. Advanced practical application of healthcare classification systems and taxonomies to include mapping of terminologies across systems such as ICD-10-CM/PCS and CPT.

HIIM 362. Data Governance in Healthcare Systems. 3 Hours.

PR: HIIM 231. Introduction to health information systems with an emphasis on healthcare vocabulary, standards and models, and computer-based patient record. Focus on data governance and data formats to support integration and interoperability.

HIIM 364. Healthcare Data Design. 3 Hours.

PR: HIIM 353. Study of design, development, adoption and application of healthcare databases. Study of database architecture, data dictionary composition, data modeling, data warehouse and visualization.

HIIM 366. Healthcare Analytics 1. 2 Hours.

PR: STAT 111. Introduction to managing healthcare information through data analysis. Concepts of vital statistics; healthcare data collection and presentation; study designs as related to health care organizations and their function.

HIIM 368. Health Informatics & Information Management Professional Practice 2. 1 Hour.

PR: HIIM 248. Clinical practice experience with continuing focus on coding and classifications systems, data privacy and security, clinical documentation improvement and the application and use of technologies associated with these domains.

HIIM 471. Health Informatics & Information Management Research. 3 Hours.

PR: STAT 111 and HIIM 353. An introduction to the application of the scientific method and research design to health informatics and health information management.

HIIM 473. Healthcare Analytics 2. 2 Hours.

PR: HIIM 366. A study of healthcare statistical analytics and decision support applications to facilitate decision making and reporting across the healthcare ecosystem with emphasis on health informatics/information management.

HIIM 475. Project Management in Health Informatics & Information Management. 3 Hours.

In-depth study of successful health information system management including information systems planning, management controls, development, project management, operations and quality improvement, and human resource management.

HIIM 477. Leadership in Health Informatics & Information Management. 3 Hours.

A survey of leadership models and theories. Application of change management principles, strategic and operational management concepts in health systems.

HIIM 479. Coding Professional Practice Experience. 3 Hours.

PR: HIIM 235 and HIIM 240 and HIIM 357 and PR or CONC: HIIM 360. Clinical coding practice experience. Focus on ICD-10-CM/PCS and CPT coding, with a focus on coding and classifications systems, revenue and quality management, clinical documentation improvement and the application and use of technologies associated with these domains.

HIIM 480. Health Informatics & Information Management Administration. 3 Hours.

Financial management and human resource principles applied to the administration of health information systems. Includes a survey of training and development models, workflow and process design.

HIIM 482. Health Informatics and Information Governance. 3 Hours.

PR: HIIM 362. A study of health and consumer informatics with a focus on the electronic exchange of information, information integrity, data quality and application of information governance principles.

HIIM 484. Capstone in Health Informatics & Information Management. 3 Hours.

PR or CONC: HIIM 486. A comprehensive review of health information practices and principles. Includes a capstone essay and presentation. The student will rigorously prepare for the national Registered Health Information Administrator exam.

HIIM 486. Advanced Professional Practice in Health Informatics & Information Management. 3 Hours.

PR: HIIM 368. Professional experience scheduled onsite at a healthcare organization. Provides supervised, structured work experiences. 240 clock hours of clinical/practicum rotation is required.

HIST 101. Western Civilization: Antiquity to 1600. 3 Hours.

(HIST 101 does not have to precede HIST 102.) A survey of the major developments in Western civilization beginning with the ancient Mediterranean world and concluding with Reformation Europe.

HIST 102. Western Civilization: 1600 to Present. 3 Hours.

(HIST 102 may precede HIST 101.) A survey of major developments in Western civilization from 1600 to the present with attention to Europe's emerging industrial society and changing role in world affairs.

HIST 104. Latin America: Past and Present. 3 Hours.

Introduction to Latin American history, stressing the relationship between the past and present. Special emphasis is given to economic problems, political development, and social change in modern Latin America.

HIST 105. The Middle East. 3 Hours.

History of the Middle East from the rise of Islam (610 C.E.) to Twentieth Century. Special attention given to religion, gender issues, political developments, economic problems, relations with the West, cultural patterns and changes in the modern era.

HIST 106. East Asia: An Introduction. 3 Hours.

Focuses on modern China, Japan, and Korea. Consideration of important problems facing each nation today together with the cultural and historical developments which help explain contemporary affairs in East Asia.

HIST 108. North America: Past and Present. 3 Hours.

Introduction to the history of Canada, Mexico, and the United States, emphasizing selected social, economic, and political developments and how they have influenced the present.

HIST 152. Growth of the American Nation to 1865. 3 Hours.

(HIST 152 does not have to precede HIST 153.) Examines the basic political, economic, and social forces in formation and development of the United States before 1865. Emphasis on national development from independence through the Civil War.

HIST 153. Making of Modern America: 1865 to the Present. 3 Hours.

(HIST 153 may precede HIST 152.) Continues the examination of basic political, economic, and social forces in the development of the United States since the Civil War.

HIST 179. World History to 1500. 3 Hours.

Comparative history of Africa, Asia, and Europe from earliest times until 1500. Political, economic, social, and religious developments with emphasis on patterns of authority, the individual, nature, and society.

HIST 180. World History Since 1500. 3 Hours.

Comparative history of Africa, Asia, and Europe 1500 to the present. Political, economic, and social developments with emphasis on patterns of authority, the individual, nature, society, and the impact of the West.

HIST 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

HIST 198. History Fundamentals. 1 Hour.

This course introduces students to the fundamental skills necessary to successfully pursue the study of History. The course focuses on reading historical literature, expressing historical ideas in written and oral forms, note taking, time management, test taking, and study skills.

HIST 199. Orientation to History. 1,2 Hour.

Orientation to degree programs and requirements, departmental resources, curriculum options, student responsibilities and opportunities.

HIST 200. Practicing History. 3 Hours.

Students will acquire the skills to be an effective historian, including critically reading and analyzing primary and secondary sources, learning the basics of historiography, and creating an independent research topic. Students will write an original research paper and present their findings to the class.

HIST 201. History of Ancient Times: Stone Age to the Fall of Rome. 3 Hours.

Ancient civilizations of the Near East and the Mediterranean.

HIST 202. History of Modern Legal Thought. 3 Hours.

Surveys the history of modern European and American legal thought focusing on the central problem of jurisprudence, "what is law?" and examines how thinkers have answered the question in the modern period, with a particular emphasis on the nineteenth and twentieth centuries.

HIST 203. Introduction to Medieval Europe. 3 Hours.

Treats the emergence of the distinctive culture of Western Europe from the Fall of Rome to the Renaissance, considering the transformation and interaction of politics, economics, society, religion, and ideas.

HIST 204. Renaissance and Reformation. 3 Hours.

Medieval antecedents; humanism and the new learning; renaissance art; Machiavellian politics; demographic and social trends; Luther and Calvin, Radical reformers, Council of Trent; popular culture; wars of religion.

HIST 205. Absolutism & Enlightenment. 3 Hours.

Europe from 1600-1800. End of religious wars; emergence of absolutism; nobility and court life; mercantilism; expansion; theological and philosophical crisis; empiricism and scientific revolution; philosophes and Enlightenment; French Revolution.

HIST 207. Revolutionary Europe. 3 Hours.

Traces the development of European history from the reign of Louis XV to the end of the Franco-Prussian War. Political and social history emphasized.

HIST 209. Twentieth Century Europe. 3 Hours.

Traces the major political, economic, and social developments of Europe from World War I to the present.

HIST 210. Modern Military History. 3 Hours.

Military history from the American Revolution to the present, stressing the evolution of warfare with particular attention to strategy, tactics, weaponry and the consequences of war.

HIST 211. The Mediterranean 1200-1800. 3 Hours.

Interactions between societies surrounding the Mediterranean (Christians, Muslims, and Jews from Europe, the Ottoman Empire, Egypt, the Maghrib) from the late Abbasids to Napoleon. Trade, warfare, family life, and religion.

HIST 217. History of Russia to 1917. 3 Hours.

Medieval Russia and the development of autocracy; imperial expansion and serfdom; response to the West from Peter I to Alexander II; Great reforms, economic transformations, revolutionary movement; complex of crises after 1900.

HIST 218. History of Russia: 1900-Present. 3 Hours.

Revolution and reform to 1914; World War, 1917 revolutions; NEP and Stalinism to 1939; World War II and postwar Stalinism; reform under Khrushchev and Brezhnev; Gorbachev and dissolution of USSR; post-Soviet trauma.

HIST 220. The Holocaust. 3 Hours.

The origins and development of Nazi genocide against European Jews, focusing on the experience of the victims, the motives of the killers, and the inaction of bystanders.

HIST 221. History of Modern Germany. 3 Hours.

Overview of German history emphasizing eighteenth through the twentieth centuries. Special attention focuses on the development of nationalism, state-building, political culture and continuity in German history.

HIST 225. Gandhi and Beyond: Modern History of South Asia. 3 Hours.

History of India, Pakistan, and Bangladesh from the early modern period to the present; traditional background, Muslim conquests, British Raj, nationalist and independence movements, partitions, independent states, and current issues.

HIST 241. Latin America: Culture, Conquest, Colonization. 3 Hours.

History of the formative period of Latin America, emphasizing the social and economic interaction between Indians, Europeans, and blacks from the conquest to the wars for independence in the early nineteenth century.

HIST 242. Latin America: Reform and Revolution. 3 Hours.

History of modern Latin America, concentrating on the durability of nineteenth-century social, economic, and political institutions, and the twentieth-century reformist and revolutionary attempts to change those institutions.

HIST 250. West Virginia. 3 Hours.

Historical foundations and development of West Virginia, with particular emphasis upon the growth of the government, the economy, and the traditions of the state.

HIST 256. History of the American Revolution: 1763-1790. 3 Hours.

The immediate origins and long-range consequences of the movement for independence from Great Britain; includes the 1775-1790 controversy over the charter of new state and federal governments.

HIST 257. Antebellum America: 1781-1861. 3 Hours.

(Completion of HIST 152 is advised.) American history from the Revolution to the Civil War is examined in detail, with particular attention to the key personalities of the era, the development of political parties, the movement westward, the beginnings of industrialization, and the sectional struggles that culminated in war.

HIST 259. The United States: 1865-1918. 3 Hours.

Development of the United States during the most intensive phase of American industrialization; special emphasis on ideas of selected Americans on how to cope with the increase in poverty and social malaise which accompanied economic development; attention is also given to the roots of American imperialism.

HIST 261. Recent America: The United States since 1918. 3 Hours.

(Primarily for non-History majors.) The 1920's, the New Deal, World War II, and a survey of developments since World War II.

HIST 264. American Indian History. 3 Hours.

Surveys the history of Native peoples of what is now the United States, from pre-contact to the present. Ethnohistorical approach emphasizes cultural development as well as interactions with European and American peoples and policies.

HIST 276. Twentieth Century American Foreign Relations. 3 Hours.

A survey of U.S. foreign relations. Topics include security, economic, political and cultural aspects of U.S. foreign relations.

HIST 277. Revolutions in Science and Technology. 3 Hours.

Examines particular periods of intensified change in science and technology, to develop general understanding of scientific and technical change. Episodes may include the Scientific, Industrial, Darwinian, or other revolutions.

HIST 281. Peasants to Agribusiness: History and Problems of Modern Agriculture. 3 Hours.

Surveys the modernization of world agriculture from 17th century Europe to the Green Revolution, and its economic, social, and political consequences. (Alternate years.).

HIST 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

HIST 300. Greece and Rome. 3 Hours.

Covers the Minoan and Mycenaean civilizations, Archaic and Classical Greece, Alexander the great and the Hellenistic Age, the Roman Republic, the Etruscan and Carthaginian states, and the rise of the Roman Empire.

HIST 301. The Great Depression. 3 Hours.

Analyzes the causes of the Great Depression in the United States and ways in which it transformed American life, culture, and institutions.

HIST 304. History of Sacred Places. 3 Hours.

Begins by analyzing the meaning of sacred and then proceeds to a comparative historical, religious, and political discussion of selected sacred places.

HIST 313. France from 1450 to 1750. 3 Hours.

French history from Charles VII to Louis XV, Italian wars, religious conflict, absolutism, economic and commercial developments, philosophes. Focus on the evolution of national political and cultural unity between the Renaissance and Enlightenment.

HIST 314. France Since 1815. 3 Hours.

French history from the French Revolution to the present. Emphasizes the development of a modern industrial society, nineteenth-century revolutions, the impact of the World Wars, and France's role in new Europe.

HIST 317. German Central Europe, 1648-1900. 3 Hours.

Explores empires, states and nations in Central Europe; it includes the Habsburg Monarchy and Holy Roman Empire following the devastation of 30 years of War, Enlightenment, State- building, Industrialization and Nation-building to the Great War.

HIST 318. Twentieth Century German Central Europe. 3 Hours.

Explores the two World Wars, Holocaust, the Cold War, National Socialist, Communist, and Democratic regimes and Austria as well as the reunification of Germany following Revolutions of 1989.

HIST 319. Myth and Culture in Pre-colonial Africa. 3 Hours.

Pre-colonial history of Africa from its earliest beginning to the mid-nineteenth century. Examines aspects of the diverse social, cultural, economic, and political institutions of pre-colonial Africa, including: the peopling of Africa, interactions between people and their environment, social organization and cultural practices, and traditional and non-traditional belief systems.

HIST 320. Pre-Colonial Africa. 3 Hours.

History of Africa, earliest times to mid-nineteenth century. Focus on population and interaction, state formation, trade in sub-Saharan Africa, and on impact of external influences such as Christianity and Islam.

HIST 321. Colonial Africa and Independence. 3 Hours.

History of Africa from the middle of the nineteenth century to the 1960s. Political and economic trends will form major focus.

HIST 325. Modern China. 3 Hours.

Introduction to modern China (since 1839) with attention to China's Confucian heritage; the Chinese effort to modernize in the face of Western diplomatic and economic pressure; specific attention to China's nationalist and communist revolutionary traditions.

HIST 326. Modern Japan. 3 Hours.

Japan since 1868, development of earlier institutions and ideas, especially Tokugawa Era (1600-1868); nineteenth- and twentieth-century economic change and its social, political and diplomatic implications.

HIST 330. History of Italy, 1200-1800. 3 Hours.

Medieval communes and principalities, humanism and the Renaissance, Habsburg-Valois wars on the peninsula, Baroque and scientific court culture, seventeenth-century crisis, state-building and absolutism, Enlightenment and Napoleonic invasion.

HIST 331. History of Italy since 1800. 3 Hours.

Napoleonic occupation, regional states, Risorgimento, liberal democracy, emigration, industrialization, World War I, Mussolini and Fascism, postwar reconstruction, cinema, partyocracy, images of Italy, 1900s reforms.

HIST 346. Women, Gender, and Kinship in Premodern Europe. 3 Hours.

Traces key shifts in the theory and practice of European family structure, gender roles, marriage, demography, inheritance, household labor, property holding, and child-rearing from 500BC to 1700.

HIST 350. The Aztec, Maya, and Inca. 3 Hours.

Survey of political, religious, and social structures of the Aztec, Maya and Inca civilizations; exploring their origins, daily lives, cultural productions, understanding of the universe, and perspectives on Europeans.

HIST 353. 1920s America. 3 Hours.

Analyzes the social, economic, political, and technical changes that transformed life and culture in the United States during the 1920s.

HIST 358. United States Cultural History: 1819-1893. 3 Hours.

Examines the cultural panics about identity and sensibility produced by capitalism, slavery, war and urbanization in the nineteenth-century United States.

HIST 360. America in the 1960's. 3 Hours.

Examines the social, cultural, political and economic events and outcomes of the 1960s, including the civil rights movement, political economy, new left, counterculture, Great Society, rights movements, and the conservative ascendancy.

HIST 365. The Vietnam War. 3 Hours.

United States participation in the 1946-1975 fighting in Indochina. United States involvement in the political and military conflict, and the impact of the war on the United States.

HIST 370. Latin America and the World. 3 Hours.

Introduces students to different ways of thinking about Latin America's relationship with the world and how it has changed over time. Given the United States' historic impact on Latin America's relationship with the world, the course focuses on the legacy of intra-hemispheric relations on Latin America alongside Latin America's impact on the wider world.

HIST 375. Hollywood and History. 3 Hours.

Examines twentieth century American culture, politics, and society through film. It explores the relationship between film and history using films as primary sources for understanding the past.

HIST 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

HIST 402. Greece: From Troy to Alexander. 3 Hours.

Formation of Greek civilization, including social and economic factors, culture, interactions with barbarians, the Persian invasions, the Greek conquest of an Asian empire, citizenship, sex, gender, and warfare.

HIST 403. Rome: From Romulus to Zenobia. 3 Hours.

Formation of Roman civilization, including cultural transformations, conquest of Italy and the Mediterranean, the fall of the Republic, the entertainment and sport industry, the rise of Christianity.

HIST 409. Field Methods in Historic Preservation. 3 Hours.

Outlines professional historic preservation fundamentals associated with inquiry, documentation and analysis. A variety of research approaches expose students to both primary and secondary sources that are typically utilized when conducting reconnaissance or intensive level historic surveys or in preparing HABS/HAER or NRHP documentation.

HIST 412. Introduction to Public History. 3 Hours.

Introduction to a wide range of career possibilities for historians in areas such as archives, historical societies, editing projects, museums, business, libraries, and historic preservation. Lectures, guest speakers, field trips, individual projects.

HIST 414. The Great War, 1914-1918. 3 Hours.

Focuses primarily on the First World War in Europe and the Middle East while mindful of its global contexts and implications. In addition to the diplomatic, political and military history of the war, the course addresses the war on various home fronts and the vast territories that came under Central Power and Allied occupation.

HIST 415. Early Modern Law & Society. 3 Hours.

Examines the ways in which laws and legal practice structured social relations in Europe between the Middle Ages and the French Revolution, focusing on the historical development of legal ideas, the relation of law to political authority and governance, and how various social actors used law to pursue their interests.

HIST 416. The French Wars of Religion. 3 Hours.

Detailed analysis of the tangled roots of this conflict (1562-1629), the salient events of the period, and their long-term impact. Popular culture, military developments, theology, and court politics.

HIST 417. World War II in Europe. 3 Hours.

Impact of World War II on political culture and moral fabric; emphasis on themes of invasion, occupation, collaboration, resistance, survival, and retribution. (Alternate years).

HIST 418. Eastern Europe Since 1945. 3 Hours.

The social, economic, intellectual, cultural, and political history of Eastern Europe since the Second World War. Special emphasis on the causes of the East European revolutions of 1989 and the problems of post-communist transition. (Offered every third semester.).

HIST 419. Revolutionary Russia: 1900-1953. 3 Hours.

Crisis of late Imperial Russia, Silver Age, World War I, 1917 revolutions; Civil War, renewed empire, crisis of 1921; NEP, policy debates, succession; Stalinism to 1939; World War II, post war Stalinism; initial repudiation of Stalin.

HIST 420. USSR and After: 1953 to Present. 3 Hours.

Crisis of late Stalinism; Khrushchev, destalinization, reforms; Brezhnev, stabilization, militarization, corruption, stagnation; Gorbachev, perestroika, glasnost, disintegration; Yeltsin, shock therapy, criminalization, decline.

HIST 421. Hitler and the Third Reich. 3 Hours.

Myths and realities of Hitler's public and personal life; emphasis on rise to power, party, ideology, and propaganda techniques; position and policies as Fuehrer.

HIST 422. Twentieth-Century Germany from Weimar to Bonn. 3 Hours.

The Weimar Republic, the Third Reich, and the two German states created after World War II.

HIST 423. History of Fascism. 3 Hours.

Examines history of fascism in interwar Europe and postwar neo-fascism, using scholarship, art, propaganda, and film. Topics include origins, regime culture, the totalitarian state, and violence.

HIST 424. Britain 1455-1603. 3 Hours.

England from Richard II to Elizabeth I, covering developments in politics, religion and society, ranging from the War of the Roses and the plague to Protestantism and Shakespeare.

HIST 427. East Africa to 1895. 3 Hours.

East Africa from earliest times to the beginning of European control. Population movement and interaction, development of varying types of policy, revolutionary change, and the European scramble for East Africa form the major focus.

HIST 428. East Africa Since 1895. 3 Hours.

History of colonial rule and movement to independence in East Africa. Political, economic, and social changes will be examined with particular emphasis on the rise and triumph of African nationalism.

HIST 430. Living and Dying in Medieval Europe. 3 Hours.

Social and cultural examination of medieval Europe from 500 to 1500. Course themes include diet, relationships, labor, health and the body, material culture, and violence and law.

HIST 432. Eighteenth Century Britain: 1715-1832. 3 Hours.

The Age of Aristocracy, the political, social, religious, economic, and intellectual impact of the Industrial, Agricultural, American, and French revolutions.

HIST 433. West Africa to 1885. 3 Hours.

West Africa from the earliest times to the imposition of colonial rule. Examines social, economic, political developments and interactions, and European scramble for West Africa. (Alternate years).

HIST 434. West Africa from 1885. 3 Hours.

Abolition of the transatlantic slave trade, imposition of colonial rule, colonial economic, social and administrative systems, the rise and triumph of African nationalism, West Africa since independence.

HIST 435. History of Chinese Thought. 3 Hours.

Explores the inception and development of the major traditions of social and political thought in China. Focuses on how certain political ideas and social practices arose in the Bronze Age and developed and interacted over millennia to inform all areas of life in premodern China.

HIST 437. Africa in World History. 3 Hours.

The course aims to reposition Africa and Africans in world history by recognizing their centrality and contributions to our modern heritage. It explores indigenous developments in Africa and cross-continental interactions between the continent and Asia, the Americas, Europe and Oceania that underscore the role of Africans in shaping their own history and influencing global interdependence.

HIST 439. History of Modern Mexico. 3 Hours.

Focusing on the 19th and 20th centuries, this course explores the peoples and cultures of Mexico from conquest to the present, including Spanish colonial period, Independence wars, early Republic, Mexican-American War, Revolution, Golden Age, and post-NAFTA period.

HIST 440. Mexican Law from Montezuma to El Chapo. 3 Hours.

An examination of the legal history of Mexico since the arrival of Spaniards in the early sixteenth century, exploring development of a Mexican legal culture that blended indigenous conceptions of the law with the Spanish legal framework, derived from both Roman and ecclesiastical traditions.

HIST 441. Seventeenth Century Colonial America. 3 Hours.

The establishment of England's American colonies and their development during a century of political, social, religious, and economic change and the interaction between events in Old and New Worlds. (Alternate years).

HIST 442. Eighteenth Century America. 3 Hours.

The social, political, and economic maturation of England's American colonies, the move toward independence, and the establishment of government at state and federal levels. (Alternate years).

HIST 445. History of American Women. 3 Hours.

Examination of the history of American women from 1607 to the present with emphasis on working conditions, women's rights, development of feminism, women's role in wartime, women in the family.

HIST 451. African-American History-1900. 3 Hours.

African background, the slave trade and evolution of slavery in the New World. The attack on slavery and its destruction.

HIST 452. African-American Since 1900. 3 Hours.

Reconstruction, the age of reaction and racism, black migration, black nationalism, blacks in the world wars, and desegregation.

HIST 453. Civil War and Reconstruction. 3 Hours.

Causes as well as constitutional and diplomatic aspects of the Civil War; the role of American black in slavery, in war, and in freedom; and the economic and political aspects of Congressional Reconstruction.

HIST 454. The Coming of the United States Civil War. 3 Hours.

Analyzes social and economic transformations in the early American republic through an examination of the ideological heritage of the Revolution, capitalism, slavery, reform movements, immigration, popular culture, and political conflict before the Civil War.

HIST 456. The Gilded Age in US History. 3 Hours.

Examines responses of the American people and institutions to opportunities and problems of the late nineteenth century. Emphasis on rise of big business; labor organization; immigration; regular, reform, and radical politics; disappearance of the frontier; farm crisis; and origins of imperialism.

HIST 457. The United States from McKinley to the New Deal, 1896 to 1933. 3 Hours.

American national history from William McKinley to Franklin D. Roosevelt. Particular attention is given to great changes in American life after 1896; national political, economic, social, and cultural development; the Progressive Era in American politics; and alterations in American foreign relations resulting from the Spanish-American War and World War I.

HIST 459. United States History: New Deal to Great Society. 3 Hours.

Covers New Deal; World War II; Cold War, with emphasis on American social, political, technological, and cultural developments; United States domestic problems and foreign relations from 1945 to 1968.

HIST 460. World War II in America. 3 Hours.

Examines the American experience in World War II with an emphasis on the economic, social, and political impact of war on American society.

HIST 463. American Foreign Relations to 1941. 3 Hours.

American's foreign policy and involvement in international relations from the eighteenth century to the beginning of World War II.

HIST 464. American Foreign Relations 1941 to Present. 3 Hours.

America's foreign policy and growing involvement in international relations including the U.S. role in World War II, the Korean War and Vietnam.

HIST 466. American Economic History to 1865. 3 Hours.

Origins and development of American business, agricultural, and labor institutions, problems, and policies, from 1600 to 1865; influence of economic factors upon American history during this period.

HIST 468. The Old South. 3 Hours.

(For advanced undergraduate and graduate students.) History of the South exploring peculiar differences that led to an attempt to establish a separate nation. The geographical limitation permits a detailed study of economic and social forces within the context of the larger national history.

HIST 469. The New South. 3 Hours.

Integration of the South into the nation after the Civil War. Emphasis on southern attitudes toward industrialization, commercial agriculture, organized labor, and African-Americans. Special attention to the southern literary renaissance and conservative and progressive politics of the southern people.

HIST 470. United States Civil Rights Movement. 3 Hours.

Examines the recent scholarship, music, film and oral history of the 1950s-60s US Civil Rights Movement, examining its New Deal roots, post-Vietnam War legacies and the nature of American identity, citizenship, and political culture.

HIST 473. Appalachian Regional History. 3 Hours.

Historical survey of Central Appalachia's three phases of development: traditional society of the nineteenth century, the transformation of a mountain society by industrialization at the turn of the twentieth century, and contemporary Appalachia.

HIST 477. Working Class America. 3 Hours.

This course is designed to introduce students to issues surrounding the American working class. It will explore changes in the modes of production, the impact of labor migrations, the emergence of working-class organizations, and the political and social ideologies of working people. Particular attention will be given to the impact of racial, ethnic and gender-based conflict on the emergence of working-class movements. Students will be encouraged to interpret historical material in the context of current workplace relations.

HIST 478. American Immigration History. 3 Hours.

Examines the cycles of immigration to the United States. Emphasis will be placed on the diversity of immigrant groups and their cultures, ethnic community formation, assimilation, immigration policies (especially guest worker and refugee policy), as well as anti-immigrant politics and nativism.

HIST 484. Historical Research-Capstone. 3 Hours.

PR: History major or consent. Capstone course which introduces historical research techniques. Completion and presentation of major research paper required.

HIST 489. Introduction to Historic Preservation. 3 Hours.

Introduction to historic preservation issues, including law, economics, not-for-profit organizations, site interpretation, architectural history, industrial archeology federal programs, downtown revitalization, and landmarks commissions.

HIST 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

HIST 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

HIST 492. Directed Study. 1-3 Hours.

Directed study, reading, and/or research.

HIST 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

HIST 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

HIST 495. Independent Study. 1-6 Hours.

HIST 495. Independent Study. 1-6 hr. Faculty supervised study of topics not available through regular course offerings.

HIST 496. Senior Thesis. 1-3 Hours.

PR: Consent.

HIST 497. Research. 1-6 Hours.

Independent research projects.

HIST 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

HIST 499. Global Service Learning. 1-3 Hours.

PR: Consent. Theory and practice of global service-learning. The main objective will be to pair the experiential aspects of meaningful and sustained service in the host community with work from the student's anchor course by offering a methodological framework for cultural immersion and community service as well as adding to the content of the anchor course.

HN&F 126. Society and Food. 3 Hours.

Exploration on a global basis of interactions of man and environment as reflected in food production systems. Relation of food supply and use in development or maintenance of social and political institutions.

HN&F 171. Introduction to Human Nutrition. 3 Hours.

Nutrient structure, metabolism, integrated function and their importance to human well-being during all stages of the life cycle. Current concerns and those of special interest to college students in meeting nutrient needs.

HN&F 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

HN&F 200. Nutrition/Activity/Health. 3 Hours.

PR: HN&F 171. An overview of how proper nutrition and physical activity relates to individual health and disease prevention.

HN&F 271. Fundamentals of Nutrition. 3 Hours.

PR: HN&F 171. The occurrence, uptake and metabolic roles of essential and key non-essential nutrients will be discussed in relation to growth, reproduction, and health in human subjects.

HN&F 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

HN&F 298. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

HN&F 348. Science of Food Preparation. 3 Hours.

PR: BIOL 102 and BIOL 104 and CHEM 115. To explore functional properties of ingredients and applied scientific theories to food preparation.

HN&F 350. Cross-Cultural Cuisine. 3 Hours.

PR: Sophomore standing. This course examines the evolution of human society and culture from a historical perspective as it relates to food and cuisine. Economic and religious influences on dietary patterns and nutritional health are also explored. A hands-on laboratory emphasizes preparation of typical foods from different cultures to supplement the materials covered in the lecture part of the course.

HN&F 353. Food Service Systems Management. 3 Hours.

PR: HN&F 271 and (HN&F 350 or MATH 124 or higher). Introduction to food service systems and systems management. Principles of quantity food production management: production schedules, portion control, financial management, layout and equipment planning, evaluation of alternative systems, and computer applications.

HN&F 355. Nutritional Assessment. 3 Hours.

PR: HN&F 271. This course will provide students with the knowledge needed to interpret nutrition-related lab values and anthropometric data, identify how nutrition is related to disease prevention, understand clinical and biochemical assessments of nutritional status and how nutritional assessment can be applied in dietetics practices.

HN&F 364. Nutrition Education & Counseling. 3 Hours.

PR: HN&F 271. Roles, responsibilities, and limitations of the professional health/nutrition educator in nutrition counseling, guidance and referral, nutrition needs assessment, dynamics of nutrition counseling interaction, and selected counseling techniques.

HN&F 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

HN&F 401. Senior Seminar in Nutrition. 2 Hours.

The course provides an integrative approach to various topics related to the practice of dietetics by challenging students to read, critique/evaluate, present, and discuss current research.

HN&F 460. Advanced Nutrition. 3 Hours.

PR: HN&F 271 and (AGBI 410 or BIOC 339). Role of nutrients in physiological and biochemical processes and metabolism in the body. Biochemical foundations of RDA and clinical nutrition.

HN&F 472. Community Nutrition. 3 Hours.

PR: HN&F 171. Beginning planning for community nutrition to individuals and families at various stages of the life cycle. Roles of concerned agencies and professional groups. Clinical experience in community facilities.

HN&F 473. Medical Nutrition Therapy 1. 3 Hours.

PR: HN&F 171 or consent. Nutrient analysis and introduction to nutrition experimentation; nutritional assessment.

HN&F 474. Medical Nutrition Therapy 2. 3 Hours.

PR: HN&F 473 and (PSIO 241 or PSIO 441 or ANPH 301) or consent. Nutritional care aspects of patients. Modification of diet to meet human nutrition needs in various medical conditions.

HN&F 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

HN&F 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

HN&F 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

HN&F 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

HN&F 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

HN&F 496. Senior Thesis. 1-3 Hours.

PR: Consent.

HN&F 497. Research. 1-15 Hours.

PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. Grading may be S/U.

HN&F 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

HONR 101. Honors Hall Council. 1 Hour.

An introduction to the process of planning and implementing community activities. Students produce a proposal, complete with a budget for an activity, which is evaluated by their peers. Students read and discuss articles on Leadership that frame their performance and interactions in an academic context.

HONR 189. Career Exploration Internship. 1-3 Hours.

(May be repeated for a maximum of 9 credit hours.) Guided career exploration through introductory experiential learning by shadowing professionals at one or more placement site.

HONR 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

HONR 199. Orientation to Honors. 1 Hour.

Orientation to degree programs and requirements, departmental resources, curriculum options, student responsibilities and opportunities.

HONR 200. Peer Mentoring. 3 Hours.

PR: Students must be in good academic standing with the Honors College to enroll in this course. This course is designed to develop mentors who will lead HONR 199. This course will focus on strategies and tactics used by successful university instructors, practice of these techniques, and the production of materials.

HONR 201. Peer Tutoring. 2 Hours.

PR: Students must be Honors College members in good academic standing. This course is a forum for the exchange of ideas and an environment where tutors learn effective tutoring strategies.

HONR 202. Science and Technology. 3 Hours.

An introduction to the systematic methods of analysis to scientific developments, technological advancements, and our evolving natural world through focused, engaging subjects.

HONR 202A. Science and Technology. 3 Hours.

An introduction to the systematic methods of analysis to scientific developments, technological advancements, and our evolving natural world through focused, engaging subjects.

HONR 203. Honors Mathematics and Quantitative Skills. 3 Hours.

An introduction to mathematics and quantitative techniques and practical application of numerical, symbolic, or spatial concepts through focused, engaging subjects.

HONR 203A. Everyday Data Analysis. 3 Hours.

An introduction to mathematics and quantitative techniques and practical application of numerical, symbolic, or spatial concepts through focused, engaging subjects.

HONR 204. Society and Connections. 3 Hours.

An introduction to analysis of human behavior, societal and political organization, or communication through focused, engaging subjects.

HONR 204A. Society and Connections. 3 Hours.

An introduction to analysis of human behavior, societal and political organization, or communication through focused, engaging subjects.

HONR 204B. Society and Connections. 3 Hours.

An introduction to analysis of human behavior, societal and political organization, or communication through focused, engaging subjects.

HONR 205. Human Inquiry and the Past. 3 Hours.

An introduction to the humanistic study of historical, philosophical, and spiritual inquiry through focused, engaging subjects.

HONR 205A. Human Inquiry and the Past. 3 Hours.

An introduction to the humanistic study of historical, philosophical, and spiritual inquiry through focused, engaging subjects.

HONR 205B. Human Inquiry and the Past. 3 Hours.

An introduction to the humanistic study of historical, philosophical, and spiritual inquiry through focused, engaging subjects.

HONR 205C. Human Inquiry and the Past. 3 Hours.

An introduction to the humanistic study of historical, philosophical, and spiritual inquiry through focused, engaging subjects.

HONR 205D. Human Inquiry and the Past. 3 Hours.

An introduction to the humanistic study of historical, philosophical, and spiritual inquiry through focused, engaging subjects.

HONR 206. Arts and Creativity. 3 Hours.

An introduction to the study of artistic expression through focused, engaging subjects.

HONR 206A. Arts and Creativity. 3 Hours.

An introduction to the study of artistic expression through focused, engaging subjects.

HONR 206B. Arts and Creativity. 3 Hours.

An introduction to the study of artistic expression through focused, engaging subjects.

HONR 206C. Arts and Creativity. 3 Hours.

An introduction to the study of artistic expression through focused, engaging subjects.

HONR 207. Global Studies and Diversity. 3 Hours.

An introduction to methods and principles of critical inquiry to explore global issues and cultural, linguistic, or experiential diversity through focused, engaging subjects.

HONR 207A. Global Studies and Diversity. 3 Hours.

An introduction to methods and principles of critical inquiry to explore global issues and cultural, linguistic, or experiential diversity through focused, engaging subjects.

HONR 207B. Global Studies and Diversity. 3 Hours.

An introduction to methods and principles of critical inquiry to explore global issues and cultural, linguistic, or experiential diversity through focused, engaging subjects.

HONR 207C. Global Studies and Diversity. 3 Hours.

An introduction to methods and principles of critical inquiry to explore global issues and cultural, linguistic, or experiential diversity through focused, engaging subjects.

HONR 210. City-As-Text-Morgantown. 3 Hours.

National Collegiate Honors Council's framework City-As-Text uses Morgantown as the basis for an interactive course which uses primary document and physical structures to investigate the historical, political, cultural and social aspects of place. The central question that the course seeks to answer is How does a Space become a Place?.

HONR 213. Growing Up in America. 3 Hours.

Students in this course explore the how the issues of gender, race/ethnicity, social class, time period, and location shaped cultural understandings of the child and a child's experience as a child throughout American history.

HONR 215. Confronting Pseudoscience. 3 Hours.

Using the tools of evidential reasoning and critical thinking this course examines the difference between a true scientific endeavor and pseudoscientific belief systems.

HONR 220. Speech Writing. 3 Hours.

A workshop seminar with the objective to develop and practice speech writing and presentation skills. The focus is on formal, manuscript speeches, with carefully crafted language, organization, flow, and delivery.

HONR 245. Service in Tutoring. 3 Hours.

An introduction to the basic principles, practices, and current theory of peer tutoring. This course will provide Honors students the opportunity to tutor in local high schools while learning about topics of interest in education. Students will engage in reflection and critical inquiry that link service learning to academic learning.

HONR 285. Summer Guided Reading. 3 Hours.

Students will explore various reading topics. They will be required to complete assigned readings and submit review papers on the readings.

HONR 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

HONR 297. Research. 1-6 Hours.

Independent research projects.

HONR 298. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study, or research.

HONR 301. Advanced Peer Tutoring. 1,2 Hour.

PR: Students must be members of the Honors College in good academic standing and have completed HONR 201. (May be repeated for a maximum of 9 credit hours.) This course is designed as a forum for the exchange of ideas and an environment where advanced peer tutors can learn and discuss effective strategies for helping their University peers study various subjects.

HONR 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

HONR 401. Peer Leadership Practicum. 1,2 Hour.

PR: Students must be members of the Honors College in good academic standing and have completed HONR 201 and HONR 301. (May be repeated for a maximum of 9 credit hours. This course is designed as a forum for the exchange of ideas and an environment where advanced peer tutors can learn and discuss effective strategies for helping their University peers study various subjects.

HONR 402. Foundations of Peer Mentoring. 3 Hours.

PR: Students must be in good academic standing with the Honors College to enroll in this course. This course is designed to develop mentors who will lead HONR 199. This course will focus on strategies and tactics used by successful university instructors, practice of these techniques, and the production of materials.

HONR 412. The Salem Witch Trials. 3 Hours.

The Salem Witch Trials are one of the iconic events of American History. This class examines the trials themselves and their interpretations in scholarly works, art, drama and film, poetry and other media.

HONR 450. Honors EXCEL Project Development. 1 Hour.

This course will enable and enhance experiential learning for students in the Honors EXCEL program. Students will develop skills in leadership, project management, communication and collaborative scholarship.

HONR 451. Honors EXCEL: Summative Experience. 1 Hour.

This course is designed to enable and enhance experiential learning for students in the Honors EXCEL program. Students will develop written and oral communication skills. Students will present their work to stakeholders on- and/or off-campus.

HONR 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

HONR 491. Professional Field Experience. 1-9 Hours.

PR: Consent. (May be repeated up to a maximum of 9 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

HONR 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

HONR 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

HONR 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

HONR 496. Senior Thesis. 1-3 Hours.

PR: Consent.

HONR 497. Research. 1-6 Hours.

Independent research projects.

HONR 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

HONR 499. Global Service Learning. 1-3 Hours.

PR: Consent. Theory and practice of global service-learning. The main objective will be to pair the experiential aspects of meaningful and sustained service in the host community with work from the student's anchor course by offering a methodological framework for cultural immersion and community service as well as adding to the content of the anchor course.

HORT 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

HORT 220. General Horticulture. 3 Hours.

PR: BIOL 101 and BIOL 103 or consent. Principles underlying present-day horticulture practice with special emphasis on how basic discoveries in plant science have been applied in horticulture.

HORT 251. Floral Design. 3 Hours.

Basic course in flower arrangement to cover occasions for the home and retail flower shop.

HORT 260. Woody Plant Materials. 3 Hours.

PR: BIOL 101 and BIOL 103 or equiv. Common ornamental woody plants, their identification, cultural needs, and evaluation of use; some outdoor study and a one-day nursery trip. (2 - 3 hr. lab.).

HORT 262. Herbaceous Plant Materials. 3 Hours.

Identification, description, adaptability, and evaluation of selected herbaceous annuals and perennials with emphasis on their use as design elements.

HORT 293. Special Topics. 6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

HORT 298. Honors. 1-3 Hours.

Independent reading, study, or research.

HORT 310. Vines to Wines. 3 Hours.

Introduction and overview of the principles underlying present-day grape and wine production with special emphasis on origins, botany, appreciation, historical and cultural significance.

HORT 315. Seed to Weed: Unpotting the Plant. 3 Hours.

This course encourages discussion and discourse on the cultivation and uses of cannabis by exposing students to the history, laws and regulation, health effects, environmental issues, growing and marketing of cannabis and cannabis products.

HORT 330. Plant Propagation. 3 Hours.

PR: PLSC 206 or consent. Study of practices of plant propagation and factors involved in reproduction in plants.

HORT 360. Landscape Management. 3 Hours.

PR: (HORT 220 and HORT 260 and HORT 262) or consent. Introduction to basic landscape management principles and practices including landscape design, installation and maintenance.

HORT 441. Garden Center Management. 3 Hours.

PR: PLSC 206 and HORT 220 or consent. Principles of the operation and management of nursery, garden center, and landscape installation businesses with an emphasis on current issues.

HORT 443. Vegetable Crops. 3 Hours.

PR: PLSC 206 or consent. Botanical and ecological characteristics influencing the production of vegetable crops. (One three-day field trip required.).

HORT 444. Handling and Storage of Horticultural Crops. 3 Hours.

PR: PLSC 206 and CHEM 116. Characteristics of perishable crops. Methods and materials used to maintain quality.

HORT 445. Greenhouse Management. 3 Hours.

PR: Two semesters of inorganic chemistry and HORT 220 or consent. Greenhouse as a controlled plant environment. How to regulate factors influencing plant growth and development within specialized environments of greenhouses.

HORT 480. Case Studies in Horticulture. 3 Hours.

PR: Consent. Capstone course for the horticulture major. The main goal of the course is to develop independent thinkers and professionals in the field of horticulture. The course emphasizes data and information gathering, vetting of sources and resources used in problem solving, and the formation of concise and logical arguments to help analyze and solve from simple to complex problems.

HORT 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

HORT 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

HORT 493. Special Topics. 6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

HORT 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

HORT 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

HORT 496. Senior Thesis. 1-3 Hours.

PR: Consent.

HORT 497. . 1-6 Hours.

Independent research projects.

HORT 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

HRMG 440. Training and Development. 3 Hours.

PR: MANG 330 with a minimum grade of C-. This course provides a theoretical and practical understanding of the field of training and development and offers some practical approaches to conducting training programs.

HRMG 450. Staffing and Selection. 3 Hours.

PR: MANG 330 with a minimum grade of C-. This course focuses on the management of employee staffing and selection and includes such topics as government regulations affecting selection processes, reliability and validity of selection measures, and the measurement of actual job performance.

HRMG 460. Compensation and Benefits. 3 Hours.

PR: MANG 330 with a minimum grade of C-. Designing and implementing total compensation systems in both private and public sectors. The emerging elements of total compensation systems are included, providing insights into problems and opportunities for personnel.

HRMG 470. Conflict Management. 3 Hours.

This course focuses on the management of conflict in an organizational setting. The topics covered include foundations of individual behavior, styles for managing conflict, negotiations, mediation, and arbitration.

HRMG 480. Collective Bargaining and Labor Relations. 3 Hours.

PR: MANG 330 with a minimum grade of C-. Examination of the theory and practice of collective bargaining. Topics include economics and historical environment, labor law, unionization, contract negotiation, contract content patterns, conflict resolution, grievance handling, and an introduction to arbitration.

HRMG 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated for a maximum of 18 hours.) Prearranged Experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

HRMG 495. Independent Study. 1-6 Hours.

Faculty-supervised study of topics not available through regular course Offerings.

HTOR 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

HTOR 376. Hospitality & Tourism Leadership. 3 Hours.

PR: ACCT 201 and (ECON 225 or STAT 211) with a minimum grade of C- in each. This course provides a basic understanding of lodging, food service, and tourism industries by tracing the growth and development of each industry with a focus on management and leadership in these industries.

HTOR 470. Tourism Management. 3 Hours.

PR or CONC: HTOR 376. This course provides a basic understanding of the organizational characteristics of tourism: structures, operations, and social/cultural aspects. International, national, regional and state/local tourism organizations are examined.

HTOR 471. Restaurant Management. 3 Hours.

PR or CONC: HTOR 376. This course covers restaurant history and key operational issues: food/labor costs, facility maintenance checklists, set up production charts, sanitation and safety, menu planning, financial goals and results, purchasing, receiving, storing, and issuing.

HTOR 472. Hotel Operations Management. 3 Hours.

PR or CONC: HTOR 376. The course focuses on operational and maintenance procedures for hotel management. Case studies introduce day to day operations of each hotel department, which provides a better understanding of the unique managerial duties associated with hotel operations.

HTOR 473. Hospitality Social Customer Relationship Management. 3 Hours.

PR: HTOR 376 with a minimum grade of C-. This course focuses on identifying hospitality industry best practices in building and managing a customer base through social media channels. Students will develop innovative engagement strategies to achieve the goals of social customer relationship management.

HTOR 474. Hospitality Revenue Management. 3 Hours.

PR: HTOR 376 with a minimum grade of C-. This course explores the important role of revenue management in the hospitality industry. It also instructs future hospitality managers how to effectively manage their inventories and prices through revenue management principles and theories.

HTOR 480. Event Planning Practicum. 3 Hours.

PR: HTOR 376 and HTOR 471 and HTOR 472 with a minimum grade of C- in each. This course will utilize experiential learning to prepare students to plan and execute special events in the hospitality industry.

HTOR 491. Professional Field Experience. 1-18 Hours.

PR: Consent (may be repeated up to a maximum of 18 hours). Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

HTOR 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

HUM 101. Introduction to Western Civilization 1. 3 Hours.

Presents the high points of Greco-Roman and Medieval European civilizations: their art, architecture, philosophy, religion, literature and music.

HUM 102. Introduction to Western Civilization 2. 3 Hours.

Presents the art, architecture, philosophy, religion, literature and music of the following periods in Western civilization: the Renaissance, the Age of Classicism and the revolutionary nineteenth and twentieth centuries.

HUM 103. Honors Seminar in Humanities 1. 3 Hours.

Honors courses for selected students mirroring HUM 101. Affords participants a wider opportunity for discussion than in HUM 101 and for reading the classic statements on the nature of civilization.

HUM 104. Honors Seminar in Humanities 2. 3 Hours.

Honors courses for selected students mirroring HUM 102. Affords participants a wider opportunity for discussion than in HUM 102 and for reading the classic statements on the nature of civilization.

HUM 106. Promethean Myth, Modern Arts. 3 Hours.

Introduces theme of Promethean individuality at the limits of humanistic pursuit, surveys archetypal characters as they have developed to the present, considering how skepticism had inspired art in diverse forms.

HUM 107. The Humanities of Egypt. 3 Hours.

This course will focus on the cultural history of Egypt from ancient until modern times.

HUM 109. The Italian Renaissance. 3 Hours.

Introduction to artistic and cultural developments during the Renaissance. In addition, the class will appreciate cross-cultural influences and examine the impact that the Renaissance had on Nineteenth-Century writers.

HUM 112. Humanities of Greece. 3 Hours.

Presents the art, architecture, philosophy, religion, literature, and history of Greece.

HUM 113. Faculty Led Travel: Greece. 1 Hour.

Learn about the art, architecture, philosophy, religion, literature, and history of Greece, through faculty led travel.

HUM 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

HUM 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

HUM 492. Directed Study. 1-3 Hours.

Directed study, reading and/or research.

HUM 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

HUM 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

HUM 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

HUM 499. Global Service Learning. 1-3 Hours.

PR: Consent Theory and practice of global service learning. The main objective will be to pair the experimental aspects of meaningful and sustained service in the host community with work from the student's anchor course by offering a methodological framework for cultural immersion and community service as well as adding to the content of the anchor course.

ID 100. Interior Design Peer Mentoring. 1 Hour.

PR: ID major. New students in interior design participate with upper division mentors in a variety of activities designed to acquaint the students with peers and faculty and to enhance their understanding of the field of interior design.

ID 105. Introduction to Interior Architecture. 3 Hours.

PR: Consent. Introduction to the practices and theories of interior architecture and design within and across cultures.

ID 110. Introduction to Interior Design. 3 Hours.

Introduction to design philosophy, elements and principles, universal and sustainable design, and aesthetic and functional evaluation in the context of interior environments using design as a methodology and problem-solving process.

ID 115. Introduction to Architectural Design and Graphics. 4 Hours.

PR: Consent. Introduction to the principles and elements of design and their applications in analyzing, interpreting, developing, and communicating architectural spaces.

ID 125. Design Foundations. 3 Hours.

PR or CONC: ID 110. Application of the theoretical elements and principles of design to two-and three-dimensional compositions.

ID 155. Interior Design Graphics 1. 3 Hours.

Studio experience reading and drafting architectural plans, elevations, sections, details, and paralines.

ID 165. Architecture and Design Foundations. 4 Hours.

PR: ID 105 and ID 115 with a minimum grade of C- in each. Introduction to architectural design and communication processes utilizing concept development and the principles and elements of design.

ID 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

ID 200. Interior Materials and Structures. 3 Hours.

PR: ID 110 and ID major. Interior design materials including types, qualities, and uses, and calculations of quantities; basic architectural elements related to interior design.

ID 205. Introduction to Architectural Building Technologies. 3 Hours.

PR: ID 105 and ID 115 and ID 165 with a minimum grade of C- in each. Introductory overview of building technologies associated with structure, enclosure, and the interior environment (including partition, lighting, acoustics, thermal comfort, and indoor air quality).

ID 215. Architectural Interior Design and Graphics 1. 6 Hours.

PR: ID 105 and ID 115 and ID 165 with a minimum grade of C- in each. Introduction to architectural design abstraction and conceptualization; Emphasis is placed on developing understandings and applications of ordering principles, pattern utilization, figure-ground relationships, and color in the development of architectural environments. Development of drawing (hand and digital) as a means to design is stressed.

ID 225. Space Planning. 3 Hours.

PR: ID 110. Studio experience using two-and three-dimensional techniques to increase understanding of spatial relationships; emphasis on ergonomics, anthropometrics, and proxemics.

ID 230. History of Interiors and Furniture 1. 3 Hours.

The course examines the history of western European design from antiquity through the neoclassical periods as situated within the larger content of the contemporary globe.

ID 235. Interior Design Graphics 2. 3 Hours.

PR: ID 155. Studio course in spatial graphics; experience in constructing and using perspective grids; perspective sketching and basic color rendering.

ID 240. Codes and Interior Construction. 2 Hours.

This course addresses construction issues, building codes, and life safety codes as they relate to both the commercial and residential built interior environment.

ID 250. History of the Architectural Interior 1. 3 Hours.

PR: Consent. Examination of the architectural interiors of classical antiquity and the medieval periods within their geographical, political, aesthetic, social, technological, and economic contexts. Content is focused on developments within Europe and the Mediterranean basin.

ID 260. History of Interiors and Furniture 2. 3 Hours.

PR: ID 230. Interiors, furniture, and decorative arts of Europe and America in the nineteenth and twentieth centuries.

ID 265. Architectural Interior Design and Graphics 2. 6 Hours.

PR: ID 215 with a minimum grade of C-. Introduction to the design of architectural, typological elements and compositions with an emphasis on spatial development and human accommodation. Students examine precedents by significant architects and designers and use their findings to inform design decisions. Design diagramming, modeling (digital and physical), and graphic communication are stressed.

ID 270. Interior Lighting Design. 3 Hours.

PR: ID 200. General concepts of light quality, quantity, distribution, and color rendering for residential and contract spaces; practical applications using lighting calculations and graphic illustrations for lighting design.

ID 280. History of the Architectural Interior 2. 3 Hours.

PR: Major or Permission. Examination of the architectural interiors of the modern period within their geographical, political, aesthetic, social, technological, and economic contexts. Content is focused on European and American developments within an increasingly globalized world.

ID 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ID 305. Architectural Interior Building Systems and Construction. 3 Hours.

PR: ID 205 with a minimum grade of C- or consent. In depth survey of the properties of interior construction materials and systems with an emphasis on understanding their financial, environmental, regulatory, and craft characteristics and implications for design decision-making.

ID 310. Interior Finishes, Furnishings, and Fixtures. 3 Hours.

PR: ID 205 with a minimum grade of C-. In-depth survey of the properties of interior finishes, furnishings, and fixtures with an emphasis on understanding their financial, environmental, acoustical, ergonomic, maintenance and/or regulatory characteristics and implications for design decision-making.

ID 315. Advanced Architectural Interior Design 1. 4 Hours.

PR: ID 265 with a minimum grade of C- and PR or CONC: ID 316 and Consent. Application of orderly design processes to residential building programs. Investigation of the relationship between human factors and the interior environment. Analysis and integration of existing site considerations, space planning and universal design principles, and building regulations in the development of cohesive residential interior environments. Introduction to design integration of residential interior finishes, furnishings, and fixtures.

ID 316. Advanced Architectural Graphics 1. 2 Hours.

PR: Consent. Development of advanced speaking and graphic layout skills for design presentations.

ID 325. Computer-Aided Drafting and Design. 2 Hours.

PR: ID 376. Lecture/studio using computer-aided drafting and design for interior design; emphasis on CADD as a drafting tool.

ID 330. Design for Quality of Living. 3 Hours.

Introduces the concept and methodology of design thinking and the theoretical base of quality of living through design programming to enhance quality of living.

ID 335. Light & Color in Architectural Interiors. 3 Hours.

PR: Consent. Introduction to the theories and practices of lighting design with an emphasis on the relationships between light, color, and well-being within architectural interiors. Overview of the principles of light quality, quantity, distribution, and color rendering for residential and contract spaces. Application of lighting calculations, modeling, and graphic illustrations to the development of interior lighting schemes.

ID 355. Contract Interior Design 1. 3 Hours.

PR: ID 375 and ID 376. Studio experience in contract interior design and problems; emphasis on design of offices as work experience.

ID 365. Advanced Architectural Interior Design 2. 4 Hours.

PR: ID 315 with a minimum grade of C- and PR or CONC: ID 366. Application of orderly design processes to small scale commercial building programs. Continuing analysis and integration of existing site considerations, space planning and universal design principles, and building regulations in the development of cohesive commercial interior environments. Introduction to selection and specification of commercial interior finishes, furnishings, and fixtures applied to commercial design projects.

ID 366. Advanced Architectural Graphics 2. 2 Hours.

PR: Consent. Development of advanced graphic and specification skills in architectural interior construction documentation.

ID 375. Residential Interior Design. 3 Hours.

PR: ID 270 and ID 260 and TXCL 240. Studio experience in residential interior design problems; emphasis on design process, problem solving, functional and aesthetic considerations, critiquing and graphic presentations.

ID 376. Interior Design Graphics 3. 2 Hours.

PR: ID 155. Studio course to strengthen drafting, detailing, and presentation skills; production of typical design construction drawings.

ID 400. Interior Design Internship. 3-6 Hours.

PR: ID 375 and consent. Supervised, direct experience with a practicing designer or other closely allied professional in a career environment.

ID 415. Advanced Architectural Interior Design 3. 6 Hours.

PR: ID 316 and ID 365 and ID 366 with a minimum grade of C- in each or consent. Application of orderly design processes, including community-engaged and/or integrated design collaborations, to commercial interior design projects; Investigation of relationship between human factors and commercial interior environments; Continued analysis and integration of existing site considerations, space planning, universal design principles, and building regulations in the development of cohesively designed commercial interiors; Selection and specification of commercial interior finishes, furnishings, and fixtures.

ID 420. Interior Design Professional Practices. 3 Hours.

PR: ID 375. Relationships between marketing/management functions and the design process; problem-solving approach to completion of a design installation.

ID 425. Professional Practices in Architectural Interior Design. 3 Hours.

PR: Consent. Survey of financial, regulatory, and ethical parameters and issues associated with interior design practice and project management within globalized societies.

ID 450. Interior Design Seminar. 1 Hour.

PR: ID 420. Professionals in interior design discuss professional organizations, ethics, entry-level positions, and business practices.

ID 455. Contract Interior Design 2. 3 Hours.

PR: ID 355. Studio experience in solving design problems related to public spaces, hotels, restaurants, department stores, specialized retail outlets, or health care facilities.

ID 465. Advanced Architectural Interior Design 4. 6 Hours.

PR: ID 415 with a minimum grade of C- or consent. Demonstration, in the design of an architectural interior, abilities to independently conduct design research; identify, analyze, and integrate theoretical and practical knowledge; and reflect on the ethical issues implicit in the project; The project is comprised of visual, oral, and written components and is selected and developed by the student with consultation and approval of the course instructor.

ID 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

ID 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours). Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

ID 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ID 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

ID 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

ID 496. Senior Thesis. 1-3 Hours.

PR: Consent.

ID 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

IDT 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

IDT 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

IDT 430. Women in International Development. 3 Hours.

To examine the cultural diversities in the definition of women's roles and status, to investigate women's access to education, health, income, credit and technology, and to study women's health, income, credit and technology, and to study women's contributions in third-world development.

IDT 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

IDT 497. Research. 1-6 Hours.

Independent research projects.

IENG 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

IENG 200. Fundamentals of Industrial Engineering. 1 Hour.

PR: Sophomore standing. An introduction to the basic principles of industrial engineering.

IENG 213. Engineering Statistics. 3 Hours.

PR or CONC: MATH 156. The use of basic statistical analysis in engineering decision making, including common statistical distributions encountered in engineering, test of hypotheses, confidence intervals, and introduction to simple linear regression.

IENG 220. Re-Engineering Management Systems. 3 Hours.

PR: Sophomore standing. Principles and techniques associated with system, job and task re-engineering. Work measurement systems, work flow analysis and time study techniques. Introduction to factors influencing people machine.

IENG 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

IENG 301. Materials and Costing. 3 Hours.

PR: IENG 377 and MAE 241 and MATH 156 with a minimum grade of C-. Utilize a problem-based approach to materials selection considering material properties, mechanical properties, design requirements, and economic considerations in the selection of materials and manufacturing processes.

IENG 302. Manufacturing Processes. 2 Hours.

PR: MAE 343 or PR or CONC: MAE 343 or IENG 301. Lectures, videos and examples relating to materials, mechanical properties, processing parameters, design, equipment, economics, failure analysis, and processing systems emphasizing casting, powder processing, machining, joining and forming operations.

IENG 303. Manufacturing Processes Laboratory. 1 Hour.

CoReq: IENG 302. Laboratory experiments and demonstrations of the basic manufacturing operations of casting, machining and joining. Process parameter measurement, inspection techniques and CNC programming are performed and laboratory report writing is emphasized.

IENG 305. Introduction to Systems Engineering. 3 Hours.

PR: IENG 213 and IENG 377. This course focuses on systems engineering and analysis. It covers the development and implementation of systems, and their continuous improvement.

IENG 314. Advanced Analysis of Engineering Data. 3 Hours.

PR: IENG 213. Introduction to linear statistical models. Design and analysis of simple experimental configurations occurring frequently in engineering studies. Similarities and differences between regression and experiment design models emphasized in a vector-matrix setting.

IENG 316. Industrial Quality Control. 3 Hours.

PR: IENG 213. Principles and methods for controlling the quality of manufactured products, with emphasis on both economic and statistical aspects of product acceptance and process control.

IENG 331. Computer Applications in Industrial Engineering. 3 Hours.

PR: ENGR 102. Introduction to computer applications in manufacturing. Emphasis on system design and analysis and the role of computers in productivity improvement.

IENG 343. Production Planning and Control. 3 Hours.

PR: IENG 220 and IENG 213. Principles and problems in forecasting, aggregate planning, material management, scheduling, routing, and line balancing.

IENG 350. Introduction to Operations Research. 3 Hours.

PR: IENG 213. An introduction to the basic principles and techniques of operations research. Topics include linear programming, integer programming, transportation and assignment problems, project scheduling, queuing theory, and computer applications.

IENG 360. Human Factors Engineering. 3 Hours.

PR: IENG 213. Includes the study of ambient environment, human capabilities and equipment design. Systems design for the human-machine environment interfaces will be studied with emphasis on health, safety, and productivity.

IENG 377. Engineering Economy. 3 Hours.

Basic concepts of financial analysis, investment planning and cost controls as they apply to management technology investment in manufacturing; financial planning and budgeting as applied to an engineering function.

IENG 405. Design for Manufacturability. 3 Hours.

PR: IENG 302 and IENG 303. Aspects of design, manufacturing and materials; emphasis on design for manufacturability and assembly, including material selection and manufacturing processes on product cost.

IENG 417. Total Quality Management. 3 Hours.

PR: IENG 213. Fundamentals and philosophy of total quality management in industry and government. Includes implementation of quality function deployment and the tools of off-line quality assurance procedures.

IENG 423. Designing Decision Support System. 3 Hours.

PR: IENG 331. Basic concepts of software design of decision support systems that can be used by non-technical personnel in management positions.

IENG 431. Expert Systems in Industrial & Management Systems Engineering. 3 Hours.

PR: IENG 331. Expert systems design and development for manufacturing service applications; knowledge acquisition, representation, search techniques, inference engines, data base interfaces, algorithmic interfaces.

IENG 433. Energy Efficiency and Sustainability. 3 Hours.

Principles of energy efficiency for large industrial and large commercial building systems. Determination of energy usage, use of energy analysis and diagnostic equipment, and the development of energy efficiency measures including the economics related to implementation. Review of energy generation, renewable energy, smart grid, energy management, ASHRAE standards, and LEED. Sustainability aspects of energy efficiency.

IENG 445. Project Management for Engineers. 3 Hours.

PR: ENGR 102. This course provides an introduction to processes, tools, and techniques used to manage engineering projects within the context of an organization. It provides an overview of the engineering project management processes, groups, and knowledge areas defined by the Project Management Institute and introduces Microsoft Project as a project planning tool.

IENG 446. Plant Layout/Material Handling. 3 Hours.

PR: IENG 220 and IENG 350. Facility design and economic selection of material handling equipment in a production/service facility. Emphasizes optimization of materials and information flow.

IENG 455. Simulation by Digital Methods. 3 Hours.

PR: IENG 213 and IENG 331 or consent. Introduction to Monte Carlo simulation methods and their application to decision problems. Student identifies constraints on problems, collects data for modeling and develops computer programs to simulate and analyze practical situations. Interpretation of results emphasized.

IENG 461. System Safety Engineering. 3 Hours.

PR: Consent. The concepts of hazard recognition, evaluation analysis and the application of engineering design principles to the control of industrial hazards.

IENG 471. Design of Productive Systems 1. 3 Hours.

PR: Senior standing and 21 hours of required IENG courses in industrial engineering. The integration of industrial engineering principles in the design of productive systems. Emphasis will be on analysis of different systems for productivity management.

IENG 472. Design of Productive Systems 2. 3 Hours.

PR: IENG 471 and senior standing in industrial engineering. Continuation of IENG 471.

IENG 473. Team Facilitation. 3 Hours.

This course prepares students to facilitate continuous improvement teams. Students learn basics of team operations, facilitation tools and facilitation practices.

IENG 474. Technology Entrepreneurship. 3 Hours.

Basic concepts and practices necessary to convert a technology idea into an entrepreneurial business.

IENG 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

IENG 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

IENG 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

IENG 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

IENG 496. Senior Thesis. 1-3 Hours.

PR: Consent.

IENG 498. Honors. 1-3 Hours.

PR: Student in Honors Program and consent by the honors director. Independent reading, study or research.

IEP 000. Intensive English Program. 15 Hours.

Study in the Intensive English Program, with a focus on improving English language skills. Course does not count toward any degree program.

IH&S 460. Ergonomics. 3 Hours.

PR: Consent. Study of physical and cognitive ergonomics of industrial and manufacturing processes. Focus will be on providing a technical foundation required to analyze, design, and develop human-technological system with a primary emphasis on the humans.

IH&S 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Supervised practice in college teaching of occupational hygiene and safety. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading may be S/U.).

IH&S 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves placement with public or private enterprise for professional competence development.

IH&S 492. Directed Study. 1-3 Hours.

Directed study, reading, and/or research.

IH&S 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

IH&S 494. Seminar. 1-3 Hours.

PR: Consent Presentation and discussion of topics of mutual concern to students and faculty.

IH&S 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

IH&S 496. Senior Thesis. 1-3 Hours.

PR: Consent.

IH&S 497. Research. 1-6 Hours.

Independent research projects.

IH&S 498. Honors. 1-3 Hours.

PR: Student in Honors Program and consent by the honors director. Independent reading, study or research.

IMMB 150. Microbiology Colloquium 1. 2 Hours.

Peer and faculty-led learning experiences to introduce students to the disciplines of immunology and medical microbiology.

IMMB 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

IMMB 200. Immunology Colloquium 1. 2 Hours.

PR: IMMB 150 with a minimum grade of C-. Peer and faculty-led learning experiences to introduce students to the discipline of immunology.

IMMB 250. Microbiology Colloquium 2. 2 Hours.

PR: IMMB 150 with a minimum grade of C-. Peer and faculty-led learning experiences to continue to introduce students to the discipline of medical microbiology.

IMMB 300. Immunology Colloquium 2. 2 Hours.

PR: IMMB 200 with a minimum grade of C-. Peer and faculty-led learning experiences to continue to introduce students to the discipline of immunology.

IMMB 301. Basic Medical Microbiology. 4 Hours.

PR: IMMB 150 with a minimum grade of C-. Combined lectures and laboratory exercises on the study of pathogenic microorganisms and clinical laboratory techniques.

IMMB 302. Principles of Immunobiology. 3 Hours.

PR: IMMB 200 with a minimum grade of C-. Study of the basic concepts underlying the mechanisms of innate and adaptive immunity.

IMMB 310. Bacterial Pathogenesis. 4 Hours.

PR: IMMB 410 with a minimum grade of C-. Pathogenic bacteriology with an emphasis on the mechanisms of pathogenesis. Topics include microbial adherence, motility, toxin production and mechanisms, and normal flora and disease.

IMMB 320. Cellular Immunobiology. 3 Hours.

PR: IMMB 302 with a minimum grade of C-. Emphasis on understanding the cellular elements that impact immune responses. This course builds on fundamental principles discussed in IMMB 302 to address areas of current research in immunobiology.

IMMB 327. Parasitology. 2 Hours.

PR: For medical technology students, other students with consent. Study of animal parasites and disease vectors with emphasis on disease manifestations, parasite biology, and laboratory diagnosis.

IMMB 350. Microbiology Colloquium 3. 2 Hours.

PR: IMMB 250. Peer and faculty-led experiences to introduce students to the disciplines of medical microbiology.

IMMB 400. Immunology/Microbiology Journal Club. 1 Hour.

PR: IMMB 320 with a minimum grade of C-. Review and discussion on current immunology and medical microbiology literature. Seniors are required to lead one discussion session before graduation.

IMMB 405. Scientific Integrity. 1 Hour.

PR: IMMB 400 with a minimum grade of C-. Discussion and review of topics addressing fundamental issues in maintenance of scientific integrity in biomedical research.

IMMB 410. Microbial Genetics. 3 Hours.

PR: IMMB 301 with a minimum grade of C-. Molecular aspects of mutation, gene transfer mechanisms, genetic mapping, and genetic control using bacteria and bacteriophage systems as models.

IMMB 420. Molecular Immunobiology. 5 Hours.

PR: IMMB 320 with a minimum grade of C-. Study of the structure and function of the families of molecules employed by the immune system to recognize and initiate the immune response and the signaling pathways within the cell involved in the immune system.

IMMB 450. Immunology/Microbiology Journal Club 2. 1 Hour.

PR: IMMB 400 with a minimum grade of C-. Review and discussions on current immunology and medical microbiology literature. Seniors are required to lead one discussion session before graduation.

IMMB 460. Contemporary Issues for Majors. 3 Hours.

PR: IMMB 420 with a minimum grade of C-. Detailed coverage for major issues of contemporary research in immunobiology.

IMMB 470. Medical Virology. 3 Hours.

Molecular biology of viruses that are important both biologically and medically. Includes a basic introduction to replication and genetics as well as current topics in molecular virology.

IMMB 480. Vaccinology. 4 Hours.

PR: IMMB 302 and IMMB 310 and IMMB 320 and IMMB 410 with a minimum grade of C- in each. Emphasis on understanding vaccinology in the contexts of historical significance, vaccine models, pre-clinical to clinical development, human efficacy, and relationships with the public.

IMMB 484. Senior Thesis. 3 Hours.

PR: IMMB 420 with a minimum grade of C-. Essays and oral presentations by senior students covering contemporary topics in immunology and medical microbiology. Senior students are required to present one seminar before graduation.

IMMB 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

IMMB 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

IMMB 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

IMMB 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

IMMB 496. Senior Thesis. 1-3 Hours.

PR: Consent.

IMMB 497. Research. 1-6 Hours.

Independent research projects.

INBS 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

INBS 310. Global Business Communication. 3 Hours.

PR or CONC: BCOR 370. This course focuses on developing skills to communicate effectively in the cross-cultural context of the current international business environment. The focus is on interpersonal, team-and organizational- level communication in diverse cultural situations.

INBS 480. Global Strategic Issues. 3 Hours.

PR: MANG 360. An integrated, multifunctional approach that focuses on how globalization affects strategy, organization and control of a firm. Students are introduced to global strategic management and organization issues in the context of current theory, research and practice.

INBS 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated for a maximum of 18 hours.) Prearranged experiential learning program, to be planned supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

INBS 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

INDS 498. Honors. 1-3 Hours.

PR: Students in the honors program and consent by the Honors Director. Independent reading, study or research.

INTS 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

INTS 199. Orientation to International Studies. 1,2 Hour.

Orientation to degree programs and requirements, departmental resources, curriculum options, student responsibilities and opportunities.

INTS 288. Professional Development: Success After International Studies. 1 Hour.

PR: INTS 199. Students develop professional skills, both oral and written, including resume and cover letter writing, interviewing skills, conducting a successful job search, and the graduate school application process. Designed for international studies majors.

INTS 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

INTS 300. Social Inquiry in International Studies. 3 Hours.

PR: POLS 260. This course is an introduction to the fundamental concepts and research methods that form the foundation of international studies. Primary focus is on research design, such as the steps and data collection techniques necessary to build and execute a plan to test an idea or hypothesis in international studies.

INTS 360. The European Union and Contemporary European Affairs. 3 Hours.

PR: Enrollment in the WVU Strasbourg Semester. An introduction to the European Union with a focus on its involvement in contemporary European affairs, including foreign policy, economic, and human rights concerns and issues. Taught as part of the WVU Strasbourg Semester, with site visits to EU institutions in Brussels, Strasbourg, and Luxembourg.

INTS 361. European Identity and French-German Cooperation along the Rhine. 3 Hours.

Examination of European identity as the basis of cooperation between Germany and France since 1945. Class will examine the forms of cooperation through lectures and site visits in Germany and France. Emphasis is on the historical and cultural sources of cooperation after WWI and WWII as well as the rise of the European Union.

INTS 488. Capstone International Studies. 1-3 Hours.

Capstone experience required for all majors. Options include study abroad, internships, simulations, and senior research projects.

INTS 488A. Capstone International Studies. 1-3 Hours.

Capstone experience required for all majors. Options include study abroad, internships, simulations, and senior research projects.

INTS 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated for a Maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

INTS 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

INTS 499. Global Service Learning. 1-3 Hours.

PR: Consent. Theory and practice of global service-learning. The main objective will be to pair the experiential aspects of meaningful and sustained service in the host community with work from the student's anchor course by offering a methodological framework for cultural immersion and community service as well as adding to the content of the anchor course.

ITAL 101. Elementary Italian 1. 3 Hours.**ITAL 102. Elementary Italian 2. 3 Hours.**

PR: ITAL 101. Continuation of ITAL 101.

ITAL 203. Intermediate Italian 1. 3 Hours.

PR: ITAL 102. Continuation of ITAL 102.

ITAL 204. Intermediate Italian 2. 3 Hours.

PR: ITAL 203. Continuation of ITAL 203.

ITAL 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ITAL 301. Language Through Culture. 3 Hours.

PR: ITAL 204. Analyzes key topics in contemporary Italian popular culture, including the Italian family, young people, the role of women in Italian society, multiethnic Italy, and Italian fashion. Taught in Italian.

ITAL 302. Italian Through Film. 3 Hours.

PR: ITAL 204. Provides students with opportunity to improve their Italian conversational and writing skills through discussion of a variety of topics as they are represented in Italian cinema. Taught in Italian.

ITAL 303. Composition and Conversation. 3 Hours.

PR: ITAL 204.

ITAL 304. Advanced Conversation. 3 Hours.

PR: ITAL 204.

ITAL 331. Survey of Italian Literature 1. 3 Hours.

PR: ITAL 204. Overview of the history and key themes of Italian literature from the thirteenth through the eighteenth centuries. Taught in Italian.

ITAL 332. Survey of Italian Literature 2. 3 Hours.

PR: ITAL 204. Overview of the history and key themes of Italian literature from the nineteenth century to present. Taught in Italian.

ITAL 371. L'Italia Dal Vivo. 3 Hours.

PR: ITAL 204 or consent. This course allows students to improve their ability to communicate effectively in Italian with native speakers, orally and in writing, through a full-immersion experience in Italy. Can count for the Italian studies minor.

ITAL 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ITAL 431. Italian Folktales. 3 Hours.

PR: ITAL 204. Overview of Italian popular culture through the analysis of Italo Calvino's collection of folktales within a comparative European perspective, using semiotic, linguistic, and psychoanalytic approaches. Taught in Italian.

ITAL 432. Modern Italian Civilization. 3 Hours.

PR: ITAL 204. Overview of Italian civilization and its manifestations in various cultural fields (history, literature, and cinema) from Fascism to the present. Taught in Italian.

ITAL 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

ITAL 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

ITAL 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ITAL 495. Independent Study. 1-6 Hours.

Faculty-supervised study of topics on available through regular course offerings.

ITAL 496. Senior Thesis. 1-3 Hours.

PR: Consent.

ITAL 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

JAPN 101. Elementary Japanese 1. 3 Hours.

JAPN 102. Elementary Japanese 2. 3 Hours.

PR: JAPN 101. Continuation of JAPN 101.

JAPN 201. Japanese Language Immersion. 3 Hours.

PR: JAPN 102 or equivalent and PR or CONC: FCLT 307. Faculty-led study abroad course. Development of oral and written communication skills in Japanese through in-class and outside of class activities and assignments in an authentic cultural environment.

JAPN 203. Intermediate Japanese 1. 3 Hours.

PR: JAPN 102.

JAPN 204. Intermediate Japanese 2. 3 Hours.

PR: JAPN 203.

JAPN 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

JAPN 301. Conversation and Composition 1. 3 Hours.

PR: JAPN 204. Continued development of oral and written communicative skills in Japanese.

JAPN 302. Conversation and Composition 2. 3 Hours.

PR: JAPN 301. Continued development of oral and written communicative skills in Japanese.

JAPN 303. Advanced Structure. 3 Hours.

PR: JAPN 301. Development of communicative skills, with emphasis on polite speech and review of Japanese language structures.

JAPN 304. Advanced Reading. 3 Hours.

PR: JAPN 301. Development of communicative skills, with emphasis on reading authentic texts and review of Japanese language structures.

JAPN 441. Japanese Culture. 3 Hours.

PR: JAPN 301. A study of Japanese civilization, customs, and ethos. Taught in Japanese.

JAPN 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

JAPN 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to maximum of 18 hours). Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

JAPN 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

JAPN 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

JAPN 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

JAPN 496. Senior Thesis. 1-3 Hours.

PR: Consent.

JAPN 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

JRL 101. Media and Society. 3 Hours.

Examines the relationship between media, culture and society, with emphasis on the history, structure, and organization of the mass media.

JRL 116. Academic Success Seminar. 1 Hour.

This course is designed to help College of Media students who have experienced academic difficulties to understand their academic status and to help them identify strategies, techniques and resources that can assist them in overcoming their particular performance challenges. Applicable College and WVU services, policies and procedures also are discussed.

JRL 119. Reed College Multidisciplinary Orientation. 3 Hours.

This course offers an orientation to the Reed College of Media's MDS program, including program requirements, departmental resources, curriculum options, student responsibilities and opportunities.

JRL 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

JRL 210. Visual Journalism and New Media. 3 Hours.

PR: College of Media major or minor. Theory and principles of visual communication and image culture.

JRL 215. Media Writing. 3 Hours.

PR: Minimum cumulative GPA of C. Introduction to the fundamental reporting and storytelling skills that are the foundation of all media writing: print, radio, television, public relations, advertising and social media.

JRL 220. Introduction to Photojournalism. 3 Hours.

Basic techniques of journalistic photography, digital imaging and editing. Students must have access to a film or digital camera.

JRL 225. Media Tools & Applications. 3 Hours.

Intended for College of Media majors and Interactive Media Design minors, this lecture/lab course covers fundamental principles and practices of multimedia content gathering and editing in preparation for upper-level courses with the College of Media.

JRL 235. Electronic Media and Society. 3 Hours.

(Open to all University students.) Survey of the electronic media industry with an emphasis on the role of broadcast journalism in society. Covers historical development, regulation, industry standards, ethics, international media, and contemporary issues.

JRL 236. Podcast Producing. 1 Hour.

Open to all College of Media majors, this one-credit-hour skills-based course involves significant reporting and production roles to teach students how to produce professional podcasts through a class podcast series as well as through reading, listening and critique assignments.

JRL 237. Adobe Video Editing. 1 Hour.

PR: JRL 215 with a minimum grade of C-. This class builds upon the basic skills of Adobe After Effects video editing. Students will use this software to create and align full-page graphics, to animate images and texts, and to render proper code, as well as other related skills.

JRL 238. Voice Performance for Broadcasting. 1 Hour.

Open to all College of Media majors, this one-credit-hour skills-based course focuses on students' development of vocal mechanics and interpretative performance for announcers, newscasters, interviewers and narrators of various broadcasting and announcing situations. Students work on delivery, cadence, diction and on-air presence in both recorded and live situations.

JRL 240. Immersive Storytelling: AR/VR. 1 Hour.

Open to all College of Media majors, this one-credit-hour production-oriented course allows students to explore new forms of storytelling through immersive, interactive technologies such as virtual and augmented reality. Students use design thinking and emerging tools and platforms to create 360-degree video, 3d models, volumetric video and interactive augmented reality.

JRL 262. Coding for Media Applications. 3 Hours.

Introduces the principles and best practices of code development for visual interactive applications. The course covers the basics of interactive and programming code structures by introducing students to a variety of markup and interactive coding languages. Students will gain confidence with working with code through skill and knowledge based hands-on lessons and assignments.

JRL 279. Documentary Film in America. 3 Hours.

This course, through viewings, readings, lectures and speakers will survey the history of documentary film in America and the ever-growing diversity of documentaries, influenced by the political, economic and social forces of their day.

JRL 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

JRL 298. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

JRL 318. Beat Reporting. 3 Hours.

PR: JRL 215. Essentials of developing and covering a news beat. Students generate stories, cultivate sources, and discover their community.

JRL 319. Editing and Curation. 3 Hours.

PR: JRL 215. Students develop the skills necessary to edit and design content for online and print media outlets.

JRL 320. Advanced Photojournalism. 3 Hours.

PR: JRL 220. Introduction to advanced techniques and concepts in visual journalism for print and electronic media. Color, lighting, studio and digital camera techniques.

JRL 321. Media Design. 3 Hours.

PR: JRL 215. An introduction to the design of newspapers, magazines and internet publications.

JRL 322. Gaming Design and Digital Narrative. 3 Hours.

This course covers an introduction to the principles and practice of game design as a tool for interactivity, database storytelling, and audience building within journalism. The course will analyze case studies and provide hands-on development and application of game mechanics and game dynamics within journalism and strategic media across web, mobile, tablet and emergent augmented reality platforms.

JRL 328. Media Law and Ethics. 3 Hours.

PR: JRL 215 with a minimum grade of C-. This course is an in-depth exploration of the complex ethical and legal media landscape, with an emphasis on key historical precedents, new cases and challenges related to emerging technology, digital disinformation, artificial intelligence, new problems in social media and other current issues in journalism, public relations and advertising.

JRL 330. Sports and Adventure Media Writing. 3 Hours.

PR: JRL 215 and JRL 225 with a minimum grade of C- in each. Focuses on writing media content about sports and adventure activities for journalism and strategic communications purposes. Attention is given to writing styles used for different mediums as well as strategies to incorporate audience insight and engagement.

JRL 331. Infographics and Data Visualization. 3 Hours.

PR: JRL 215. Students practice data-driven journalism, a field that includes finding, compiling, cleaning, extrapolating from, and visualizing data, as well as using graphics software and basic coding languages.

JRL 335. Video and Audio News Writing. 3 Hours.

PR: JRL 215. Gathering, researching, and evaluating facts; reporting and writing news for radio and television; editorial decision making and responsibility; broadcast news ethics.

JRL 340. Advanced Video Storytelling. 3 Hours.

PR: JRL 220 or JRL 225 with a minimum grade of C-. Students in this course will learn advanced video shooting and editing techniques and gain video storytelling experience. Specifically, students will learn about video composition, lighting and shot sequencing. They also will learn about video editing and production, including: digital project organization and management, and editing using various types of video software programs.

JRL 341. Data and Design. 3 Hours.

PR: JRL 215 with a minimum grade of C-. This course involves gaining comfort with data and spreadsheets and using them to reveal news stories that could not be fully told or grasped through traditional text alone. Students will learn basic coding to be able to collect, clean, and visualize data, as well as use coding to perform informational tasks.

JRL 361. Media Relations In Sport. 3 Hours.

PR: ADV 201 or ADV 215 or PR 215 or STCM 215. Provides an in-depth understanding of how effective public relations plays an integral role in any sports organization via a myriad of communication efforts used in the dissemination of information to the media and the public.

JRL 362. User Experience Design for Media Applications. 3 Hours.

PR: JRL 262. Covers the skills and knowledge necessary to develop mobile application technology (Apps) on Android and iOS platforms. Allows the student to explore creative, commercial, and entrepreneurial opportunities in the mobile app marketplace.

JRL 380. Sports and Adventure Media Video Storytelling. 3 Hours.

PR: (JRL 330 or JRL 335) and PR or CONC: JRL 488 with a minimum grade of C- in each. Focuses on creating sports and adventure media video stories for journalism and strategic communications purposes. Attention is given to video storytelling techniques. Involves direct practice covering sporting events, producing video content and applying audience insight and engagement techniques.

JRL 385. Audio Reporting. 3 Hours.

PR: JRL 335 or TVJ 319. Writing and reporting news for radio and other digital audio sources. Lec/lab.

JRL 386. Beginning Video Reporting. 3 Hours.

PR: JRL 335 and PR or CONC: JRL 488 with a minimum grade of C- in each. Reporting, writing and producing sports stories for television using digital video technology; emphasis on sports writing, visual storytelling, editorial decision making, and ethical and legal considerations.

JRL 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

JRL 408. The Community Newspaper. 2 Hours.

(Open to all University students.) Fundamental problems and techniques in operation of community newspapers.

JRL 411. Experimental Journalism. 3 Hours.

PR: JRL 215 with a minimum grade of C- and senior status or departmental permission. A project-based, immersion course in experimental journalism using new technology such as virtual reality, augmented reality, sensors, drones and other experimental storytelling methods.

JRL 412. Sport Journalism. 3 Hours.

PR: ADV 201 or ADV 215 or PR 215 or JRL 215 or STCM 215. Develops critical thinking skills in reporting and writing stories. Students examine the value of sport journalism; the way sport functions in society, and gain an understanding of ethics in sport journalism.

JRL 418. Advanced Reporting. 3 Hours.

PR: JRL 215. Students write carefully researched stories using writing, reporting, and interviewing skills they have acquired in previous classes while applying techniques of literary journalism.

JRL 419. Entertainment Reporting. 3 Hours.

PR: JRL 101 and (STCM 215 or PR 215). This course is an examination of the issues facing the field of entertainment reporting. Students will cover beats, produce reporting and examine the entertainment industry.

JRL 420. Feature Writing. 3 Hours.

PR: JRL 215. Developing writing, and editing news features, personality profiles, color pieces, issue oriented articles and human impact stories for news, public relations and film.

JRL 424. Adventure Travel Writing & Photography. 3 Hours.

PR: JRL 215 and JRL 225. Best practices and ethical considerations of travel and adventure journalism, including photography and point-of-view videography, and appropriate use of digital platforms, blogging and social media for journalistic purposes. Includes a travel component.

JRL 426. Investigative Reporting. 3 Hours.

PR: JRL 318 or JRL 386 or TVJ 386. Reporting on the agencies, structures, and programs that make society work, including circuit court and police.

JRL 427. American Journalism History. 3 Hours.

PR: JRL 101. Development of media from seventeenth-century England and the American colonies; great names in journalism; freedom of the press and its implications and impact on the nation.

JRL 428. Media Ethics and Law. 3 Hours.

PR: JRL 215. How ethics and law work together to help create and maintain the media environment. Examines ethical paradigms within a legal framework, with special emphasis on morality.

JRL 429. Opinion Writing. 3 Hours.

PR: JRL 215. Students will analyze news issues and write opinion-based pieces.

JRL 430. Social Media and Journalism. 3 Hours.

PR: JRL 215. This lab course identifies and applies the principles behind social media applications such as blogs and networking sites.

JRL 431. Multimedia Storytelling. 3 Hours.

PR: JRL 225 and (JRL 318 or JRL 320) with a minimum grade of C- in each. This capstone course explores digital narrative storytelling, employing the wide variety of media and interactive applications that online publishing makes possible. However, emphasis is on visual media. Students will learn to facilitate audience comprehension and engagement while educating and informing about contemporary societal issues.

JRL 432. Social Media Strategy. 3 Hours.

PR: JRL 101 and (PR 215 or ADV 201 or ADV 215 or STCM 215). This online course examines how social media channels can be utilized to meet the goals of corporate, non-profit, political and issue based outreach messaging.

JRL 433. Social Media Applications. 3 Hours.

PR: JRL 101 and (PR 215 or ADV 201 or ADV 215 or STCM 215). This online course examines how messages can be crafted for maximum success and reach in the social media landscape. Students will explore different methods for monitoring and measurement, explore current trends in social media and examine case studies of successful social media integration across multiple platforms.

JRL 434. Social Media Campaigns. 3 Hours.

PR: (PR 215 or ADV 201 or ADV 215 or STCM 215) and PR or CONC: JRL 101. This online course examines case studies where social media was used successfully in instances of promotion, outreach and crisis communication.

JRL 435. Live Sports Video Production. 3 Hours.

PR: JRL 380 with a minimum grade of C-. Production and coverage of live sporting events, including television terminology, camera operation, live directing, live technical directing, digital signage execution, instant replay, work ethic, and promptness. Involves direct practice with over ten of WVU's Division 1 sports.

JRL 440. Visual Storytelling for the Media. 3 Hours.

PR: JRL 220 or consent. Development of advanced practical and analytical skills in digital photojournalism, photo editing and cross-media design. Analysis of images, visual narratives, new media storytelling, digital imaging, media asset management, and ethical and social issues.

JRL 441. Internship. 3 Hours.

PR: JRL 215 with a minimum grade of C-. Full-time employment for a minimum of 10 weeks under a signed contract detailing the terms of the experience. (Graded pass/fail.).

JRL 442. Practicum. 1-2 Hours.

PR: JRL 215 and consent. Students must have a signed contract detailing terms of the learning experience. 8 to 20 hours per week for a minimum of 10 weeks while taking other courses. (Graded on a pass/fail basis.).

JRL 445. International Media 1. 1-3 Hours.

PR: JRL 215. A combination of classroom theory and practical application of the function of media in an international setting.

JRL 446. International Media 2. 1-6 Hours.

PR: Consent. Centers around a trip that involves the study of media in the country students are visiting. Usually a continuation of International Media 1.

JRL 448. Digital Publication: Social Video. 3 Hours.

PR: JRL 215 and JRL 225 with a minimum grade of C- in both. This course teaches students how to engage an audience by curating content and video and producing and packaging this information in "explainer and short social videos for a professional digital publication called "100 Days." In addition, students obtain first-hand experience producing "mobile-first" content.

JRL 450. Writing for Health Promotion. 3 Hours.

PR: JRL 101 and (PR 215 or ADV 215). A writing-intensive course that examines the evolving field of health communication. Students write health messages for distinct audiences. Some topics include: provider-patient communication and persuasive messages for social networks, social influence, and social support.

JRL 452. Applied Health Promotion. 3 Hours.

PR: JRL 101 and (PR 215 or ADV 215). Primarily examines in-depth case studies of health communication messages with an emphasis on understanding how audiences are targeted and influenced by these messages.

JRL 454. Health Promotion Campaigns. 3 Hours.

PR: JRL 101 and (PR 215 or ADV 215). Applies IMC principles, theories, and techniques to multifaceted health promotion and disease prevention campaigns. Examines non-profit and public organizations that utilize IMC strategies to promote issues such as HIV/AIDS awareness, cancer screening, and child vaccinations.

JRL 457. Adventure Media Capstone: Advanced Adventure Media Production. 3 Hours.

PR: JRL 380 with a minimum grade of C-. Focuses on advanced video production for journalism or strategic communications purposes. Attention is given to in-depth story development and audience insight and engagement techniques associated with the story production. Involves direct practice of adventure sports or travel location-based video storytelling and audience building.

JRL 458. Interactive Media and Audience Building. 3 Hours.

Online class introduces students to the latest and evolving attributes of media entrepreneurship, new economic models for media, and audience building across emergent platforms.

JRL 459. Multimedia News Publication. 3 Hours.

PR: Any 300-level College of Media course and advisor/instructor consent. In this lab/workshop-style capstone class for journalism majors, students will produce stories and multimedia packages for publication and broadcast.

JRL 472. Advanced Interactive Design. 3 Hours.

PR: JRL 322 and ART 372. Multimedia studio art course addressing core principles of interactivity, non-linear narration and interaction design.

JRL 484. Advanced Sports Video Production. 3 Hours.

PR: JRL 380 with a minimum grade of C-. Focuses on sports video reporting and production for a broadcast sports magazine show. Production of the sports magazine show includes in-the-field reporting, in-the-studio camera operations, live directing and producing, work ethic and promptness. Attention is given to sports reporting and production industry standards.

JRL 485. Reed College Multidisciplinary Capstone. 3 Hours.

PR: JRL 119. Instructs students on the methods and advantages of multidisciplinary education. Includes an experimental project with real world relevance.

JRL 487. Advanced Video Reporting and Producing. 3 Hours.

PR: JRL 386 with a minimum grade of C-. This course is run as an actual newsroom to teach students how to produce, gather and report news. Students are assigned "beats," and work individually and in teams to produce news for local broadcast. Students serve as the talent and/or technical crew during newscast tapings and learn how to promote their work and engage audiences via professional social media use.

JRL 488. Video Editing. 1 Hour.

PR: JRL 215. This course is designed to teach broadcast journalism students advanced digital video and audio techniques for news productions, including field reports, newscasts, and studio-based programs.

JRL 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant. (Graded on a pass/fail basis.).

JRL 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours). Prearranged experiential learning program, to be planned; supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development. (Graded on a pass/fail basis.).

JRL 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

JRL 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

JRL 495. Independent Study. 1-3 Hours.

Faculty supervised study of topics not available through regular course offerings.

JRL 496. Senior Thesis. 1-3 Hours.

PR: Consent.

JRL 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study, or research.

JRL 499. Global Service Learning. 1-3 Hours.

PR: Consent. Theory and practice of global service-learning. The main objective will be to pair the experiential aspects of meaningful and sustained service in the host community with work from the student's anchor course by offering a methodological framework for cultural immersion and community service as well as adding to the content of the anchor course.

LANG 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

LANG 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

LANG 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

LANG 421. The Teaching of Foreign Languages. 3 Hours.

PR: Consent. Required of all students who are prospective foreign language teachers on the secondary level.

LANG 422. Second Language Reading. 3 Hours.

PR: LING 101 or LING 311 or equivalent. Study of the second language reading process, relevant research findings, curricular issues, and classroom instructional practices.

LANG 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

LANG 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

LANG 492. Directed Study. 1-3 Hours.

Directed study, reading, and/or research.

LANG 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

LANG 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

LANG 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

LANG 496. Senior Thesis. 1-3 Hours.

PR: Consent.

LANG 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study, or research.

LARC 105. Introduction to Landscape Architecture, Environmental Design and Planning. 3 Hours.

A general overview of the field of landscape architecture, environmental design and planning. The course reviews the practices of design and planning professionals and their connections to society. An emphasis is placed on past development traditions and current sustainable development methods, strategies, and impacts of planning and design through the review of past and current projects.

LARC 120. Landscape Architectural Drawing. 3 Hours.

PR: For landscape architecture majors only. Introduction to elements of visual techniques in drafting, basic design, and environmental systems. (Two 3-hr. studios.).

LARC 121. Landscape Architectural Graphics. 3 Hours.

Introduction to design and graphic methodology with applications to current standards. Development of principles of communication in two- and three-dimensional visual thinking applicable to environmental design professions. (Two 3-hr. studios.).

LARC 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

LARC 212. History of Landscape Architecture. 3 Hours.

A broad survey of the history of the designed human environment with emphasis on the development of landscape architecture. (Does not fulfill Cluster A for landscape architecture students.).

LARC 223. Computer Graphics in Landscape Architecture. 3 Hours.

PR: LARC 121. Application of basic computer graphics to include drafting, rendering, and visualization software used in developing landscape architectural plans and environment analysis. (Two 3-hr. studios.).

LARC 224. Digital Design Graphics for Landscape Architecture. 2 Hours.

This course is designed to provide students with a working knowledge of how to generate and manipulate graphic images digitally. Over the course of the semester, we will cover the basics of the three most common Adobe Creative Cloud programs used by landscape architects: Photoshop, Illustrator, InDesign and Acrobat.

LARC 229. Landscape Architecture. 3 Hours.

PR: For non- landscape architecture majors only. An appreciation of the basic principles of planting design and information pertaining to the use of ornamental plants around the home. (2 hr. lec., one 2-hr. studio.).

LARC 231. Landscape Construction Materials and Methods. 3 Hours.

PR: LARC 250. A study of materials used in landscape architectural construction with emphasis on methods of construction and the preparation of construction drawings for design implementation. (2 hr. lec., one 2-hr. studio.).

LARC 250. Theory of Landscape Architectural Design. 3 Hours.

PR: LARC 121 or equiv. Application of elements and principles of art and design to landscape architecture. (1 hr. lec., two 2-hr. studios.).

LARC 251. Landscape Architectural Design. 3 Hours.

PR: LARC 250 or equiv. Investigation and application of various factors which play a role in the design of natural and man-made environment. (1 hr. lec., two 2-hr. studios.).

LARC 260. Ornamental Woody Plants and Groundcovers. 3 Hours.

PR: BIOL 101 and BIOL 103 or equiv. Design uses, ornamental qualities, cultural requirements and identification of woody plants and groundcovers in West Virginia. Field course. (One day field trip required at student's expense). (Two 3-hr. studios.).

LARC 261. Planting Design. 3 Hours.

PR: LARC 250 and LARC 260. Study of planting design theory and practice, including uses of plants in site and environmental design, planting design techniques and preparation of planting plans, construction details, and technical specifications. (1 hr. lec., two 2-hr. studios.).

LARC 271. Portfolio Design. 1 Hour.

PR: LARC 121 and LARC 250 and LARC 260. Introduction to graphic design and presentation formal and their application for the preparation of the second year portfolio. (One 2-hr. studio.).

LARC 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

LARC 330. Landscape Architectural Construction 1. 4 Hours.

PR: (CE 200 or equiv.) and (MATH 126 or MATH 126A or MATH 126B or MATH 126C) and (MATH 128 or MATH 129 or equiv.) The study of the technical principles of grading design, their application to site planning, and preparation of land form grading plans. (1 hr. lec., two 3-hr. studios.).

LARC 331. Landscape Architectural Construction 2. 4 Hours.

PR: LARC 330. Study and preparation of parkway plans (road alignment), surface and sub-surface drainage plans, advanced grading plans, and cost estimates. (2 hr. lec., two 2-hr. studios.).

LARC 350. Landscape Architectural Design 2. 4 Hours.

PR: LARC 223 and LARC 251 and LARC 261. Study of medium scale site design with emphasis on site analysis, design methodology and presentation. (1 hr. lec., two 3-hr. studios.).

LARC 351. Landscape Architectural Design 3. 4 Hours.

PR: LARC 330 and LARC 350 and LARC 360. Site-design problems dealing with complex environmental systems emphasizing rural and urban design. Projects are integrated with landscape architectural construction. (1 hr. lec., two 3-hr. studios.).

LARC 360. Natural Systems Design. 4 Hours.

PR: LARC 251 and LARC 261 and PR or Conc: LARC 350. Study of native and naturalized plants of this region and their ecological tolerances, importance to site analysis, and use in planting design. (1 hr. lec., two 3 hr. studios.) (2-day field trip required at student's expense.).

LARC 361. Interior Plantscaping. 2 Hours.

PR: BIOL 101 and BIOL 103 or PLSC 206. The study of plants appropriate to interior plantscaping and their special needs and uses in design situations. (One day field trip required at student's expense.) (1 hr. lec., one 3 hr. studio.).

LARC 423. Advanced CAD. 2 Hours.

PR: LARC 223 or equivalent. Study and application of advanced computer techniques including Land Development Desktop and AutoCAD. (Two 2 hr. studios.).

LARC 444. Western European Gardens, Landscapes and Architecture: Field Study. 6 Hours.

This is a travel course that includes visits to Belgium, France, Netherlands and Germany and focuses on a variety of environments- urban, agricultural/rural, and natural. Major cities in the travel experience may include Brussels, Paris, and Amsterdam. The core work of the course consists of a journal/sketchbook. (Also listed as PLSC 444.).

LARC 448. Design Analysis. 2 Hours.

PR: Consent. Analysis of planning and design projects to offer solutions to a given problem.

LARC 450. Advanced Landscape Architectural Design 1. 5 Hours.

PR: LARC 331 and LARC 351 and LARC 360. Comprehensive design problems integrating all aspects of site design, planting design and construction. Includes advanced projects for urban and rural sites. (2 hr. lec.; two 3 hr. studios.).

LARC 451. Advanced Landscape Architectural Design 2. 5 Hours.

PR: LARC 450. A comprehensive problem in landscape architecture in which the student demonstrates proficiency acquired from their program of study. (2 hr. lec., two 3 hr. studios.).

LARC 452. Contemporary Issues in Landscape Architecture. 2 Hours.

PR: LARC 250 and PR or CONC: LARC 251. A series of seminar discussions exploring current and future trends in the practice of landscape architectural design, planning, and management. (2 hr. lec.).

LARC 465. Regional Design. 3 Hours.

PR: Consent. Consideration of regional landscapes in order to effectively relate design to the ecology and development of a region.

LARC 466. Introduction to Urban Design Issues. 3 Hours.

PR: Consent. Community analysis methods, city and small town planning and management of community growth. The course focus is on understanding community and urban design issues and growth management. (Offered in fall of odd years.).

LARC 484. Professional Practice. 3 Hours.

PR: Consent. Procedures in preparation of contract documents, fees, estimates, operation of an office, and relationship to clients and contractors. (3 hr. lec.).

LARC 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

LARC 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

LARC 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

LARC 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of mutual concern to students and faculty.

LARC 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

LARC 496. Senior Thesis. 1-3 Hours.

PR: Consent.

LARC 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

LAW 493. . 1-9 Hours.

LDR 201. Principles of Leadership. 3 Hours.

This course serves as an introduction to leadership theory and practice. The course will examine various aspects of the literature on leadership; provide practice for developing leadership skills; and offer personal experiences for self-reflection.

LDR 301. Problems in Leadership. 3 Hours.

PR: LDR 201. Students will survey a series of case studies, both historical and imagined, in which leadership either succeeds or fails.

LDR 330. Leadership and Athletics. 3 Hours.

PR: LDR 201. Examines leadership in the context of sport with historical and contemporary examples. Different levels of sport will be discussed. Issues related to followership and organizational culture, relevance of motivational theory, and team relationships are explored.

LDR 335. Women and Leadership. 3 Hours.

Uses academic literature related to leadership, women, and feminist theory to analyze differences in female and male leadership characteristics, behaviors, and effectiveness.

LDR 382. Readings in Leadership. 1-3 Hours.

PR: LDR 201. (May be repeated for a maximum of 6 credit hours.) Students critically analyze a variety of texts about leadership so as to evaluate practices, synthesize strategies and develop their own perspectives.

LDR 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

LDR 401. Leadership in Action. 3 Hours.

PR: LDR 201 and LDR 301. This course serves to demonstrate that students have learned how strong, innovative leadership leads to organizational change. Students will tailor this capstone- level/service-learning course to suit their own major and interests.

LDR 445. Intersections in Leadership. 3 Hours.

The objective of this course is to examine and evaluate leadership in and among people and their environment. Topics include intersectionality, multi-cultural leadership theories, and environmental sustainability. This course serves as an elective for both the Minor in Leadership Studies and Graduate Certificate in Leadership.

LDR 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

LDR 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

LDR 498. Honors. 1-3 Hours.

PR: Students in the Honors program and consent by the honors director. Independent reading, study or research.

LDR 499. Global Service Learning. 1-3 Hours.

PR: Consent. Theory and practice of global service-learning. The main objective will be to pair the experiential aspects of meaningful and sustained service in the host community with work from the student's anchor course by offering a methodological framework for cultural immersion and community service as well as adding to the content of the anchor course.

LING 101. Introduction to Language. 3 Hours.

General introduction to the nature of human language, its sounds, structure, mechanisms, and forms (oral/sign); its evolution and variation, how it is learned and stored, and how it differs from animal communications systems.

LING 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

LING 298. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study, or research.

LING 311. Introduction to Structural Linguistics. 3 Hours.

PR: ARBC 203 or CHIN 203 or CLAS 203 or FRCH 203 or GER 203 or ITAL 203 or JAPN 203 or PORT 203 or RUSS 203 or SPAN 203 or equivalent. Required of foreign language majors. A detailed examination of language structure (phonology, morphology, and syntax) and its relation to language use (sociolinguistics).

LING 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

LING 402. Structure of Modern French. 3 Hours.

PR: LING 311 and 18 hours of French or consent. Study of phonology, morphology, and syntax of modern French together with a contrastive analysis of French and English.

LING 411. Phonology. 3 Hours.

PR: LING 101 or LING 311. Description of sounds and sound systems in language. Articulatory phonetics. Structuralist and generative approaches to phonemics.

LING 412. Syntax. 3 Hours.

Emphasis on generative syntax in English, German, Romance and Slavic languages.

LING 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

LING 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

LING 492. Directed Study. 1-3 Hours.

Directed study, reading, and/or research.

LING 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

LING 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

LING 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

LING 496. Senior Thesis. 1-3 Hours.

PR: Consent.

LING 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

MAE 102. Introduction to Mechanical and Aerospace Engineering Design. 3 Hours.

PR: ENGR 101 with a minimum grade of C and (MATH 154 or MATH 155 with a minimum grade of C) and PR or CONC: PHYS 111. Engineering problem solving techniques related to mechanical and aerospace engineering topics through teamwork, written and oral communications, and using the computer, for algorithm development and computer aided design. Discussion of engineering professional and ethical behavior.

MAE 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

MAE 211. Mechatronics. 3 Hours.

PR: ENGR 102 or CHE 102 or MAE 102. Selection of mechanical and electronic components and integration of these components into complex systems. Hands-on laboratory and design experiments with components and measurement equipment used in the design of mechatronic products. (2 hr. lec., 3 hr. lab.).

MAE 215. Intro to Aerospace Engineering. 3 Hours.

PR: (ENGR 102 or CHE 102 or MAE 102) and (MATH 154 or MATH 155 with grade of C- or higher). Fundamental physical quantities of a flowing gas, standard atmosphere, basic aerodynamic equations, airfoil nomenclature, lift, drag and aircraft performance. Digital computer usage applied to aerodynamic and performance problems and aircraft design. (3 hr. lec.).

MAE 241. Statics. 3 Hours.

PR: WVU sections require PHYS 111 and (MATH 154 or MATH 155) all with a grade of C- or better, WVUIT sections require MATH 155 as a prerequisite. Engineering applications of force equilibrium. Vector operations, couples and moments, resultants, centers of gravity and pressure, static friction, free-body diagrams, trusses and frames.

MAE 242. Dynamics. 3 Hours.

PR: WVU sections require MATH 156 with a grade of C- or better and MAE 241, WVUIT sections require MATH 156 and MAE 241 as prerequisites. Newtonian dynamics of particles and rigid bodies. Engineering applications of equations of motion, work and energy, conservative forces, acceleration in several coordinate systems, relative motion, instantaneous centers, and plane motion.

MAE 243. Mechanics of Materials. 3 Hours.

PR: WVU sections require MATH 156 with a grade of C- or better and MAE 241, WVUIT sections require MATH 156 and MAE 241 as prerequisites. Stress deformation, and failure of solid bodies under the action of forces. Internal force resultants, stress, strain, Mohr's circle, and mechanical properties of materials, generalized Hooke's law. Axial bending and buckling loads, and combinations.

MAE 244. Dynamics and Strength Laboratory. 1 Hour.

PR or Conc: MAE 242 and MAE 243. Experiments in dynamic and strength of materials. Mechanical properties and stress-strain curves of materials for tension, compression, shear, and torsion. Hardness, fatigue, and fracture of metals. Vibration.

MAE 271. Mechanical and Aerospace Engineering Design 1. 1 Hour.

PR: Consent. Hands-on applications of concepts learned in other courses to meet specified performance or competition criteria of capstone design courses. Introductory concepts of an integrated sophomore-junior-senior design team.

MAE 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

MAE 298. Honors. 1-6 Hours.

PR: Students in the Honors Program and consent by the honors director. Independent reading, study, or research.

MAE 312. Introduction to Mechanical Design. 3 Hours.

Introduction to the process of designing mechanical objects and machines composed of multiple objects. Basics of engineering graphics, and creation of computer-based models of machine components and assemblies.

MAE 316. Analysis-Engineering Systems. 3 Hours.

PR: MATH 261 with a grade of C- or better, (ENGR 102 or CHE 102 or MAE 102), and MAE 242. Analytical, numerical, and computational techniques to analyze and solve engineering problems. Mathematical modeling, solution strategies, and analysis of results. Statistical techniques including probability distribution functions, regression analysis, and curve fitting.

MAE 320. Thermodynamics. 3 Hours.

PR: WVU sections require PHYS 111 and MATH 156, WVUIT sections require MATH 156 as a prerequisite. Principles of thermodynamics; properties of ideal gases and vapors; first and second laws of thermodynamics; basic gas and vapor cycles; basic refrigeration.

MAE 321. Applied Thermodynamics. 3 Hours.

PR: MAE 320. Applications to mechanical systems of fundamentals from thermodynamics; availability analysis; applied gas and vapor power cycles; applied refrigeration and psychrometry; mixtures of real gases and vapors; combustion; choked flow nozzles. (3 hr. lec.).

MAE 322. Thermal and Fluids Laboratory. 1 Hour.

PR: MAE 320. Experiments demonstrating fundamental concepts of thermal-fluid systems; hydrostatics, dynamic pressure forces, dimensional analysis, pipe pressure losses, drag on external bodies, flow measurements devices, engine performance, fan and turbine performance, saturated vapor curve determination. (3 hr. lab.).

MAE 331. Fluid Mechanics. 3 Hours.

PR: WVU sections require MATH 251 with a grade of C- or better and MAE 241, WVUIT sections require MATH 156 and MAE 242 as prerequisites. Properties of fluids, fluid statics, inviscid fluid dynamics, fluid kinematics, thermodynamic principles, mass momentum and energy principles, similitude and dimensional analysis, laminar and turbulent flow, viscous effects, flow in pressure conduits and external flows.

MAE 335. Incompressible Aerodynamics. 3 Hours.

PR: MATH 251 and (MAE 215 or MAE 331). Dynamics of vector fluid flow fields. Ideal fluid flow. Introduction to viscous boundary layers. Airfoil Theory. Finite-wing theory.

MAE 336. Compressible Aerodynamics. 3 Hours.

PR: MAE 320 and (MAE 215 or MAE 331). Analysis and design of compressible, inviscid flows; isentropic flow, shock waves, Prandtl-Meyer expansions, supersonic nozzles and diffusers. Airfoils in compressible flow and small perturbation theory, introduction to hypersonic-flow theory.

MAE 342. Dynamics of Machines. 3 Hours.

PR: WVU sections require MAE 242 and PR or CONC: MATH 261, WVUIT sections require MAE 242 as a corequisite. Analysis of motion and forces in linkages and mechanisms. Synthesis of plane mechanisms, analysis of cams, gears and gear trains. Fundamentals of vibrations in machines. Analysis techniques include graphical, analytical and computational methods.

MAE 343. Intermediate Mechanics of Materials. 3 Hours.

PR: MATH 251 with a grade of C or better and MAE 243. Introduction to elasticity. Strength under combined stresses. Energy methods. Column theory. Unsymmetric bending. Fundamentals of fatigue and fracture.

MAE 345. Aerospace Structures. 3 Hours.

PR: MAE 343. Torsion of thin-walled beams. Flexural shear flow. Thermal analysis of aerospace structures. Introduction to composite materials. Buckling of plates.

MAE 361. Introduction to Unmanned Aerial Systems. 3 Hours.

PR: MAE 215. Introduction to history, current domestic regulations, and policies on unmanned aerial systems. Vehicle aerodynamics, propulsion, structures, launch and recovery, mission planning, weapons and sensor payloads, and ground and airborne system data links. Use of numerical tools, computer-aided design tools, and common engineering planning tools.

MAE 365. Flight Dynamics. 3 Hours.

PR: MAE 242 and MAE 335. Aircraft equations of motion. Modeling of aerodynamic forces and moments. Aircraft static and dynamic stability. Solution of equations of motion via Laplace transformation. Transfer functions. Simulation of open-loop aircraft dynamics. Aircraft handling qualities.

MAE 370. Aviation Ground School. 3 Hours.

Nomenclature of aircraft, aerodynamics, civil air regulations, navigation, meteorology, aircraft, and aircraft engines. May serve as preparation for private pilot written examinations. (2 hr. lec., 2 hr. lab.) (Not approved as a technical elective.).

MAE 371. Mechanical and Aerospace Engineering Design 2. 2 Hours.

PR: MAE 271 with a grade of C or better or Consent. Continued applications of concepts learned in other courses to meet specified performance or competition criteria of capstone design courses. Intermediate concepts of an integrated sophomore-junior-senior design team.

MAE 411. Advanced Mechatronics. 3 Hours.

PR: MATH 261 with a grade of C or better and MAE 211 and EE 221 and EE 222. Instrumentation and measurements emphasizing systems that combine electronics and mechanical components with modern controls and microprocessors. First and second order behavior, transducers and intermediate devices, measurement of rapidly changing engineering parameters, microcontrollers and actuators. (2 hr. lec., 3 hr. lab.).

MAE 412. Mobile Robotics. 3 Hours.

PR: Consent. Introduction to fundamental topics in Mobile robotics; methods of locomotion; common mobile robot sensors, state estimation and navigation algorithms; path planning and obstacle avoidance methods; robot decision making and control processes; and mobile robot systems design.

MAE 415. Balloon Satellite Project 1. 1 Hour.

Student teams propose, design, construct, and test experimental packages, launched as payloads via a weather balloon that is tracked and recovered. Data acquired by the experimental payloads is analyzed.

MAE 417. Balloon Satellite Project 2. 2 Hours.

PR: MAE 415. Student teams propose, design, construct, and test complex experimental packages, launched as payloads via a weather balloon that is tracked and recovered. Data acquired by the experimental payloads is analyzed.

MAE 421. Problems in Thermodynamics. 3 Hours.

PR: MAE 321 or consent. Thermodynamic systems with special emphasis on actual processes; problems designed to strengthen the background of the student in the application of the fundamental thermodynamic concepts. (3 hr. lec.).

MAE 423. Heat Transfer. 3 Hours.

PR: WVU sections require MATH 261 with a grade of C- or better and MAE 320 and (MAE 331 or MAE 335), WVUIT sections require MAE 320 and MAE 321 as prerequisites and MAE 419 as a corequisite. One-, two-, three-dimensional steady state conduction; transient conduction; free and forced convection; radiation; heat exchangers; heat and mass transfer by analytical, numerical analogical and experimental methods; design of thermal systems.

MAE 424. Applications in Heat Transfer. 3 Hours.

PR: MAE 423. Application of basic heat transfer theory and digital computation techniques to problems involving heat exchangers, power plants, electronic cooling, manufacturing processes, and environmental problems. (3 hr. lec.).

MAE 425. Internal Combustion Engines. 3 Hours.

PR: WVU sections require MAE 320, WVUIT sections require MAE 321 as a prerequisite. IC engine operating characteristics; engine cycles; thermochemistry and fuels; air and fuel induction; fluid motion within combustion chamber; combustion; exhaust flow; emissions and air pollution; heat transfer in engines; friction and lubrication; advanced engine concepts.

MAE 426. Flight Vehicle Propulsion. 3 Hours.

PR: MAE 336. Equilibrium combustion thermodynamics. Quasi one-dimensional flow with friction and total temperature change. Thermodynamics of aircraft engines. Aerodynamics of inlets, combustors, nozzles, compressors, and turbines. Performance of rockets. Ideal rocket analysis. (3 hr. lec.).

MAE 427. Heating, Ventilating, and Air Conditioning. 3 Hours.

PR: WVU sections require MAE 320 or consent, WVUIT sections require MAE 321 and MAE 423 as prerequisites or department consent. Air and humidity relations; comfort and indoor air quality; building heat transfer; design heating and cooling loads; air distribution; refrigeration; systems and equipment; system energy analysis; control systems.

MAE 430. Microgravity Research 1. 3 Hours.

Student team conceives and proposes a unique research experiment, to be flown on NASA microgravity research aircraft. Team also begins design, construction, and testing of apparatus.

MAE 431. Microgravity Research 2. 3 Hours.

PR: MAE 430. Student team completes design, construction, and testing of research experiment; that is then flown on NASA microgravity research aircraft. Data required from experiment is analyzed and reported.

MAE 432. Engineering Acoustics. 3 Hours.

PR: MATH 261 or consent. Theory of sound propagation and transmission. Important industrial noise sources and sound measurement equipment. Selection of appropriate noise criteria and control methods. Noise abatement technology. Laboratory studies and case histories. (3 hr. lec.).

MAE 433. Computational Fluid Dynamics. 3 Hours.

PR: MAE 316 and (MAE 331 or MAE 335) with a grade of C or better in each, or consent. Introduction to modern computational fluid dynamics. Development and implementation of finite-difference schemes for numerical flow solution. Grid Generation. Explicit, implicit, and iterative techniques. Emphasis on applications. Validation and verification of solution. (3 hr. lec.).

MAE 434. Experimental Aerodynamics. 2 Hours.

PR: MAE 336. Aerodynamic testing and instrumentation. Supersonic and low-speed wind tunnel testing including shock waves, aerodynamic forces, pressure distribution on an airfoil and boundary layers. Application of schlieren optics, thermal anemometry and laser doppler velocimetry. (1 hr. lec., 3 hr. lab.).

MAE 437. Vertical/Short Takeoff and Landing Aerodynamics. 3 Hours.

PR: MAE 336. Fundamental aerodynamics of V/STOL aircraft. Topics include propeller and rotor theory, helicopter performance, jet flaps, ducted fans, and propeller-wing combinations. (3 hr. lec.).

MAE 438. Introduction to Gas Dynamics. 3 Hours.

PR: MAE 331 or consent. Fundamentals of gas dynamics, one-dimensional gas dynamics and wave motion, measurement, effect of viscosity and conductivity, and concepts of gas kinetics. (3 hr. lec.).

MAE 439. Hypersonic Gas Dynamics. 3 Hours.

PR: MAE 336 or consent. Hypersonic shock and expansion wave relations; hypersonic inviscid flowfields: approximate and numerical methods, blast wave theory; hypersonic boundary layers and aerodynamic heating. (3 hr. lec.).

MAE 441. Gas Turbine Design and Durability. 3 Hours.

PR: MAE 320 and (MAE 335 or MAE 331). Design of gas turbine engines for aircraft propulsion and industrial power generation. Theory of operation and characteristics of gas turbines. Design considerations, component operation, and durability of the individual components.

MAE 443. Mechanical Behavior and Materials. 3 Hours.

PR: MAE 343 or consent. Reveal the mechanical behavior of materials, including elastic behavior, plastic deformation, high temperature deformation and deformation of non-crystalline materials like polymer and composites. It also covers the materials microstructures and their effects on mechanical properties.

MAE 446. Mechanics of Composite Materials. 3 Hours.

PR: MATH 251 and MAE 243. Fundamental methods for structural analysis of fiber reinforced composites. Particularities of composite applications in design and manufacturing of structural components: performance tailoring, failure criteria, environmental effects, joining and processing. (3 hr. lec.).

MAE 447. Aeroelasticity. 3 Hours.

PR: MAE 345. Vibrating systems of single degree and multiple degrees of freedom, flutter theory and modes of vibration, torsional divergence and control reversal. (3 hr. lec.).

MAE 454. Machine Design and Manufacturing. 3 Hours.

PR: WVU sections require MATH 261 with a grade of C- or better and MAE 342 and MAE 343, WVUIT sections require MAE 243 as a prerequisite and MAE 342 as a corequisite. Working stresses, theories of failure, fatigue, welded joints, design of machine elements such as shafting, screws, springs, belts, clutches, brakes, gears, bearings, and miscellaneous machine elements. Design for manufacturability considerations.

MAE 456. Computer-Aided Design and Finite Element Analysis. 3 Hours.

PR: WVU sections require MATH 261 with a grade of C- or better and MAE 343 and (MAE 342 or MAE 345), WVUIT sections require MATH 251 and MAE 454 and MAE 455 as prerequisites and MAE 423 as a corequisite. Computer aided design fundamentals and formulation of the stiffness matrix and load vector 1D and 2D elements based on variational principles. Analytical and finite element solution of vibration and heat transfer problems. Explore applications of CAD/FEM packages in design case studies.

MAE 459. Hybrid Electric Vehicle Propulsion and Control. 3 Hours.

Hybrid electric vehicle propulsion system modeling and simulation. Hybrid electric vehicle powertrain architectures. Mathematical modeling of hybrid vehicle components including vehicle longitudinal dynamics, batteries, electric motors, engines, transmissions, inverters. Development of hybrid supervisory control algorithms for powertrain management and optimization.

MAE 460. Automatic Controls. 3 Hours.

PR: WVU sections require MATH 261 with a grade of C- or better, WVUIT sections require EE 221 and MATH 261. Modeling and simulation of mechanical systems using transfer functions. 1st and 2nd order systems with associated specification. Block algebra and concept of Equivalent Transfer Function. Steady state errors. Routh-Hurwitz criteria for stability. Root locus based design of proportional controllers and compensators. Introduction to state variables modeling.

MAE 461. Applied Feedback Control. 3 Hours.

PR: MAE 460 or Consent. Application of automatic control theory. Transfer functions and block diagrams for linear physical systems. Proportional, integral, and derivative controllers. Transient and frequency response using Laplace transformation. (3 hr. lec.).

MAE 462. Design of Robotic Systems. 3 Hours.

PR: Consent. Mechanical automation design associated with robotic systems, including economic justification and ethics. Geometric choices and controller specifications for programmable manipulators. Workstation strategies such as CNC and CIM for computer-based flexible manufacturing. (3 hr. lec.).

MAE 465. Flight Mechanics 2. 3 Hours.

PR: MAE 365. Fundamental concepts of feedback control system analysis and design. Automatic flight controls, and human pilot plus airframe considered as a closed loop system. Stability augmentation. (3 hr. lec.).

MAE 466. Spacecraft Dynamics. 3 Hours.

PR: MAE 476. Development of rigid-body equations of motion for aerospace vehicles. Introduction to spacecraft attitude representations, including direction cosine matrices, Euler angles, and quaternions. Brief discussion of airplane flight dynamics. Discussion of attitude dynamics, stabilization, and control in the presence of external torques. Brief discussion of attitude hardware.

MAE 467. Introduction to Flight Simulation. 3 Hours.

PR: MAE 365. Fundamental concepts of flight simulation are introduced through interaction with tools of different complexity from simplified linear and non-linear models to a six degrees-of-freedom motion based flight simulator.

MAE 470. Unmanned Aerial Vehicle Design/Build/Fly Competition 1. 1 Hour.

PR: Consent. Hands-on applications of concepts learned in other courses to meet specified flight performance and competition criteria. Advanced aerodynamic and material concepts are utilized by an integrated sophomore, junior, senior team.

MAE 471. Principles of Engineering Design. 3 Hours.

PR: MAE 320 and MAE 331 and MAE 342 and MAE 343. Topics include design problems in mechanical engineering, deal with analytical and experimental methodologies in fluid, thermal, and structural areas, decision-making techniques, optimization, computer aided design and economic consideration.

MAE 472. Engineering Systems Design. 3 Hours.

PR: MAE 320 and MAE 331 and MAE 342 and MAE 343. Identification and solution of challenging engineering problems through rational analysis and creative synthesis. Planning, designing, and reporting on complex systems on individual and group basis. (6 hr. lab.).

MAE 473. Bioengineering. 3 Hours.

PR: MAE 243 or consent. Introduction to human anatomy and physiology using an engineering systems approach. Gives the engineering student a basic understanding of the human system so that the student may include it as an integral part of the design. (3 hr. lec.).

MAE 474. UAV Design/Build/Fly Comp. 1-3 Hours.

PR: Consent. Hands-on applications of concepts learned in other courses to meet specified flight performance and competition criteria. Advanced aerodynamic and materials concepts are utilized by an integrated sophomore-junior-senior team.

MAE 475. Flight Vehicle Design-Capstone. 3 Hours.

PR: ENGL 102 and MAE 215 and MAE 365 or consent. Preliminary design of flight vehicles; with regard for performance and stability requirements, considering aerodynamics, weight and balance, structural arrangement, configuration, cost safety, guidance, and propulsion effects. (1 hr. lec., 6 hr. lab.).

MAE 476. Space Flight and Systems. 3 Hours.

PR: MAE 316. Introduction to fundamental concepts of space flight and vehicles, emphasizing performance aspects and basic analytical expressions. Common analysis methods and design criteria for launch vehicles, orbital mechanics, atmospheric re-entry, stabilization, thermal, power, and attitude control.

MAE 477. Space Systems Design. 3 Hours.

PR: MAE 475 or MAE 471. Conceptual and/or preliminary design of space vehicles and/or systems including structures, CAD, orbital mechanics, propulsion, thermal control, life support, power systems, communications, system integration and cost analysis. (1 hr. lec., 6 hr. lab.).

MAE 478. Guided Missile Systems. 3 Hours.

PR: MAE 336 and PR or Conc: MAE 426. Design philosophy according to mission requirements. Preliminary configuration and design concepts. Aerodynamic effects on missiles during launch and flight. Ballistic missile trajectories. Stability determination by analog simulation. Performance determination by digital and analog simulation. Control, guidance, and propulsion systems. Operational reliability considerations. (3 hr. lec.).

MAE 479. Space Mechanics. 3 Hours.

PR: MATH 261 and MAE 242. Flight in and beyond earth's atmosphere by space vehicles. Laws of Kepler and Orbital theory. Energy requirements for satellite and interplanetary travel. Exit from and entry into an atmosphere. (3 hr. lec.).

MAE 482. Flight Simulation for Aircraft Safety. 3 Hours.

PR: MAE 365 or consent. Introduction to flight modeling and simulation tools for aircraft health management through analysis and accommodation of abnormal flight conditions.

MAE 484. Spacecraft Propulsion. 3 Hours.

PR: MAE 336. Brief introduction to aircraft propulsion including turbojets. Introduction to rocket and spacecraft propulsion. The rocket equation, staging, liquid rocket engines and solid rocket motors, thermochemistry, and combustion.

MAE 485. Flight Vehicle Design 2. 3 Hours.

PR: MAE 475. Detailed design of a major aircraft component and evaluation through experiments or simulation of performance and design requirements compliance.

MAE 486. Spacecraft Design 1. 3 Hours.

PR: MAE 215 and MAE 316 and MAE 476. Engages students into the process of designing spacecraft and space missions as it is executed in both government and industry. Addresses each of the major subsystems found in most modern spacecraft. Includes computer and hands-on laboratory assignments.

MAE 487. Spacecraft Design 2. 3 Hours.

PR: MAE 486. The course is focused on a team-based design exercise to develop an end-to-end spacecraft mission concept. Typical process issues are addressed such as science investigation, trajectory analysis, detailed design of each spacecraft subsystem, discussion of engineering trade studies, risk analysis, budget, and schedule.

MAE 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

MAE 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

MAE 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

MAE 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

MAE 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

MAE 496. Senior Thesis. 1-3 Hours.

PR: Consent.

MAE 497. Research. 1-6 Hours.

Independent research projects.

MAE 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

MANG 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

MANG 330. Human Resource Management Fundamentals. 3 Hours.

PR or CONC: BCOR 370. Fundamental principles and practices related to the procurement, development, maintenance, and utilization of human resources. Focus on areas such as human resource planning, selection training, performance appraisals, compensation, safety and health and labor relations.

MANG 360. International Business. 3 Hours.

PR or CONC: BCOR 370. The course explores the cultural, economic, and political environments of business. Other topic include globalization, import and export, foreign direct investment, foreign currency exchange, regional economic cooperation, and the multinational enterprise.

MANG 422. The Individual and the Organization. 3 Hours.

PR: BCOR 370. Examination of how the individual, the group, and the organization interact to influence the behavior of the business organization and that of its human resources.

MANG 426. Introduction to Decision Analysis. 3 Hours.

PR: BCOR 330. Developing and solving decision analysis models utilizing spreadsheets.

MANG 434. Business Research Methods. 3 Hours.

PR: MANG 330 with a minimum grade of C-. Research methods and measurement in human resources management; philosophy of science, ethics in research, research design, and analytical methods.

MANG 480. Corporate Social Responsibility. 3 Hours.

PR: BCOR 370. Provides an overview of personal support and involvement in not-for-profit organizations in meeting community needs.

MANG 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

MANG 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 6 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

MANG 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

MANG 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

MANG 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

MANG 496. Senior Thesis. 1-3 Hours.

PR: Consent.

MANG 497. Research. 1-6 Hours.

Independent research projects.

MANG 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

MATH 104. Compensatory Co-requisite Course for Algebra with Applications. 0 Hours.

This is a compensatory co-requisite course associated and synchronized with MATH 124. This course reinforces basic learning and study-skills along with intermediate algebra and computational skills necessary to succeed in MATH 124. Based on the criteria defined by the Math Department, some students are required to register for this course. A compensatory co-requisite course carries no credit and no grade.

MATH 106. Compensatory Co-Requisite Course for College Algebra. 0 Hours.

This is a co-requisite course associated and synchronized with MATH 126 (College Algebra). This course reinforces basic learning/study-skills and intermediate algebra skills necessary to succeed in MATH 126. Based on the criteria defined by the Math Department, some students are required to register for this course. A compensatory co-requisite course carries no credit and no grade.

MATH 112. Quantitative Skill and Reasoning 1. 1 Hour.

Part one of a two-part introductory study of quantitative and reasoning skills needed for success in science, technology, engineering, and mathematics coursework.

MATH 121. Intro Concepts Of Mathematics. 3 Hours.

(Designed for non-science majors who do not need the techniques of mathematics for other course work in their programs.) Topics in modern mathematics.

MATH 122. Quantitative Skills and Reasoning. 2 Hours.

An introductory study of quantitative and reasoning skills needed for success in science, technology, engineering, and mathematics.

MATH 124. Algebra with Applications. 3 Hours.

PR: Satisfy the minimum ACT/SAT math score, or satisfactory performance on departmental placement examination, (prerequisites may vary on regional campuses). Study of algebra with an emphasis on applications for science, business, technology, and social science. Topics include graphing and solving problems using linear, quadratic, square-root, logarithmic, and exponential functions, solving equations, performing operations on matrices.

MATH 124S. Algebra with Applications with Support. 3 Hours.

PR: Satisfactory performance on departmental placement test, or satisfy the minimum ACT/SAT Math score, or a grade of C- or better in MATH 122. Study of algebra with an emphasis on applications for science, business, technology, and social science. Topics include graphing and solving problems using linear, quadratic, square-root, logarithmic, and exponential functions, solving equations, performing operations on matrices. Support topics will also include intermediate algebra remediation, how to study mathematics, decrease math/test anxiety, and manage your time.

MATH 126. College Algebra. 3 Hours.

PR: Satisfy the minimum ACT/SAT math score, or satisfactory performance on departmental placement examination, (prerequisites may vary on regional campuses). Introduces the foundations of analysis designed to precede the calculus sequence with emphasis on functions and graphs. Topics include properties of absolute value, polynomial, rational, exponential, logarithmic functions, and techniques for solving equations and inequalities.

MATH 126A. College Algebra 5-Day. 3 Hours.

PR: Satisfy the minimum ACT/SAT math score, or satisfactory performance on departmental placement examination, or C- in MATH 122. (This course is not open to students who have credit for MATH 129 or its equivalent.) Review of the real number system and algebraic expressions, equations, inequalities, graphing, functions, and polynomials. Pre-requisite(s) and/or co-requisite(s) may differ on regional campuses.

MATH 126B. College Algebra 4-Day. 3 Hours.

PR: Satisfy the minimum ACT/SAT math score, or satisfactory performance on departmental placement examination, or MATH 122 with a minimum grade of C-. (This course is not open to students who have credit for MATH 129 or its equivalent.) Review of the real number system and algebraic expressions, equations, inequalities, graphing, functions, and polynomials. Pre-requisite(s) and/or co-requisite(s) may differ on regional campuses.

MATH 126C. College Algebra 3-Day. 3 Hours.

PR: Two units of algebra, one unit of geometry, and satisfactory performance on departmental placement examination or successful completion of the pre-college algebra workshop or its equivalent. (This course is not open to students who have credit for MATH 129 or its equivalent.) Review of the real number system and algebraic expressions, equations, inequalities, graphing, functions, and polynomials. Pre-requisite(s) and/or co-requisite(s) may differ on regional campuses.

MATH 126S. . 3 Hours.

PR: Satisfy the minimum ACT/SAT math score, or satisfactory performance on departmental placement examination, or a minimum grade of C- in MATH 122. Introduces the foundations of analysis designed to precede the calculus sequence with emphasis on functions and graphs. Topics include properties of absolute value, polynomial, rational, exponential, logarithmic functions, and techniques for solving equations and inequalities. Support topics will also include intermediate algebra remediation, how to study mathematics, decrease math/test anxiety, and manage your time.

MATH 128. Plane Trigonometry. 3 Hours.

PR: MATH 124 or MATH 126 with a minimum grade of C- in each. (This course is not open to students who have credit for MATH 129 or equivalent.) Trigonometric functions, identities, vectors, complex numbers, and trigonometric equations. Pre-requisite(s) and/or co-requisite(s) may differ on regional campuses.

MATH 129. Pre-Calculus Mathematics. 4 Hours.

PR: Satisfy the minimum ACT/SAT math score, or satisfactory performance on departmental placement test. A treatment of algebra, analytic geometry, and trigonometry. Not open to students who have credit for the equivalent of either MATH 126 or 128. Pre-requisite(s) and/or co-requisite(s) may differ on regional campuses.

MATH 150. Applied Calculus. 3 Hours.

PR: Satisfy the minimum ACT/SAT math score, or satisfactory performance on departmental placement examination, or C- in MATH 124 or MATH 126 or MATH 129. For students in other disciplines needing calculus for applications. Limits of sequences and functions, continuity derivatives, and integrals of polynomials, rational functions, and exponential and logarithmic functions, partial derivatives, maxima and minima. Pre-requisite(s) and/or co-requisite(s) may differ on regional campuses.

MATH 153. Calculus 1a with Precalculus. 4 Hours.

PR: Satisfy the minimum ACT/SAT math score, or satisfactory performance on departmental placement examination, or C- in (MATH 126 and MATH 128) or in MATH 129. Introduction to limits, continuity, derivatives, and applications of derivative.

MATH 154. Calculus 1b with Precalculus. 4 Hours.

PR: MATH 153 with a minimum grade of C-. Introduction to applications of derivatives, antiderivatives, and definite integrals.

MATH 155. Calculus 1. 4 Hours.

PR: Satisfy the minimum ACT/SAT math score, or satisfactory performance on departmental placement examination, or C- in MATH 129. For sections TOX offered at WVU Beckley, may instead satisfy minimum grade of C- in MATH 126 and MATH 128. Introduction to limits, continuity, derivatives, antiderivatives, definite integrals, and applications of the derivative. Not open to students who have earned credit in MATH 153 and/or MATH 154.

MATH 156. Calculus 2. 4 Hours.

PR: A minimum grade of C- in MATH 154 or MATH 155. Techniques of integration, application of the definite integral, polar coordinates, indeterminate forms, and infinite series.

MATH 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

MATH 218. History of Mathematics. 3 Hours.

PR: MATH 155 with a minimum grade of C-. Development of mathematics through calculus, with emphasis on mathematical theories and techniques of each period and their historical evolution. (Not offered on a regular basis.).

MATH 222. Numerical and Symbolic Methods in Mathematics and Statistics. 3 Hours.

PR: MATH 156 with a minimum grade of C-. Data manipulation, data visualization in two and three dimensions including animation, scientific programming using a high level language, symbolic manipulators and other packages. Applications to problems in mathematics and statistics. (Equivalent to STAT 222.).

MATH 231. Algebra and Geometry for Elementary Teachers. 3 Hours.

PR: MATH 126. (For elementary education majors only.) Algebra, real numbers, and geometry applied to graphing, problem solving, probability and statistics, calculations, and the computer.

MATH 232. Number and Algebra for Teachers. 3 Hours.

PR: A minimum grade of C- in MATH 124 or MATH 126 or MATH 150 or MATH 153 or MATH 155. (Open to pre-service elementary education majors only.) Use of properties of real numbers and algebra to illuminate conceptual understanding and enhance problem solving techniques. The use of technology is infused throughout the course.

MATH 233. Measurement and Geometry for Teachers. 3 Hours.

PR: MATH 232 with a minimum grade of C-. (Open to pre-service elementary education majors only.) Use of properties of real numbers, algebra, measurement and geometry to illuminate conceptual understanding and enhance problem solving techniques. The use of technology and manipulatives is infused throughout the course.

MATH 238. Modern Geometry for Teachers. 3 Hours.

PR: MATH 156 with a minimum grade of C- or consent. (For prospective high school mathematics teachers.) Foundations of geometry. Special topics from Euclidean, projective, and non-Euclidean geometries.

MATH 251. Multivariable Calculus. 4 Hours.

PR: MATH 156 with a minimum grade of C-. Introduction to solid analytic geometry, vector algebra, and calculus of several variables.

MATH 261. Elementary Differential Equations. 4 Hours.

PR: MATH 251, WVUIT sections require MATH 251 or MATH 315 with a minimum grade of B. Ordinary differential equations, Laplace transforms, partial differential equations, Fourier series, and applications.

MATH 283. Introduction to the Concepts of Mathematics. 3 Hours.

PR: MATH 156 or consent. Elementary logic, basic theory, relations and functions, equivalence relations and decomposition of sets, order relations, and cardinality. Emphasis on learning to prove theorems.

MATH 293. Special Topics. 6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

MATH 318. Perspectives on Mathematics and Science. 3 Hours.

PR: MATH 150 or MATH 153 or MATH 155. This course explores knowledge generation in the sciences and mathematics by referencing the philosophy, history, and methods of those disciplines. It is designed to prepare future teachers with background, rationales, and strategies necessary to enhance student knowledge and interest in these areas, providing deeper understanding of the underlying mathematics in science, and of mathematics in general.

MATH 341. Introduction to Algebraic Structures. 3 Hours.

PR: MATH 283 or consent. A study of groups, rings, and fields together with their substructures, quotients and products, morphisms; the fundamental homomorphism theorems.

MATH 343. Introduction to Linear Algebra. 3 Hours.

PR: MATH 156. Introduction to vector spaces as an algebraic system. Emphasis on axiomatic development and linear transformation. Examples from geometry and calculus.

MATH 363. Mathematical Foundations of Actuarial Science. 3 Hours.

PR: MATH 156 with a minimum grade of C-. Concepts from calculus and probability as they pertain to actuarial sciences. The calculus portion covers limits, derivatives, integrals, power series and polar coordinates. The probability portion covers basic and conditional probability, Bayes' theorem, discrete and continuous variables and distributions, and bivariate distributions. Focus is on word problems of the type covered by the SOA/CAS Exam P/1.

MATH 364. Mathematics of Compound Interest. 3 Hours.

PR: MATH 156 or MATH 150. A problem-solving course focusing on the measurement of interest, annuities, amortization schedules, and sinking funds, and the valuation of bonds and other securities.

MATH 373. Introduction to Cryptography. 3 Hours.

PR: MATH 155. Introduces students to the art of confidential communication the mathematical background and the practical skills in making and breaking secret codes.

MATH 375. Applied Modern Algebra. 3 Hours.

PR: MATH 156. Finite fields, algebraic coding theory, Boolean algebras, monoids, finite state, and Turing machines.

MATH 376. Foundations, Functions and Regression Models. 3 Hours.

PR or CONC: MATH 156. In-depth study of topics taught by teachers of secondary school mathematics. Emphasizes development of the concept of function, exploring function patterns in data sets, and connections between these topics and topics of mathematics associated with the secondary school curriculum. Integrates use of appropriate technology in developing lessons that help students master the concepts of functions, data, and real world applications.

MATH 377. Operations Research. 3 Hours.

PR: MATH 156. Linear programming, multi-objective optimization and goal programming, discrete dynamic programming, network flows, discrete optimization models and methods, nonlinear programming.

MATH 378. Discrete Mathematics. 3 Hours.

PR: MATH 283. Permutations, combinations, binomial theorem, inclusion-exclusion formula, recurrence relations, generating functions, elementary graph theory (connectivity, paths, circuits, trees, vertex and edge coloring, graph algorithms) matching theory, and discrete optimization. (Equiv. to CS 426.).

MATH 381. Introduction to Analysis and Topology. 3 Hours.

PR: MATH 283 or consent. Introduction to metric and topological spaces. Topics include: continuity, convergence, separation, compactness, and connectedness.

MATH 420. Numerical Analysis 1. 3 Hours.

PR: MATH 251 and (either a programming language or MATH 222.) Computer arithmetic, roots of equations, interpolation, Gaussian elimination, numerical integration and differentiation. Numerical solution of initial value problems for ordinary differential equations. Least square approximations. (Equiv. to CS 460.).

MATH 421. Numerical Analysis 2. 3 Hours.

PR: (MATH 420 or CS 460) and (MATH 441 or MATH 343). Solutions of linear systems by direct and iterative methods. Calculation of eigenvalues, eigenvectors, and inverses of matrices. Applications to ordinary and partial differential equations.

MATH 441. Applied Linear Algebra. 3 Hours.

PR: MATH 251. Matrix algebra with emphasis on algorithmic techniques and applications to physical models. Topics include solution of large systems of equations, orthogonal projections and least squares, and eigenvalue problems.

MATH 442. Advanced Algebraic Structures. 3 Hours.

PR: MATH 341. Continuing study of groups, rings, and fields together with their substructures, quotients, and products. Morphisms with an emphasis on the fundamental homomorphism theorems.

MATH 451. Introduction to Real Analysis 1. 3 Hours.

PR: MATH 283. A study of sequences, convergence, limits, continuity, definite integral, derivative, differentials, functional dependence, multiple integrals, sequences, and series of functions.

MATH 452. Introduction to Real Analysis 2. 3 Hours.

PR: MATH 451. A study of sequences, convergence, limits, continuity, definite integral, derivative, differentials, functional dependence, multiple integrals, sequences and series of functions.

MATH 456. Complex Variables. 3 Hours.

PR: MATH 261. Complex numbers, functions of a complex variable; analytic functions; the logarithm and related functions; power series; Laurent series and residues; conformal mapping and applications.

MATH 460. Introduction to Dynamical Systems and Applications. 3 Hours.

PR: MATH 261 with a minimum grade of C-. Introduction to the theory of dynamical systems, whose goal is to study the behavior of systems with known laws of evolution. Exploration of basic topics including fixed points, periodic orbits, linearization, local and global behavior of solutions, bifurcations, and chaos. Applications from biology, chemistry, and physics.

MATH 464. Deterministic Mathematical Modeling. 3 Hours.

PR: MATH 222 and MATH 261 and MATH 420; or consent. An introduction to mathematical modeling of deterministic systems. Topics include growth and decay models, equilibrium models, optimal control and utility, and model validation. Applications from chemistry, physics, biology, economics, and the environment will be considered.

MATH 465. Partial Differential Equations. 3 Hours.

PR: MATH 261. Introduces students in mathematics, engineering, and the sciences to methods of applied mathematics. First and second order equations, canonical forms, wave, heat, and Laplace's equations, and representation of solutions.

MATH 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

MATH 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

MATH 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

MATH 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

MATH 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

MATH 496. Senior Thesis. 1-3 Hours.

PR: Consent.

MATH 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study, or research.

MCNR 470. McNair Research Internship. 1 Hour.

PR: Current WVU McNair Scholars. This course familiarizes scholars with the process of preparing a research project and applying for graduate school.

MCNR 471. McNair Research Internship 2. 1 Hour.

PR: MCNR 470 and current WVU McNair Scholars. This course familiarizes scholars with the process of completing a research paper. Students will make an oral presentation of completed research at the end of the semester.

MDIA 201. Media Literacy. 3 Hours.

This course trains students in news media literacy as well as literacy for other forms of media discourse: Entertainment, sports, literature, and more. It teaches distinctions of media (print/broadcast/online) and their different structures and standards, analyzes forms of sourcing (factual, editorial, anonymous), and explores the construction of credibility, bias and truth in media.

MDIA 441. Sports and Adventure Media Internship. 1-3 Hours.

PR: JRL 101 and JRL 215 and JRL 225 with a minimum grade of C- in each. This course provides exposure to the sports, sports media, adventure sports and adventure recreation industries, and to the media roles in these industries. Students will learn about sports and adventure sports media by completing professional experience in these industries.

MDS 101. Orientation to RBA. 1 Hour.

For students beginning the Regents Bachelor of Arts degree program. Orientation to curriculum, policies, benefits, and academic merits of the RBA to help students take advantage of its unique features.

MDS 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

MDS 199. Orientation to MDS. 1-2 Hours.

Orientation to degree programs and requirements, departmental resources, curriculum options, student responsibilities and opportunities.

MDS 289. Foundations of Interdisciplinary Studies. 3 Hours.

PR: MDS 199. Introduces students to interdisciplinary studies as an academic discipline with its own terminology, research methods, and set of assumptions applicable to addressing complex problems.

MDS 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

MDS 389. Interdisciplinary Research Methods. 3 Hours.

PR: MDS 199. Instructs students to approach research from an interdisciplinary perspective. Students will develop skill in applying methodologies and principles from more than one academic discipline to frame perspectives and conduct research. The final research project will address a political, economic, social, scientific, or humanitarian issue with relevance to the student's post-graduate career or academic aspirations using interdisciplinary tools and analysis.

MDS 489. Capstone. 3 Hours.

PR: MDS 199 with a minimum grade of C- and Senior Status. The MDS capstone instructs students on the methods and advantages of a multidisciplinary education. The capstone includes a community-service service learning project.

MDS 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

MDS 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

MDS 492. Directed Study. 1-3 Hours.

Directed study, reading, and/or research.

MDS 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

MDS 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

MDS 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

MDS 496. Senior Thesis. 1-3 Hours.

PR: Consent.

MDS 497. Research. 1-6 Hours.

Independent research projects.

MDS 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

MICB 200. Medical Microbiology. 3 Hours.

PR: (CHEM 111 and CHEM 112) or (CHEM 115 and CHEM 116). Provides basic background in medical microbiology. Emphasis is on basic structure of all microorganism groups including bacteria, fungi, viruses, protozoa and helminths; epidemiology, immunology, and infectious disease.

MICB 323. Medical Microbiology/Lab. 5 Hours.

(For medical laboratory science students; other students with consent.) Biochemistry. Basic microbiology. Emphasis on immunology, pathogenic microorganisms, and clinical laboratory techniques.

MICB 492. Directed Study. 1-3 Hours.

Directed study, readings, and/or research.

MICB 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

MICB 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

MICB 497. Research. 1-6 Hours.

Independent research projects.

MILS 101. Military Science. 2 Hours.

The organization and development of the U.S. Army and ROTC from its inception to the present. The structure and role of the U.S. defense establishment with emphasis on the broad range of America civil-military relations.

MILS 102. Military Science. 2 Hours.

MILS 201. Military Science. 2 Hours.

Introduction to basic leadership and management with emphasis on the fundamental concepts and skills required of today's citizen-soldier.

MILS 202. Military Science. 2 Hours.

Continued instruction in basic fundamentals of leadership and management, with emphasis on the military application of these fundamentals. Introduction to small unit tactics and organization.

MILS 301. Military Science. 3 Hours.

PR: Basic course or equiv. (Equivalent credit may be granted by the WVU Director of Admissions and the professor of military science on the basis of prior military services, or ROTC training other than courses in military science taken at WVU.) Examines the requirements for military training and the psychological and technical aspects of effective instruction. Additionally, the military career system and the occupational specialties options available are reviewed.

MILS 302. Military Science. 3 Hours.

MILS 401. Military Science. 3 Hours.

PR: MILS 301 and MILS 302 or consent. Stresses the responsibilities of an officer and affords leadership experience as a cadet leader. Military staff procedures, military law, and military organizations, which prepare the student for future services, are studied.

MILS 402. Military Science. 3 Hours.

PR: MILS 401 or consent. Advanced leadership techniques, unit operations, and personnel management problems are discussed in seminars. The military role in United States foreign policy and world affairs is examined.

MILS 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

MILS 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

MILS 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

MINE 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

MINE 201. Mine Surveying. 3 Hours.

PR: MATH 154 or MATH 155 with a grade of C or better. Principles of surveying, field experience in underground and surface surveying with map work and calculations.

MINE 205. Underground Mining Systems. 3 Hours.

PR or CONC: GEOL 101. Underground mining methods and equipment for bedded deposits and ore bodies; description and selection of mining methods, equipment requirements and selection, equipment design, and operational analysis.

MINE 206. Surface Mining Systems. 4 Hours.

PR: GEOL 101. Surface mining methods, surface mining equipment, explosives and blasting design fundamentals, and slope stability.

MINE 261. Engineering Computer Aided Design. 2 Hours.

PR: ENGR 102. Engineering CAD concepts and techniques; implementing applications of engineering computer aided design for engineering graphics and plant design; introduction of geometry and calculation of engineering works.

MINE 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

MINE 304. Aggregates Production. 3 Hours.

PR: MINE 206 or Consent. Use of aggregates (stone, sand and gravel) in modern society; mine design for aggregates deposits; extraction and processing principles; transportation and distribution systems; environmental and safety concerns in aggregates production.

MINE 306. Mineral Property Evaluation. 3 Hours.

PR or CONC: STAT 211 or STAT 215 or IENG 213. Mineral exploration and reserve estimation, risk management, and engineering economy concepts applied to mineral deposits, including, depreciation and depletion.

MINE 331. Mine Ventilation. 3 Hours.

PR: MINE 205 with a minimum grade of C- and PR or CONC: MAE 331 or CE 321. Engineering principles, purposes, methods, and equipment applied to the underground environmental control including ventilation, illumination, and dust and noise control.

MINE 382. Mine Power Systems. 3 Hours.

PR: PHYS 112 and MINE 205 and MINE 206 or consent. Comprehensive study of mine electrical power systems from theory to practice, covering the vital aspects that go into planning and designing a mine power system.

MINE 386. Mine Equipment Maintenance. 3 Hours.

PR: MINE 205 and MINE 206 and MAE 242 and PR or CONC: MAE 243 with a minimum grade of C- in each. Provides an introduction to maintenance functions at mining operations, applying reliability theory to both preventative and predictive maintenance. Common failure modes and mitigation strategies are analyzed for components of haulage equipment and shaft-powered machinery including belts, fans, pumps, and conveyors. Applications of non-destructive testing to forecast typical causes of mine equipment failure and degradation, including corrosion.

MINE 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

MINE 407. Longwall Mining. 3 Hours.

PR: MINE 205. Elements of longwall mining including panel layout and design considerations, strata mechanics, powered supports, coal cutting by shearer or plow, conveyor transportation, and face move.

MINE 411. Rock Mechanics/Ground Control. 4 Hours.

PR: MINE 205 and MINE 206 and MAE 243 and PR or CONC: GEOL 342. Rock properties and behavior, in-situ stress field, mine layout and geological effects; design of entry, pillar, and bolt systems, convergence and stress measurements, surface subsidence, roof control plan, slope stability, and laboratory sessions.

MINE 425. Mineral Processing. 4 Hours.

PR: CHEM 115 and MATH 261. Principles of physical and introductory chemical separation methods for concentration of non-metal and metal from minerals and ores. Unit operations include, communication, classification, gravity, electrostatic and magnetic separation, flotation, filtration, and thickening.

MINE 426. . 1 Hour.**MINE 427. Coal Preparation. 4 Hours.**

PR: CHEM 115 and MATH 251 and MINE 261. Coal formation and characteristics; principles of coal beneficiation, washability analysis; colloid characteristics and flotation, unit operations for concentration, flotation, dewatering, material handlings, and mass balances.

MINE 461. Applied Mineral Computer Methods. 3 Hours.

PR: MATH 251 with a grade of C or better. Problem solving in mineral processing, mineral resources, mining, and petroleum engineering. Emphasis on applications using various computing technologies.

MINE 471. Mine and Safety Management. 3 Hours.

PR: MINE 205 and MINE 206, and (STAT 211 or STAT 215 or IENG 213). Application of established management theories and statistical quality control to mining operations, Federal and state regulations, employee and contractor relations, loss prevention, industrial hygiene, legal considerations, engineering ethics.

MINE 480. Multidisciplinary Team Project. 1 Hour.

Mining engineering designs often need to consider constraints from other engineering/non-engineering fields. This course provides a multidisciplinary team working environment for mining students to work with a selected non-mining major on a design project.

MINE 483. Mine Design-Exploration Mapping. 2 Hours.

PR: MATH 261 and MAE 242 and MINE 261 and MINE 306 and PR or CONC: MINE 331 and MINE 411 and (MINE 425 or MINE 427). The first course in the senior capstone sequence. A mineral deposit is selected by the student and instructor and geologic, demographic, quality, and market data are integrated with computer mapping software to develop a comprehensive map set and exploration report. This report will be used in the second course to develop a pre-feasibility study for the mineral deposit selected.

MINE 484. Mine Design-Report Capstone. 4 Hours.

PR: MINE 483. Capstone mine design project report and presentation based on the mineral or coal reserve characterized in MINE 483. Includes an integrated mine plan, schedule, equipment selection, processing plant, mine services, product description and engineering economics.

MINE 488. Mine Control Systems Engineering. 3 Hours.

PR: MINE 382 with a minimum grade of C-. Provides foundation in control systems for extraction and processing industry, introducing classic control theory, mathematical analysis of second-order system response and stability, PID controller design and implementation, and selection and application of field sensors. Course project requires complete design of PLC-based control system adapted from an actual mining operation, including wiring, programming, and documentation.

MINE 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

MINE 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

MINE 492. Directed Study. 1-3 Hours.

Directed study, reading and/or research.

MINE 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

MINE 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

MINE 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

MINE 496. Senior Thesis. 1-3 Hours.

PR: Consent.

MINE 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

MIST 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

MIST 320. Managing Information Technology. 3 Hours.

This course provides student with an understanding of how information systems are used in business and how they impact (positively or negatively) the competitive position of organizations.

MIST 351. Database Management Systems. 3 Hours.

Introduction to database theory, design, implementation, management, and models; development of database applications for management systems.

MIST 352. Business Application Programming. 3 Hours.

PR or CONC: MIST 351. Provides an understanding of fundamental programming concepts required to develop end-user business applications in an object-oriented, event-driven environment. These skills will be utilized in the systems design and development course.

MIST 353. Advanced Information Technology. 3 Hours.

PR: MIST 352. Presents students with a fundamental knowledge of hardware and software technologies, including emerging technologies, focusing on the functionality and management of the technology in a business organization.

MIST 355. Data Communications. 3 Hours.

Provides an overview of the TCP/IP model and related technologies of the data communications corporate infrastructure as well as a survey of the essential tools and strategies for the effective management of business networks.

MIST 356. Network Security. 3 Hours.

PR or CONC: MIST 355. This course focuses on the managerial and technical aspects of information security in networks. The course covers security issues in information systems, information assurance management and policy, network security planning, technologies, implementation, and security strategy.

MIST 357. Information Ethics. 3 Hours.

This course introduces the student to the field of information ethics, including such topics as privacy, accessibility, censorship, intellectual property, accuracy, virtual reality and artificial intelligence.

MIST 450. Systems Analysis. 3 Hours.

PR: MIST 320 and MIST 351. Emphasizes the systems approach, concentrating on the first half of the systems development cycle: feasibility studies, cost/benefit analysis, organizational analysis, assessment of information needs, and project planning. Effective teamwork and communication are stressed.

MIST 452. Systems Design and Development. 3 Hours.

PR: MIST 353 and MIST 450. Follows the systems analysis course with the second half of the system development cycle; user interface design, data design, process design, system specifications, use of software development tools, documentation, testing, conversion, and maintenance.

MIST 491. Professional Field Experience. 1-18 Hours.

PR: Consent (May be repeated up to a maximum of 6 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

MIST 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

MIST 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

MKTG 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

MKTG 315. Buyer Behavior. 3 Hours.

PR: BCOR 350 with a minimum grade of C-. The buyer decision process in a marketing framework. Emphasis on psychological and sociological concepts which influence the decision process.

MKTG 320. Personal Selling 1. 3 Hours.

PR: BCOR 350 with a minimum grade of C-. Deals with interpersonal communication, influencing, and persuasion processes designed to satisfy customer and company needs; stresses the structure of sound sales presentations through lectures, persuasive presentations, and appraisal and correction of common selling errors.

MKTG 321. Professional Selling 2. 3 Hours.

PR: MKTG 320 with a minimum grade of C-. Advanced instruction and skills development in interpersonal communication, prospecting, negotiation, and team selling. Preparation for excellence in the areas of career management and personal productivity.

MKTG 325. Marketing Research. 3 Hours.

Scientific approach to the solution of marketing problems with emphasis on research methods and techniques.

MKTG 330. Distribution Channels. 3 Hours.

PR: BCOR 350 with a grade of C- or higher. Management of channel systems with emphasis on retail distribution, channel choice, strategies, control, and optimization within the context of role, power, conflict, and communications.

MKTG 345. Selling with Digital Media. 3 Hours.

PR: BCOR 350 with a grade of C- or higher. Exploration of how emerging forms of digital media such as social networking, and/or blogs can advance or hinder personal selling and marketing in the 21st century.

MKTG 350. Product and Price Policies. 3 Hours.

PR: BCOR 350 with a minimum grade of C-. Deals with the company's product offering as economic and marketing variables influencing product's price; stress on determination of product and price objectives, planning, implementation, and evaluation of results.

MKTG 380. Integrated Promotions. 3 Hours.

PR: BCOR 350 with a grade of C- or higher. Marketing promotions can dramatically influence the relative success of firms and their brands. As such, we seek to understand the processes and approaches that organizations use in developing and sustaining effective promotional strategies.

MKTG 389. Online Analytics. 3 Hours.

PR or CONC: MKTG 380 with a minimum grade of C-. Basic marketing and statistical concepts relating to online marketing tools/platforms such as websites, email marketing, search engine marketing and social media. Students will be able to evaluate and use a diverse range of online platforms.

MKTG 410. Retail Management. 3 Hours.

PR: BCOR 350 and MKTG 315 with a grade of C- or higher in each. The organization and operating environment of retail firms. Special emphasis placed on consumer market segmentation and the marketing variables of merchandise mix, effective pricing, store location, and communication with suppliers and consumers.

MKTG 420. Sales Management. 3 Hours.

PR: MKTG 320 with a grade of C- or higher. Concentrates on the managerial responsibilities of sales manager for directing, motivating, and controlling a sales force plus the techniques of selling, including objections and closing.

MKTG 425. Sustainable Marketing. 3 Hours.

PR: BCOR 350 with a minimum grade of C-. Explores current environmental strategies focusing on reaching organizational goals and sustainable performance through marketing theory and practice.

MKTG 426. Sustainability Strategy. 3 Hours.

PR: BCOR 350 with a minimum grade of C-. Using simulations and current theory, students will gain hands-on experience that will allow them to better understand the complexity of sustainable strategies and meeting stakeholder needs.

MKTG 440. Export Management. 3 Hours.

Student teams work directly with participating companies to develop export business plans for specific products and specific countries.

MKTG 450. Practicum in Marketing. 3 Hours.

PR: MKTG 325. This is an experiential course that requires using sustainability principles and/or social media principles to solve marketing problems for organizations.

MKTG 470. Marketing Management. 3 Hours.

PR: MKTG 325 with a minimum grade of C-. Simulation, through live and written case study, should sharpen skills as the student makes analytical evaluations of marketing problems.

MKTG 474. Outside Case Competition. 3 Hours.

PR: MKTG 325 with a minimum grade of C-. Working with a small team, students participate in an outside case competition with a prominent commercial and government client.

MKTG 475. Social Media and Marketing. 3 Hours.

PR: BCOR 350 with a minimum grade of C-. Students will explore and learn how to integrate these social media platforms into product and organization marketing efforts.

MKTG 480. Services Marketing. 3 Hours.

PR: BCOR 350 with a minimum grade of C-. Services marketing gives students an appreciation of the challenges of marketing and managing services and strategies for addressing these challenges. The course features a combination of lectures, in-class exercises and projects (including class presentations).

MKTG 485. Global Marketing. 3 Hours.

Evaluation and analysis of marketing strategies in a global environment, examination of the relationship between international buyer behavior and the elements of the marketing mix.

MKTG 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

MKTG 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 6 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

MKTG 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

MKTG 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

MKTG 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

MKTG 496. Senior Thesis. 1-3 Hours.

PR: Consent.

MKTG 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

MUSC 100. Fundamentals of Music Theory. 1 Hour.

An online course designed to prepare students to enter MUSC 162 (Written Theory 1). The course focuses on basic musical concepts including notation of pitch and rhythm, intervals, scales and modes, and keys and key signatures.

MUSC 101. Band: Concert. 2 Hours.

(May be repeated for a maximum of 16 credit hours.).

MUSC 101A. Band: Varsity. 2 Hours.

(May be repeated for a maximum of 16 credit hours.).

MUSC 110. Fundamentals of Music. 3 Hours.

(Not open to music majors.) Introductory course designed to develop music reading skills through a systematic presentation of music notation and elementary compositional projects.

MUSC 111. Introduction to Music. 3 Hours.

(Not open to music majors.) Introductory course designed to develop an appreciation and understanding of the significance of music as a fine art, and to help the student develop intelligent listening habits.

MUSC 112. Great Composers in Performance. 3 Hours.

(Not open to music majors.) A study of significant composers and their music. Lectures, in-class musical presentations, concert and rehearsal attendance will: (1) explore relationship of music to the development of society, (2) develop appropriate critical analysis and listening skills.

MUSC 113. American Popular Music. 3 Hours.

Introduction of history and development of American popular music.

MUSC 114. Music and the Immigrant Experience. 3 Hours.

A survey of music in North America, reflecting the diversity and multicultural character of music-making, emphasizing style, cultural context, and values attached to music as part of the immigrant experience.

MUSC 115. Introduction to History of Jazz. 3 Hours.

An Introduction to jazz, its characteristics, important performers, and their music, including an historical survey with attention to the changing style of the music.

MUSC 116. Music in World Cultures. 3 Hours.

Examination of music from various cultures (e.g. Native America, South India, Japan, Africa) within their cultural contexts.

MUSC 118. Music in Appalachia. 3 Hours.

Survey of traditional instrumental and vocal music of southern Appalachia. History, style characteristics, and performance techniques involving live and recorded examples emphasizing those found in West Virginia.

MUSC 119. Applied Music: Pipe Organ. 1-4 Hours.

(May be repeated for credit.) Audition for placement required. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 120. History of Musical Theatre. 3 Hours.

This course explores American musical theatre, one of this country's primary contributions to world culture, covering its origins, components, and its major creative figures.

MUSC 121. Applied Music: Euphonium. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hr.) Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 121A. Applied Music: Horn. 1-4 Hours.

Audition for placement required. (May be repeated for a maximum of 8 hr.) Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 121B. Applied Music: Trombone. 1-4 Hours.

Audition for placement required. (May be repeated for max of 8 hr.) Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 121C. Applied Music: Trumpet. 1-4 Hours.

Audition for placement required. (May be repeated for max of 8 hr.) Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 121D. Applied Music: Tuba. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hr.) Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 122. Applied Music: Jazz. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hr.) Weekly lesson and attendance at the jazz seminar addressing issues related to jazz performance, technology, pedagogy, and business aspects of music.

MUSC 123. Applied Music: Harpsichord. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hr.) Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 123A. Applied Music: Organ. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hr.) Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 123B. Applied Music: Piano. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hr.) Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 124. Applied Music: Percussion. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hr.) Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 124A. Applied Music: Drum Set. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hr.) Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 125. Applied Music: Cello. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hr.) Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 125A. Applied Music: Guitar. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hr.) Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 125B. Applied Music: String Bass. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hr.) Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 125C. Applied Music: Viola. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hr.) Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 125D. Applied Music: Violin. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hr.) Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 125E. Applied Study:Harp. 1-4 Hours.

Private instruction of solo, ensemble and orchestral harp repertoire. Students learn the proper techniques of harp playing, develop effective practice skills, critical musical thinking, and musical expression. Harp students perform in at least one school ensemble each semester. Audition required to be admitted to the course.

MUSC 126. Applied Music: Voice. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hr.) Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 127. Applied Music: Bassoon. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hr.) Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 127A. Applied Music: Clarinet. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hr.) Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 127B. Applied Music: Flute. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hr.) Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 127C. Applied Music: Oboe. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hr.) Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 127D. Applied Music: Saxophone. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hr.) Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 129. Music Technology 1: GarageBand. 1 Hour.

This course will provide an overview of Apple's GarageBand software, the fundamental recording techniques, and music production vocabulary, through video lectures and hands-on experience.

MUSC 130. Piano Class Level 0. 1 Hour.**MUSC 131. Piano Class Level 1/2. 1 Hour.**

Audition for placement is required.

MUSC 132. Piano Class Level 1. 1 Hour.

Audition for placement is required.

MUSC 133. Piano Class Level 1 1/2. 1 Hour.

Audition for placement is required.

MUSC 134. Piano Class Level 2-2 1/2. 1,2 Hour.

(May be repeated for credit.) Audition for placement is required.

MUSC 136. Guitar Class 1. 1 Hour.

(May be repeated for credit.).

MUSC 137. Music Therapy Class Guitar 1. 1 Hour.

Required introductory level training in guitar for those majoring in the field of Music Therapy.

MUSC 138. Voice Class 1. 2 Hours.

(May be repeated for credit).

MUSC 139. Voice Class 2. 1,2 Hour.

PR: Consent. (May be repeated for a maximum of 4 credit hours.).

MUSC 150. Chamber Music: Freshman Percussion. 1 Hour.

(May be repeated for credit.) PR: Consent.

MUSC 160. Introduction to Music Composition. 2 Hours.

PR: Consent. Development of creativity in musical composition. For music composition majors in their first year of college-level study. May be repeated for credit; max. 4 hr. (2 hr. lec.).

MUSC 161. Aural Theory 1. 2 Hours.

The four aural theory courses (MUSC 161, MUSC 163, MUSC 261, and MUSC 263) forms a unit of instruction devoted to the development of aural skills such as sight-singing, melodic and and harmonic dictation, identification of chords, chord progressions, modulations, and non-harmonic tones.

MUSC 162. Written Theory 1. 2 Hours.

Elementary theory (scales, keys, intervals, triads, and dominant seventh chords) and introduction to diatonic harmony (part-writing and analysis.).

MUSC 163. Aural Theory 2. 2 Hours.

PR: MUSC 161. Continuation of MUSC 161.

MUSC 164. Written Theory 2. 2 Hours.

PR: MUSC 162. Continuation of MUSC 162. Diatonic harmony including part-writing, harmonization of melodies, and harmonic analysis with triads, seventh chords, secondary dominants, and modulation. Analysis of binary and ternary forms.

MUSC 166. Theory for Music Theatre 1. 2 Hours.

Basics of music theory, including intervals, rhythm, notation and musical vocabulary. Emphasis on acquiring these skills through sight singing.

MUSC 167. Theory for Music Theatre 2. 2 Hours.

PR: MUSC 166. Intermediate skills in music theory, including rhythmic syncopation, melodic chromaticism, and an introduction to basic harmony and lead sheets.

MUSC 169. Diction for Singers: French. 2 Hours.

(May be repeated for credit; max 8 hr.) PR: Consent. Phonetics, phonetic symbols, and pronunciation in singing in alternating semesters in various languages. Other aspects of language that will aid in comprehension of song, oratorio, and operatic texts considered.

MUSC 169A. Diction for Singers: English. 2 Hours.

(May be repeated for credit; max 8 hr.) PR: Consent. Phonetics, phonetic symbols, and pronunciation in singing in alternating semesters in various languages. Other aspects of language that will aid in comprehension of song, oratorio, and operatic texts considered.

MUSC 169B. Diction for Singers: Italian. 2 Hours.

(May be repeated for credit; max 8 hr.) PR: Consent. Phonetics, phonetic symbols, and pronunciation in singing in alternating semesters in various languages. Other aspects of language that will aid in comprehension of song, oratorio, and operatic texts considered.

MUSC 169C. Diction for Singers: German. 2 Hours.

(May be repeated for credit; max 8 hr.) PR: Consent. Phonetics, phonetic symbols, and pronunciation in singing in alternating semesters in various languages. Other aspects of language that will aid in comprehension of song, oratorio, and operatic texts considered.

MUSC 169D. Diction for Singers. 2 Hours.

(May be repeated for credit; max 8 hr.) PR: Consent. Phonetics, phonetic symbols, and pronunciation in singing in alternating semesters in English; Italian, Latin, Spanish, German, and French. Other aspects of language that will aid in comprehension of song, oratorio, and operatic texts considered.

MUSC 169E. Diction for Singers. 2 Hours.

(May be repeated for credit; max 8 hr.) PR: Consent. Phonetics, phonetic symbols, and pronunciation in singing in alternating semesters in English, Italian, Latin, Spanish, German, and French. Other aspects of language that will aid in comprehension of song, oratorio, and operatic texts considered.

MUSC 169F. Diction for Singers. 2 Hours.

(May be repeated for credit; max 8 hr.) PR: Consent. Phonetics, phonetic symbols, and pronunciation in singing in alternating semesters in English, Italian, Latin, Spanish, German, and French. Other aspects of language that will aid in comprehension of song, oratorio, and operatic texts considered.

MUSC 169G. Diction for Singers. 2 Hours.

(May be repeated for credit; max 8 hr.) PR: Consent. Phonetics, phonetic symbols, and pronunciation in singing in alternating semesters in English, Italian, Latin, Spanish, German, and French. Other aspects of language that will aid in comprehension of song, oratorio, and operatic texts considered.

MUSC 169H. Diction for Singers. 2 Hours.

(May be repeated for credit; max 8 hr.) PR: Consent. Phonetics, phonetic symbols, and pronunciation in singing in alternating semesters in English, Italian, Latin, Spanish, German, and French. Other aspects of language that will aid in comprehension of song, oratorio, and operatic texts considered.

MUSC 169I. Diction for Singers. 2 Hours.

(May be repeated for credit; max 8 hr.) PR: Consent. Phonetics, phonetic symbols, and pronunciation in singing in alternating semesters in English, Italian, Latin, Spanish, German, and French. Other aspects of language that will aid in comprehension of song, oratorio, and operatic texts considered.

MUSC 169J. Diction for Singers. 2 Hours.

(May be repeated for credit; max 8 hr.) PR: Consent. Phonetics, phonetic symbols, and pronunciation in singing in alternating semesters in English, Italian, Latin, Spanish, German, and French. Other aspects of language that will aid in comprehension of song, oratorio, and operatic texts considered.

MUSC 169K. Diction for Singers. 2 Hours.

(May be repeated for credit; max. 8 hr.) PR: Consent. Phonetics, phonetic symbols, and pronunciation in singing in alternating semesters in English, Italian, Latin, Spanish, German, and French. Other aspects of language that will aid in comprehension of song, oratorio, and operatic texts considered.

MUSC 169L. Diction for Singers. 2 Hours.

(May be repeated for credit; max 8 hr.) PR: Consent. Phonetics, phonetic symbols, and pronunciation in singing in alternating semesters in English, Italian, Latin, Spanish, German and French. Other aspects of language that will aid in comprehension of song, oratorio, and operatic texts considered.

MUSC 169M. Diction for Singers. 2 Hours.

(May be repeated for credit; max 8 hr.) PR: Consent. Phonetics, phonetic symbols, and pronunciation in singing in alternating semesters in English, Italian, Latin, Spanish, German, and French. Other aspects of language that will aid in comprehension of song, oratorio, and operatic texts considered.

MUSC 169N. Diction for Singers. 2 Hours.

(May be repeated for credit; max 8 hr.) PR: Consent. Phonetics, phonetic symbols, and pronunciation in singing in alternating semesters in English, Italian, Latin, Spanish, German, and French. Other aspects of language that will aid in comprehension of song, oratorio, and operatic texts considered.

MUSC 169O. Diction for Singers. 2 Hours.

(May be repeated for credit; max 8 hr.) PR: Consent. Phonetics, phonetic symbols, and pronunciation in singing in alternating semesters in English, Italian, Latin, Spanish, German, and French. Other aspects of language that will aid in comprehension of song, oratorio, and operatic texts considered.

MUSC 169P. Diction for Singers. 2 Hours.

(May be repeated for credit; max 8 hr.) PR: Consent. Phonetics, phonetic symbols, and pronunciation in singing in alternating semesters in English, Italian, Latin, Spanish, German, and French. Other aspects of language that will aid in comprehension of song, oratorio, and operatic texts considered.

MUSC 169Q. Diction for Singers. 2 Hours.

(May be repeated for credit; max 8 hr.) PR: Consent. Phonetics, phonetic symbols, and pronunciation in singing in alternating semesters in English, Italian, Latin, Spanish, German, and French. Other aspects of language that will aid in comprehension of song, oratorio, and operatic texts considered.

MUSC 169R. Diction for Singers. 2 Hours.

(May be repeated for credit; max 8 hr.) PR: Consent. Phonetics, phonetic symbols, and pronunciation in singing in alternating semesters in English, Italian, Latin, Spanish, German, and French. Other aspects of language that will aid comprehension of song, oratorio, and operatic texts considered.

MUSC 169S. Diction for Singers. 2 Hours.

(May be repeated for credit; max 8 hr.) PR: Consent. Phonetics, phonetic symbols, and pronunciation in singing in alternating semesters in English, Italian, Latin, Spanish, German, and French. Other aspects of language that will aid in comprehension of song, oratorio, and operatic texts considered.

MUSC 169T. Diction for Singers. 2 Hours.

(May be repeated for credit; max 8 hr.) PR: Consent. Phonetics, phonetic symbols, and pronunciation in singing in alternating semesters in English, Italian, Latin, Spanish, German, and French. Other aspects of language that will aid in comprehension of song, oratorio, and operatic texts considered.

MUSC 169U. Diction for Singers. 2 Hours.

(May be repeated for credit; max 8 hr.) PR: Consent. Phonetics, phonetic symbols, and pronunciation in singing in alternating semesters in English, Italian, Latin, Spanish, German, and French. Other aspects of language that will aid in comprehension of song, oratorio, and operatic texts considered.

MUSC 169V. Diction for Singers. 2 Hours.

(May be repeated for credit; max 8 hr.) PR: Consent. Phonetics, phonetic symbols, and pronunciation in singing in alternating semesters in English, Italian, Latin, Spanish, German, and French. Other aspects of language that will aid in comprehension of song, oratorio, and operatic texts considered.

MUSC 169W. Diction for Singers. 2 Hours.

(May be repeated for credit; max 8 hr.) PR: Consent. Phonetics, phonetic symbols, and pronunciation in singing in alternating semesters in English, Italian, Latin, Spanish, German, and French. Other aspects of language that will aid in comprehension of song, oratorio, and operatic texts considered.

MUSC 169X. Diction for Singers. 2 Hours.

(May be repeated for credit; max 8 hr.) PR: Consent. Phonetics, phonetic symbols, and pronunciation in singing in alternating semesters in English, Italian, Latin, Spanish, German, and French. Other aspects of language that will aid in comprehension of song, oratorio, and operatic texts considered.

MUSC 169Y. Diction for Singers. 2 Hours.

(May be repeated for credit; max 8 hr.) PR: Consent. Phonetics, phonetic symbols, and pronunciation in singing in alternating semesters in English, Italian, Latin, Spanish, German, and French. Other aspects of language that will aid in comprehension of song, oratorio, and operatic texts considered.

MUSC 169Z. Diction for Singers. 2 Hours.

(May be repeated for credit; max 8 hr.) PR: Consent. Phonetics, phonetic symbols, and pronunciation in singing in alternating semesters in English, Italian, Latin, Spanish, German, and French. Other aspects of languages that will aid in comprehension of song, oratorio, and operatic texts considered.

MUSC 177. Introduction to Music Listening. 1 Hour.

(For music majors only.) Guided listening to representative compositions of various traditions of Western Music. Development of ability to describe elements of compositions and style using a standard musical vocabulary.

MUSC 180. Introduction to Music Education. 1 Hour.

Introduction to purposes of school music education, students as learners, content and structure of school music programs, and music teacher knowledge and skills.

MUSC 181. Fundamental Music Skills. 2 Hours.

(Not open to music majors.) Development of skills for future classroom teachers. Basic understanding of rhythm, dynamics, tone color, pitch, and form.

MUSC 182. Music in the Elementary School. 2 Hours.

(Not open to music majors.) Development of fundamental music skills and pedagogical strategies for integrating music into the elementary classroom.

MUSC 185. Introduction to Music Therapy. 3 Hours.

This course provides an overview of the music therapy profession including: history, therapeutic approaches, clinical processes, populations served, and current professional issues. Readings, lectures, community engagement, clinical video observation and experience will allow you to examine general principles of music therapy and gain understanding regarding the use of music as a viable therapeutic medium across a variety of populations.

MUSC 189. Music Convocation. 0 Hours.

(Required for all music majors for six semesters. May be repeated.) Faculty, guest artist, and student performances, lectures and forums on major musical issues and topics.

MUSC 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

MUSC 200. Fundamentals of Conducting. 2 Hours.

PR: MUSC 163 and MUSC 164. Basic conducting skills, including beat patterns, expressive gestures, cues, and the fermata; terminology; tempo changes; and the mechanics of score reading. Pre-requisite(s) and/or co-requisite(s) may differ on regional campuses.

MUSC 201. Conducting and Score Interpretation. 2 Hours.

PR: MUSC 200 or consent. Development of techniques of score study; rehearsal preparation. Rehearsals of laboratory ensemble. Study of string, wind, and choral scores.

MUSC 202. Conducting and Rehearsing. 2 Hours.

PR: MUSC 201 or consent. Intensive study of wind, choral, and orchestral scores, rehearsed by the laboratory ensemble. Conducting of a major performance ensemble in rehearsal.

MUSC 205. Clinical Foundations of Music Therapy. 3 Hours.

PR: MUSC 185 with a grade of C- or better. This course discusses and demonstrates basic clinical foundations of the music therapy profession including treatment process, methods of delivery, considerations necessary in a therapeutic relationship, and the professional role of the music therapist.

MUSC 221. Applied Music: Euphonium. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hr.) Continuation of MUSC 121. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 221A. Applied Music: Horn. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hr.) Continuation of MUSC 121A. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 221B. Applied Music: Trombone. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hr.) Continuation of MUSC 121B. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 221C. Applied Music: Trumpet. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hr.) Continuation of MUSC 121C. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 221D. Applied Music: Tuba. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hr.) Continuation of MUSC 121D. Credit and lesson length varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 222. Applied Music: Jazz. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hr.) Continuation of MUSC 122. Credit and length of lesson varies Weekly lesson and attendance at the jazz seminar addressing issues related to jazz performance, technology, pedagogy, and business aspects of music.

MUSC 223. Applied Music: Harpsichord. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hr.) Continuation of MUSC 123. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 223A. Applied Music: Organ. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hr.) Continuation of MUSC 123A. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic, and pedagogical aspects of music.

MUSC 223B. Applied Music: Piano. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hr.) Continuation of MUSC 123B. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 224. Applied Music: Percussion. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hr.) Continuation of MUSC 124. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic, and pedagogical aspects of music.

MUSC 224A. Applied Music: Drum Set. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hr.) Continuation of MUSC 124A. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 225. Applied Music: Cello. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hr.) Continuation of MUSC 125. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 225A. Applied Music: Cello. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hr.) Continuation of MUSC 125A. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 225B. Applied Music: String Bass. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hr.) Continuation of MUSC 125B. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 225C. Applied Music: Viola. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hr.) Continuation of MUSC 125C. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 225D. Applied Music: Violin. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hr.) Continuation of MUSC 125D. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic, and pedagogical aspects of music.

MUSC 225E. Applied Study: Harp. 1-4 Hours.

PR: MUSC 125E. Private instruction of solo, ensemble and orchestral harp repertoire. Second year students learn basic techniques of harp playing, develop effective practice skills, critical musical thinking, and musical expression. Harp students perform in at least one school ensemble each semester. Successful completion of MUSC 125E is required to be admitted to the course.

MUSC 226. Applied Music: Voice. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 credit hours.) Continuation of MUSC 126. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 227. Applied Music: Bassoon. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hr.) Continuation of MUSC 127. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic, and pedagogical aspects of music.

MUSC 227A. Applied Music: Clarinet. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hr.) Continuation of MUSC 127A. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 227B. Applied Music: Flute. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hr.) Continuation of MUSC 127B. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 227C. Applied Music: Oboe. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hr.) Continuation of MUSC 127C. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 227D. Applied Music: Saxophone. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hr.) Continuation of MUSC 127D. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 230. Music Therapy Interventions for Children. 2 Hours.

PR: MUSC 185 and MUSC 205 with a minimum grade of C- in each and PR or CONC: MUSC 239. This course provides instruction in appropriate interventions when working with children and adolescents. Students will design and implement music therapy experiences for both individuals and groups.

MUSC 231. Music Therapy Interventions for Adults. 2 Hours.

PR: MUSC 230 and MUSC 239 with a grade of C- or better in each. This course provides instruction in appropriate interventions when working with adults. Students will design and implement music therapy experiences for both individuals and groups.

MUSC 236. Introduction to Recording Technology. 2 Hours.

Technology of recording and producing audio for broadcast and/or media release. Basics of acoustic sound and technology, recording methods, listening to and analysis of a variety of styles, and hands-on production work.

MUSC 237. Music Therapy Class Guitar 2. 1 Hour.

PR: MUSC 137 with a minimum grade of B-. Intermediate / advanced guitar techniques for those majoring in the field of Music Therapy.

MUSC 239. Music Therapy Practicum 1. 1 Hour.

PR: MUSC 185 and MUSC 205 with a minimum grade of C- in each and PR or CONC: MUSC 230. Supervised clinical training opportunities with clients and families of diverse backgrounds and needs in a variety of clinical settings. Students will learn how to apply music therapy concepts and will further develop professional competencies.

MUSC 239A. Music Therapy Practicum 2. 1 Hour.

PR: MUSC 230 and MUSC 239 with a grade of C- or better in each and PR or CONC: MUSC 231. Supervised clinical training opportunities with clients and families of diverse backgrounds and needs in a variety of clinical settings. Students will learn how to apply clinical music therapy concepts and will further develop professional competencies.

MUSC 261. Aural Theory 3. 2 Hours.

PR: MUSC 163. Continuation of MUSC 163.

MUSC 262. Written Theory 3. 2 Hours.

PR: MUSC 164. Continuation of MUSC 164. Diatonic and chromatic harmony including part-writing, harmonization of melodies, and harmonic analysis with seventh chords. Modulations, and foreign chords. Introduction to counterpoint.

MUSC 263. Aural Theory 4. 2 Hours.

PR: MUSC 261. Continuation of MUSC 261.

MUSC 264. Written Theory 4. 2 Hours.

PR: MUSC 262. Consideration of melody, rhythm, harmony, texture, form, etc., and how they function to produce an organic work of art. Analysis of larger musical forms and emphasis on twentieth century techniques.

MUSC 265. Instrumentation. 2 Hours.

PR: MUSC 164. Study of characteristics of band and orchestral instruments and their use in scoring.

MUSC 266. Orchestration and Band Arranging. 2 Hours.

PR: MUSC 265. Problems in scoring for orchestra and band.

MUSC 269A. Diction for Singers: English and Italian. 3 Hours.

PR: Consent. Phonetics, phonetic symbols, and pronunciation in singing in alternating semesters in various languages. Other aspects of language that will aid in comprehension of song, oratorio, and operatic texts considered. (May be repeated for credit; max 12 hr.).

MUSC 269B. Diction for Singers: German and French. 3 Hours.

PR: Consent. Phonetics, phonetic symbols, and pronunciation in singing in alternating semesters in various languages. Other aspects of language that will aid in comprehension of song, oratorio, and operatic texts considered. (May be repeated for credit; max 12 hr.).

MUSC 270. History of Western Musical Traditions 1. 3 Hours.

PR: MUSC 177 or MUSC 170. Survey of Western musical traditions from the Christian era to c1800 in their stylistic, historic, and social settings.

MUSC 271. History of Western Musical Traditions 2. 3 Hours.

PR: MUSC 270 and ENGL 102. Survey of Western musical traditions from c1800 to the present in their stylistic, historic, and social settings. Pre-requisite(s) and/or co-requisite(s) may differ on regional campuses.

MUSC 280. Woodwind Instrument Pedagogy. 2 Hours.

Techniques of teaching woodwind instruments, including playing techniques, pedagogical techniques appropriate for young players, methods, materials, maintenance, and repairs.

MUSC 281. Brass Instrument Pedagogy. 2 Hours.

Techniques of teaching brass instruments, including playing techniques, pedagogical techniques appropriate for young players, methods, materials, maintenance, and repair.

MUSC 282. String Instrument Pedagogy. 2 Hours.

Techniques of teaching string instruments, including playing techniques, pedagogical techniques appropriate for young players, methods, materials, maintenance, and repair.

MUSC 283. Percussion Instrument Pedagogy. 2 Hours.

Techniques of teaching percussion instruments, including playing techniques, pedagogical techniques appropriate for young players, methods, materials, maintenance, and repair.

MUSC 284. Vocal Pedagogy. 2 Hours.

PR: MUSC 138 or MUSC 138 exemption. Techniques of voice culture; applicable to school choral activities and instruction of young singers.

MUSC 286. Advanced Jazz Improvisation. 2 Hours.

PR: MUSC 285 or consent. Continuation of MUSC 285. Analysis of chord progressions with emphasis on chord substitutions, turnbacks, and scales. Development of jazz repertoire through performance.

MUSC 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

MUSC 298. Honors. 1-3 Hours.

PR: Student in Honors Program and consent by the honors director. Independent reading, study or research.

MUSC 300. Band: Wind Symphony. 2 Hours.

(May be repeated for a maximum of 16 credit hours.).

MUSC 300A. Band: Symphonic. 2 Hours.

(May be repeated for a maximum of 16 credit hours.).

MUSC 300B. Band: Marching. 2 Hours.

(May be repeated for a maximum of 16 credit hours.).

MUSC 302. University Choral Union. 1 Hour.

PR: Consent. (May be repeated for a maximum of 8 credit hours.).

MUSC 303. Orchestra. 2 Hours.

PR: Consent. (May be repeated for a maximum of 16 credit hours.) University community symphony orchestra, opera orchestra, musical theater orchestra.

MUSC 304. Introduction To Opera Theatre. 1 Hour.

PR: Consent. (May be repeated for a maximum of 4 credit hours.) Practical work in the development of basic lyric theatre stage technique through movement studies, and in-class, studio performances of operatic scenes.

MUSC 305. University Choir. 2 Hours.

PR: Consent. (May be repeated for a maximum of 16 credit hours.).

MUSC 305A. University Choir: Concert. 2 Hours.

PR: Consent. (May be repeated for a maximum of 16 credit hours.).

MUSC 311. Introduction to Jazz Improvisation. 2 Hours.

PR: MUSC 163 and MUSC 164 or consent. Development of improvisatory skills in the jazz idiom using melodic, harmonic, and rhythmic motives and patterns, and the application of knowledge of tonal centers, chord progressions, and junctions.

MUSC 313. Advanced Jazz Improvisation. 2 Hours.

PR: MUSC 311 or consent. Continuation of MUSC 311. Analysis of chord progressions with emphasis on chord substitutions, turnbacks, and scales. Development of jazz repertoire through performance.

MUSC 321. Applied Music: Euphonium. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hr.) Continuation of MUSC 221. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 321A. Applied Music: Horn. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hr.) Continuation of MUSC 221A. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 321B. Applied Music: Trombone. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hr.) Continuation of MUSC 221B. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 321C. Applied Music: Trumpet. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hr.) Continuation of MUSC 221C. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 321D. Applied Music: Tuba. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hours.) Continuation of MUSC 221D. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 322. Applied Music: Jazz. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hr.) Continuation of MUSC 222. Weekly lesson and attendance at the jazz seminar addressing issues related to jazz performance, technology, and business aspects of music.

MUSC 323. Applied Music: Harpsichord. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hr.) Continuation of MUSC 223. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 323A. Applied Music: Organ. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hours.) Continuation of MUSC 223A. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 323B. Applied Music: Piano. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hours.) Continuation of MUSC 223B. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 324. Applied Music: Percussion. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hours.) Continuation of MUSC 224. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 324A. Applied Music: Drum Set. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hours.) Continuation of MUSC 224A. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 325. Applied Music: Cello. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hours.) Continuation of MUSC 225. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic, and pedagogical aspects of music.

MUSC 325A. Applied Music: Guitar. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hours.) Continuation of MUSC 225A. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic, and pedagogical aspects of music.

MUSC 325B. Applied Music: String Bass. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hours.) Continuation of MUSC 225B. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 325C. Applied Music: Viola. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hours.) Continuation of MUSC 225C. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 325D. Applied Music: Violin. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hours.) Continuation of MUSC 225D. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 325E. Applied Study: Harp. 1-4 Hours.

PR: MUSC 225E. Private instruction of solo, ensemble and orchestral harp repertoire. Third year students learn intermediate techniques of harp playing, develop effective practice skills, critical musical thinking, and musical expression. Harp students perform in at least one school ensemble each semester. Successful completion of MUSC 225E is required to be admitted to the course.

MUSC 326. Applied Music: Voice. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hours.) Continuation of MUSC 226. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 327. Applied Music: Bassoon. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hours.) Continuation of MUSC 327. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 327A. Applied Music: Clarinet. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hours.) Continuation of MUSC 227A. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic, and pedagogical aspects of music.

MUSC 327B. Applied Music: Flute. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hours.) Continuation of MUSC 227B. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 327C. Applied Music: Oboe. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hours.) Continuation of MUSC 227C. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 327D. Applied Music: Saxophone. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hours.) Continuation of MUSC 227D. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 328. Applied Lessons for Minors. 1,2 Hour.

PR: Audition or Consent. (May be repeated for a maximum of 16 credit hours.) Applied music lessons.

MUSC 330. Principles and Practices of Music Therapy. 3 Hours.

PR: Music Therapy Majors only and PR or CONC: MUSC 339. Course provides foundational principles and practices when serving clients with learning, neurological, motor, and medical issues, including but not limited to: Characteristics and needs; research literature on music therapy with these populations; applications to clinical work.

MUSC 331. Advanced Principles and Practices of Music Therapy. 3 Hours.

PR: Music Therapy Majors only; MUSC 330 with a minimum grade of C- and PR or CONC: MUSC 339A. Course provides continuation of foundational principles and practices when serving various client populations and discusses related professional issues, including but not limited to: advocacy; self-care; program development and related research literature.

MUSC 336. Introduction to Digital Audio Workstation. 3 Hours.

PR: MUSC 236 with a grade of C or higher. Principles of Digital Audio Workstations. Students will be introduced to the key audio and MIDI concepts required to complete a DAW project from set-up to final mix-down.

MUSC 337. Digital Audio Workstation Alternative. 3 Hours.

PR: MUSC 336 with a grade of C or higher. Students will be introduced to DAW alternative(s) from the primary DAW used in MUSC 336. Audio and MIDI concepts requires to complete a project from set-up to final mix-down.

MUSC 338. Sound-Games/Visual Media. 2 Hours.

PR: MUSC 336 with a grade of C or Higher. Provides students with some of the core skills and ideas required to implement audio in a video game or visual media.

MUSC 339. Music Therapy Practicum 3. 1 Hour.

PR: Music Therapy majors only; PR or CONC: MUSC 330. Supervised clinical training opportunities with clients and families of diverse backgrounds and needs in a variety of clinical settings. Students will learn how to apply clinical music therapy concepts and will further develop professional competencies.

MUSC 339A. Music Therapy Practicum 4. 1 Hour.

PR: MUSC 330 and MUSC 339 with a minimum grade of C- in each. Supervised clinical training opportunities with clients and families of diverse backgrounds and needs in a variety of clinical settings. Students will learn how to apply clinical music therapy concepts and will further develop professional competencies.

MUSC 340. Chamber Music: Brass. 1 Hour.

PR: Consent. (May be repeated for a maximum of 8 credit hours.).

MUSC 341. Chamber Music: Guitar. 1 Hour.

PR: Consent. (May be repeated for a maximum of 8 credit hours.).

MUSC 342. Chamber Music: Piano-4 Hand. 1 Hour.

PR: Consent. (May be repeated for a maximum of 8 credit hours.).

MUSC 343. Chamber Music: Strings. 1 Hour.

PR: Consent. (May be repeated for a maximum of 8 credit hours.).

MUSC 344. Chamber Music: Woodwind. 1 Hour.

PR: Consent. (May be repeated for a maximum of 8 credit hours.).

MUSC 345. Chamber Music: Vocal. 1 Hour.

PR: Consent (May be repeated for a maximum of 8 credit hours.).

MUSC 346. Chamber Music: Mixed Ensemble. 1 Hour.

PR: Consent (May be repeated for a maximum of 8 credit hours.).

MUSC 347. Chamber Music: Mountaineer Singers. 1 Hour.

PR: Consent. (May be repeated for a maximum of 8 credit hours.).

MUSC 348. Chamber Music: New Music. 1 Hour.

PR: Consent. (May be repeated for a maximum of 8 credit hours.).

MUSC 349. Chamber Music: Other. 1 Hour.

PR: Consent. (May be repeated for a maximum of 8 credit hours.).

MUSC 349A. Chamber Music: Brass Choir. 1 Hour.

PR: Consent. (May be repeated for a maximum of 8 credit hours.).

MUSC 349B. Chamber Music: Other. 1 Hour.

PR: Consent. (May be repeated for a maximum of 8 credit hour.).

MUSC 349C. Chamber Music: Other-Vocal Accompaniment. 1 Hour.

PR: Consent. (May be repeated for a maximum of 8 credit hours.).

MUSC 349D. Chamber Music: Other. 1 Hour.

PR: Consent. (May be repeated for a maximum of 8 credit hours.).

MUSC 349E. Chamber Music: Other. 1 Hour.

PR: Consent. (May be repeated for a maximum of 8 credit hours.).

MUSC 349F. Chamber Music: Other. 1 Hour.

PR: Consent. (May be repeated for a maximum of 8 credit hours.).

MUSC 349G. Chamber Music: Other. 1 Hour.

PR: Consent. (May be repeated for a maximum of 8 credit hours.).

MUSC 349H. Chamber Music: Other. 1 Hour.

PR: Consent. (May be offered for a maximum of 8 credit hours.).

MUSC 349I. Chamber Music: Other. 1 Hour.

PR: Consent. (May be repeated for a maximum of 8 credit hours.).

MUSC 349J. Chamber Music: Other. 1 Hour.

PR: Consent. (May be repeated for a maximum of 8 credit hours.).

MUSC 349K. Chamber Music: Other. 1 Hour.

PR: Consent. (May be repeated for a maximum of 8 credit hours.).

MUSC 349L. Chamber Music: Other. 1 Hour.

PR: Consent. (May be repeated for a maximum of 8 credit hours.).

MUSC 349M. Chamber Music: Other. 1 Hour.

PR: Consent. (May be repeated for a maximum of 8 credit hours.).

MUSC 349N. Chamber Music: Other. 1 Hour.

PR: Consent. (May be repeated for a maximum of 8 credit hours.).

MUSC 349O. Chamber Music: Other. 1 Hour.

PR: Consent. (May be repeated for a maximum of 8 credit hours.).

MUSC 349P. Chamber Music: Other. 1 Hour.

PR: Consent. (May be repeated for a maximum of 8 credit hours.).

MUSC 349Q. Chamber Music: Other. 1 Hour.

PR: Consent. (May be repeated for a maximum of 8 credit hours.).

MUSC 349R. Chamber Music: Other. 1 Hour.

PR: Consent. (May be repeated for a maximum of 8 credit hours.).

MUSC 349S. Chamber Music: Other. 1 Hour.

PR: Consent. (May be repeated for a maximum of 8 credit hours.).

MUSC 349T. Chamber Music: Other. 1 Hour.

PR: Consent. (May be repeated for a maximum of 8 credit hours.).

MUSC 349U. Chamber Music: Other. 1 Hour.

PR: Consent. (May be repeated for a maximum of 8 credit hours.).

MUSC 349V. Chamber Music: Other. 1 Hour.

PR: Consent. (May be repeated for a maximum of 8 credit hours.).

MUSC 349W. Chamber Music: Other. 1 Hour.

PR: Consent. (May be repeated for a maximum of 8 credit hours.).

MUSC 349X. Chamber Music: Other. 1 Hour.

PR: Consent. (May be repeated for a maximum of 8 credit hours.).

MUSC 349Y. Chamber Music: Other. 1 Hour.

PR: Consent. (May be repeated for a maximum of 8 credit hours.).

MUSC 349Z. Collegium Musicum. 1-2 Hours.

PR: Consent. (May be repeated for a maximum of 8 credit hours.) Study of outstanding musical works not in the standard repertory. Performance of vocal and instrumental music, investigation of performance practices, preparation of editions, and direction of rehearsals under supervision.

MUSC 351. Chamber Music: Percussion 1. 1 Hour.

PR: Consent. (May be repeated for a maximum of 8 credit hours.).

MUSC 352. Chamber Music: Percussion 2. 1 Hour.

PR: Consent. (May be repeated for a maximum of 8 credit hours.).

MUSC 353. Chamber Music: Large Jazz Ensemble 1. 1 Hour.

PR: Consent. (May be repeated a maximum of 8 credit hours.).

MUSC 353A. Chamber Music: Large Jazz Ensemble 2. 1 Hour.

PR: Consent. (May be repeated for a maximum of 8 credit hours.).

MUSC 353B. Chamber Music: Jazz Small Group. 1 Hour.

PR: Consent. (May be repeated for a maximum of 8 credit hours.).

MUSC 353C. Chamber Music: Jazz Small Group 2. 1 Hour.

PR: Consent. (May be repeated for a maximum of 8 credit hours.).

MUSC 353E. Chamber Music: Jazz and Ethnic. 1 Hour.

PR: Consent. (May be repeated for a maximum of 8 credit hours.).

MUSC 353G. Chamber Music: Jazz Vocal Ensemble. 1 Hour.

PR: Consent. (May be repeated for a maximum of 8 credit hours.).

MUSC 353H. Chamber Music: Jazz Other. 1 Hour.

PR: Consent. (May be repeated for a maximum of 8 credit hours.).

MUSC 353I. Chamber Music: Jazz Vocal Ensemble. 1 Hour.

PR: Consent. (May be repeated for a maximum of 8 credit hours.).

MUSC 354. Chamber Music: Gamelan. 1 Hour.

PR: Consent. (May be repeated for a maximum of 4 credit hours.).

MUSC 355. Chamber Music: Steel Band 1. 1 Hour.

PR: Consent. (May be repeated for a maximum of 8 credit hours.).

MUSC 356. Chamber Music: African. 1 Hour.

PR: Consent. (May be repeated for a maximum of 8 credit hours.) Performing ensemble focusing on music of Africa culminating in a semester concert.

MUSC 357. Chamber Music: Brazilian. 1 Hour.

PR: Consent. (May be repeated for a maximum of 4 credit hours.) Performing ensemble focusing on music of Brazil culminating in a semester concert.

MUSC 358. Chamber Music: Ethnic. 1 Hour.

PR: Consent. (May be repeated for a maximum of 8 credit hours.).

MUSC 359. Chamber Music: Taiko. 1 Hour.

PR: Consent. (May be repeated for a maximum of 8 credit hours.) Performing ensemble focusing on Taiko music culminating in a semester concert.

MUSC 360. Composition. 2 Hours.

PR: MUSC 264 or consent. Creative writing of music. An elective for non-composition majors.

MUSC 361. Fife and Drum Ensemble. 2 Hours.

This course will explore the techniques, history, and performance practice of the fife and drum musical genre. Styles of music will include early American military calls, 19th-century fife and drum repertoire, and 20th-century West Virginian and Appalachian folk music. The ensemble uses traditional 6 hole fifes and rope tension snare and bass drums.

MUSC 362. Instrumentation and Orchestration. 3 Hours.

PR: MUSC 262 and MUSC 263. Study of the fundamentals of instrumentation and their application in the transcription, arranging, and orchestration of pre-existing musical compositions.

MUSC 363. Appalachian Music Ensemble. 1 Hour.

PR: Consent. Ensemble-based exploration of Appalachian musical traditions.

MUSC 380. Instrumental Methods and Technology Applications. 3 Hours.

PR: For music education majors, successful completion of all pre-professional requirements. Methods, materials, and administration of K-12 instrumental music programs and application of instructional technology. Bi-weekly laboratory.

MUSC 381. Choral Music Methods and Technology Applications. 3 Hours.

PR: For music education majors, successful completion of all pre-professional requirements. Methods, materials, and administration of K-12 choral music programs and application of instructional technology. Bi-weekly laboratory.

MUSC 382. General Music Methods and Technology Applications. 3 Hours.

PR: For music education majors, successful completion of all pre-professional requirements. Methods, materials, curriculum, and technology applications for elementary general music programs. Weekly practicum (arranged).

MUSC 384. Music Arranging for Public School Groups. 2 Hours.

PR: MUSC 262. Practical experience in techniques of making simple, workable arrangements of music for public school choral and instrumental performance groups.

MUSC 385. Survey of Wind Literature. 2 Hours.

PR: MUSC 177. This course traces the development of wind instrument literature from the Renaissance period to present day, with particular emphasis on the twentieth-century American wind band.

MUSC 393A. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

MUSC 404. Opera Practicum. 1 Hour.

PR: MUSC 304 or consent. Practical work in all aspects of lyric theatre production. Advanced lyric theatre stage technique developed through preparation and performance of major and minor roles in opera productions.

MUSC 410. Introduction to Music Industry. 3 Hours.

Introductory overview of the music industry's history, business, technology, and law. Students will gain essential understanding and skills necessary for professional involvement and progress in the music industry.

MUSC 411. Intellectual Property in Music Industry. 3 Hours.

Regulatory frameworks and copyright law application and implementation as related to music industry systems. Tools and strategies used to identify, protect and manage intellectual property in the music industry. Topics include: domestic and international perspective of music ownership issues, music industry contracts, licensing, and the commercializing of intellectual property in music industry.

MUSC 412. Music Product Development and Placement. 3 Hours.

PR: MUSC 411. Key music product development and placement principles structures, and practices using today's music commerce mechanisms, techniques and technologies for publicity, product advancement, consumer research, and distribution. Design, implementation, control, and evaluation of effective music product market advancement and positioning.

MUSC 413. Live Music Industry. 3 Hours.

PR: MUSC 411. Regulations, standards, strategies, and methods of live music event planning, advancement, and implementation. Topics include: talent and venue buying and deal structuring, budgeting, sponsorships, live sound production, music event contracts, licensing, publicity and placement, ticketing, and insurance.

MUSC 414. Recording Industry. 3 Hours.

PR: MUSC 411. Recording industry system development, markets, structures, commercial methods and strategies. Topics include: historical development of the recording industry; industry specific copyright regulations and commercial agreements; record company structures and models; recording production processes and technology; global music markets.

MUSC 415. Music Publishing. 3 Hours.

PR: MUSC 411. Development, commercial methods, scopes, and practices of the music publishing industry; copyrights acquisition, advancement, and protection. Topics include: history of the music publishing and related copyright regulations; royalties and licensing; performing rights; music publishing and television, film, commercials, musicals, video games, and other media; music publishing agreements; international music publishing.

MUSC 421. Applied Music: Euphonium. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hours.) Continuation of MUSC 321. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 421A. Applied Music: Horn. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hours.) Continuation of MUSC 321A. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 421B. Applied Music: Trombone. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hours.) Continuation of MUSC 321B. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 421C. Applied Music: Trumpet. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hours.) Continuation of MUSC 321C. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 421D. Applied Music: Tuba. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hours.) Continuation of MUSC 321D. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 422. Applied Music: Jazz. 1-4 Hours.

Audition for Placement required. (May be repeated for a max of 8 hours.) Continuation of MUSC 322. Weekly lesson and attendance at jazz seminar addressing issues related to jazz performance, technology, pedagogy and business aspects of music.

MUSC 423. Applied Music: Harpsichord. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hours.) Continuation of MUSC 323. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 423A. Applied Music: Organ. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hours.) Continuation of MUSC 323A. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 423B. Applied Music: Piano. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hours.) Continuation of MUSC 323B. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 424. Applied Music: Percussion. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hours.) Continuation of MUSC 324. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 424A. Applied Music: Drum Set. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hours.) Continuation of MUSC 324A. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 425. Applied Music: Cello. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hours.) Continuation of MUSC 325. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 425A. Applied Music: Guitar. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hours.) Continuation of MUSC 425A. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 425B. Applied Music: String Bass. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hours.) Continuation of MUSC 325B. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic, and pedagogical aspects of music.

MUSC 425C. Applied Music: Viola. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hours.) Continuation of MUSC 325C. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 425D. Applied Music: Violin. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hours.) Continuation of MUSC 325D. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 425E. Applied Study: Harp. 1-4 Hours.

PR: MUSC 325E. Private instruction of solo, ensemble and orchestral harp repertoire. Fourth year students learn advanced techniques of harp playing, develop effective practice skills, critical musical thinking, and musical expression. Harp students perform in at least one school ensemble each semester. Successful completion of MUSC 325E is required to be admitted to the course.

MUSC 426. Applied Music: Voice. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 credit hours.) Continuation of MUSC 326. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 427. Applied Music: Bassoon. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hours.) Continuation of MUSC 327. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 427A. Applied Music: Clarinet. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hours.) Continuation of MUSC 327A. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 427B. Applied Music: Flute. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hours.) Continuation of MUSC 327B. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 427C. Applied Music: Oboe. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hours.) Continuation of MUSC 327C. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 427D. Applied Music: Saxophone. 1-4 Hours.

Audition for placement required. (May be repeated for a max of 8 hours.) Continuation of MUSC 327D. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music.

MUSC 430. Piano Class Methods and Materials. 3 Hours.

Methods, materials, and pedagogical techniques, including presentation of keyboard theory as used in functional piano. Practical organization of piano classes. Laboratory: Observation of experienced class teacher and student teaching.

MUSC 431. Survey of Keyboard Technique. 3 Hours.

This course surveys keyboard technique from the late Baroque to today. It explores the development of three "schools" or approaches to keyboard/piano playing, from the early finger technique to the use of the wrist and arm weight to weight relaxation and coordination. The course includes exploring treatises, literature, and current videos and other resources.

MUSC 432. Methods and Pedagogy. 2 Hours.

PR: Junior standing or consent.

MUSC 433. Methods and Pedagogy. 2 Hours.

PR: MUSC 432 or consent.

MUSC 434. Repertoire. 1-2 Hours.

Survey of solo, chamber, and when appropriate, orchestral literature, spanning the history of a single musical instrument or voice.

MUSC 435. Repertoire:Voice. 2 Hours.**MUSC 435A. Repertoire: Piano. 2 Hours.****MUSC 435B. Repertoire: Other. 2 Hours.****MUSC 435C. Repertoire. 3 Hours.**

An in-depth study of the standard operatic repertoire from the 17th Century to the present. Focus is on the development of the genre and the performance characteristics and styles.

MUSC 435D. Repertoire. 2 Hours.

MUSC 435E. Repertoire. 2 Hours.

MUSC 435F. Repertoire. 2 Hours.

MUSC 435G. Repertoire. 2 Hours.

MUSC 435H. Repertoire. 2 Hours.

MUSC 435I. Repertoire. 2 Hours.

MUSC 435J. Repertoire. 2 Hours.

MUSC 435K. Repertoire. 2 Hours.

MUSC 435L. Repertoire. 2 Hours.

MUSC 435M. Repertoire. 2 Hours.

MUSC 435N. Repertoire. 2 Hours.

MUSC 435O. Repertoire. 2 Hours.

MUSC 435P. Repertoire. 2 Hours.

MUSC 435Q. Repertoire. 2 Hours.

MUSC 435R. Repertoire. 2 Hours.

MUSC 435S. Repertoire. 2 Hours.

MUSC 435T. Repertoire. 2 Hours.

MUSC 435U. Repertoire. 2 Hours.

MUSC 435V. Repertoire. 2 Hours.

MUSC 435W. Repertoire. 2 Hours.

MUSC 435X. Repertoire. 2 Hours.

MUSC 435Y. Repertoire. 2 Hours.

MUSC 435Z. Repertoire. 2 Hours.

MUSC 436. Advanced Digital Audio Workstation Technology. 3 Hours.

PR: MUSC 336 with a grade of C or higher. Key audio and MIDI concepts required to operate a DAW in a professional environment.

MUSC 437. Practicum-Recording Technology. 4 Hours.

PR: MUSC 336 with a grade of C or higher. (May be repeated for a maximum of 8 credit hours.) Application of recording techniques learned in a professional environment.

MUSC 438. Operatic Styles and Repertory. 3 Hours.

An in-depth study of the standard operatic repertoire from the 17th Century to the present. Focus is on the development of the genre and the performance characteristics and styles.

MUSC 440. Music Therapy Practicum 5. 2 Hours.

PR: Music Therapy Majors only; MUSC 331 and MUSC 339A with a minimum grade of C- in each. Supervised clinical training opportunities with clients and families of diverse backgrounds and needs in a variety of clinical settings. Students will learn how to apply clinical music therapy concepts and will further develop professional competencies.

MUSC 440A. Music Therapy Practicum 6. 2 Hours.

PR: Music Therapy Majors only; MUSC 331 and MUSC 339A with a minimum grade of C- in each. Supervised clinical training opportunities with clients and families of diverse backgrounds and needs in a variety of clinical settings. Students will learn how to apply clinical music therapy concepts and will further develop professional competencies.

MUSC 444. Psychological Foundation of Music. 3 Hours.

PR: Consent. This course provides students with understanding of how music influences human behavior, including but not limited to, physical, psychological, and physiological responses to various aspects of music and how responses are utilized in the therapeutic process.

MUSC 445. Evidence Based Practice in Music Therapy. 3 Hours.

PR: Music Therapy Majors only; MUSC 330 and MUSC 339 and MUSC 331 and MUSC 339A with a grade of C- or better in each. This course provides an academic study of various research methods in music therapy, the evidence base for effectiveness of music therapy interventions across populations, and professional communication and interpretation of research as it relates to clinical applications. Course includes reading, interpreting and conducting, research, including quantitative and qualitative methodologies, as related to evidence-based practice in music therapy.

MUSC 460. Upper Division Composition. 2 Hours.

PR: MUSC 360 with grade of B- or better, or 2 semesters of MUSC 160, or consent based on scores submitted. Creative writing of music, primarily for acoustic instruments, for music composition majors. Non-composition majors may take the course with a permission of the instructor. (May be repeated for up to 8 credits).

MUSC 460A. Electronic Music Composition. 2 Hours.

PR: MUSC 465 and MUSC 466 or consent. Private composition lessons using computer and other electronic means. More advanced composition topics, depending on the student's level and personal interest. Past topics included: multi-channel audio, multimedia, interactive electronic compositions, synthesizer programming, programming in Max/MSP, film scoring, gaming composition, and commercial music. (May be repeated for a maximum of 12 credit hours.).

MUSC 461. Counterpoint. 2 Hours.

PR: MUSC 264 or consent. Sixteenth century counterpoint.

MUSC 462. Counterpoint. 2 Hours.

PR: MUSC 264 or consent. Eighteenth century counterpoint.

MUSC 463. Analysis of Eighteenth and Nineteenth Century Music. 3 Hours.

PR: MUSC 264 or consent. Detailed study of the materials and structure of European music of the eighteenth and nineteenth-centuries. (Alternate years.).

MUSC 464. Analysis of Twentieth Century Art Music. 3 Hours.

PR: MUSC 264 or consent. Detailed study of the materials and structure of Western Art Music of the twentieth century. (Alternate years.).

MUSC 465. Electronic Music. 2 Hours.

PR: MUSC 264 or consent. Technology of producing electronic music via MIDI sequencing. Basic electro-acoustic concepts; synthesizer programming techniques; listening and analyzing examples from electronic music literature; composition using MIDI sequencing, including synchronizing audio to video.

MUSC 466. Electronic Music-Digital Audio. 2 Hours.

PR: MUSC 262 or Consent. Production of electronic music using digital audio. Sampling, editing, and processing of sound via computer software programs; listening and analyzing examples from electronic music literature; sound creation and composition using digital audio workstations.

MUSC 467. Major Project in Theory, Composition, or Music History. 2 Hours.

(Not available for graduate credit.) PR: MUSC 264.

MUSC 468. Jazz Harmony. 2 Hours.

PR: MUSC 264 and MUSC 286 or consent. Advanced jazz theory and harmony. Ear training, keyboard skills, chord voicing, and substitutions.

MUSC 470. European Music before 1500. 3 Hours.

PR: MUSC 271 or consent. A study of European sacred and secular monophonic and polyphonic traditions in their stylistic, historic, and social settings to the end of the fifteenth century.

MUSC 471. Music of the Sixteenth and Seventeenth Centuries. 3 Hours.

PR: MUSC 271 or consent. A study of European sacred and secular, instrumental and vocal traditions in their stylistic and social settings from c1500 to c1700.

MUSC 472. Music of the Eighteenth Century. 3 Hours.

PR: MUSC 271 or consent. A study of Western instrumental and vocal traditions in their stylistic, historic, and social settings from c1700 to c1800.

MUSC 473. Music of the Nineteenth Century. 3 Hours.

PR: MUSC 271 or consent. A study of Western instrumental and vocal traditions in their stylistic, historic, and social settings from c1800 to c1900.

MUSC 474. Twentieth and Twenty-First Century Music. 3 Hours.

PR: MUSC 271 or consent. A study of Western instrumental and vocal traditions in their stylistic, historic, and social settings from c1900 to the present.

MUSC 475. History of Jazz. 3 Hours.

PR: MUSC 271 or consent. History and repertory of jazz from its multicultural origins to the present with attention to its major exponents, evolving style, and cultural contexts.

MUSC 477. Music of Africa. 3 Hours.

Traditional music of selected areas of Africa south of the Sahara with particular reference to West Africa. The diverse musical cultures with emphasis on historical background, instruments, ensembles, forms, styles, and music in its social context.

MUSC 478. Coaching for Singers. 1 Hour.

PR: MUSC 126 and MUSC 226. This course consists of weekly or bi-weekly voice coaching targeted to specific repertoire. It will provide in-depth work with the details of language pronunciation, phrasing, musical traditions, and presentation.

MUSC 480. Arranging for Small Jazz Ensemble. 2 Hours.

PR: MUSC 265. Emphasis on small ensembles comprising three to nine players.

MUSC 481. Arranging for Large Jazz Ensemble. 2 Hours.

PR: MUSC 480 or consent. Continuation of MUSC 480, with emphasis on arranging for big band and studio jazz ensemble.

MUSC 485. Music Therapy Internship. 2-12 Hours.

PR: Music Therapy Majors Only and Consent. Students will complete a minimum of 900 hours of supervised clinical training at either an AMTA-approved National Roster Internship Site or a University-affiliated Internship site.

MUSC 487. Student Teaching Seminar. 2 Hours.

On-campus capstone seminar designed as a companion to music education students culminating semester-long teaching internship. Examination of student teachers professional roles and responsibilities in K-12 music programs.

MUSC 488. Recital. 2 Hours.

(Not available for graduate credit.) To be used to fulfill the applied major graduation requirement only when the student has achieved proficiency level nine. Students who have reached level six may receive one hour credit, which may not be used to fulfill the graduation recital requirement.

MUSC 489. Music Workshops. 2 Hours.

(May be repeated for credit.).

MUSC 489A. Music Workshops. 2 Hours.

(May be repeated for credit.).

MUSC 489B. Music Workshops. 2 Hours.

(May be repeated for credit.).

MUSC 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

MUSC 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

MUSC 492. Directed Study. 1-3 Hours.

Directed study, reading, and/or research.

MUSC 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

MUSC 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

MUSC 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

MUSC 496. Senior Thesis. 1-3 Hours.

PR: Consent.

MUSC 497. Research. 1-6 Hours.

Independent research projects.

MUSC 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study, or research.

MUSC 499. Global Service Learning. 1-3 Hours.

PR: Consent. Theory and practice of global service-learning. The main objective will be to pair the experiential aspects of meaningful and sustained service in the host community with work from the student's anchor course by offering a methodological frame-work for cultural immersion and community service as well as adding to the content of the anchor course.

NAS 200. Introduction: Native American Studies. 3 Hours.

Overview of the diverse social and cultural institutions of indigenous tribal societies in North America. Historical materials provide the background for understanding the range of issues affecting contemporary tribal groups.

NAS 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

NAS 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

NAS 491. Professional Field Experience. 1-6 Hours.

PR: Consent. Supervised interdisciplinary experiences focused on Native Americans. May be tribally based or related to agencies and projects serving Native Americans. This course is not open to freshman.

NAS 492. Directed Study. 1-3 Hours.

Directed study, reading and/or research.

NAS 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

NAS 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

NAS 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

NAS 499. Global Service Learning. 1-3 Hours.

PR: Consent. Theory and practice of global service-learning. The main objective will be to pair the experiential aspects of meaningful and sustained service in the host community with work from the student's anchor course by offering a methodological framework for cultural immersion and community service as well as adding to the content of the anchor course.

NBAN 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

NBAN 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

NRSC 101. Introduction to the Neural Sciences. 3 Hours.

Introduction to neuroscience that includes a survey of the history of neuroscience and an intensive exploration of its sub-fields.

NRSC 201. Biological Foundations of Behavior. 3 Hours.

PR: NRSC 101 and PSYC 101 and PSYC 202. Introduction to brain and behavior. Survey of fundamental concepts in understanding the workings of the nervous system and resulting behavior in human and non-human animals. Includes laboratory exercises.

NRSC 298. Honors. 1-3 Hours.

PR: Students in the Honors Program and consent by the honors director. Independent reading, study, or research.

NRSC 320. Neuroscience Research Capstone. 3 Hours.

PR: BIOL 348. Neuroscience research experience incorporating critical skills of being a research scientist, including writing grant proposals, manuscripts, and materials for presentation of results in a public forum. Students conceive, design, propose, execute, analyze, and report an experiment with a Neuroscience focus. Fulfills the capstone requirement in neuroscience and provides a realistic exposure to performing scientific research.

NSG 001. Nursing Experiential Learning. 50-75 Hours.

Students will not register for this course but it will show on their official transcript. Grade will be listed as CR.

NSG 100. Introduction to Nursing. 2 Hours.

Introduction to the role of the nurse in modern health care: critical thinking, nursing interventions, professionalism, caring and communication in nursing practice with emphasis on safety, quality, health, culture, ethics, leadership, and health policy.

NSG 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

NSG 211. Health Assessment & Communication. 6 Hours.

PR: NSG 100 with a minimum grade of C-. Examination of concepts, principles, and models that guide nursing practice related to physical, psychosocial, spiritual, developmental, cultural, intellectual assessment and communication across the lifespan in the classroom, simulation, and various clinical settings.

NSG 212. Foundations of Nursing Practice. 6 Hours.

PR: NSG 211 with a minimum grade of C-. Theories, concepts, principles, and processes that lay the foundation for critical thinking, nursing interventions, communication, professional role and caring in the practice of nursing. Application of the nursing process in classroom, simulation, and clinical experiences.

NSG 250. Clinical Nursing Pharmacology. 3 Hours.

PR: NSG 211 with a minimum grade of C-. Principles of pharmacology emphasizing scholarly inquiry and evidence-based reasoning to insure accurate knowledge of and administration of medications to individuals and families across the lifespan. Pharmacological management is analyzed in conjunction with pathophysiology.

NSG 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

NSG 298. Honors. 1-6 Hours.

PR: Students in the Honors Program and consent by the honors director. Independent reading, study or research.

NSG 310. Maternal Infant Nursing & Women's Health Care. 4 Hours.

PR: NSG 212 and PR or CONC: NSG 311 and NSG 376 with a minimum grade of C-. Human response to normal and abnormal changes in health status across the female lifespan and adaptations of the childbearing family. Provision of the holistic nursing care to women and childbearing families in the clinical area.

NSG 311. Alterations in Adult Health 1. 6 Hours.

PR: NSG 212 and PR or CONC: NSG 376 with a minimum grade of C- in each. Pathophysiology and holistic nursing care of adults experiencing acute and chronic problems. Use of the nursing process to plan and provide interventions appropriate to health care needs in the clinical setting.

NSG 312. Alterations in Adult Health 2. 6 Hours.

PR: NSG 311 and NSG 376 with a minimum grade of C- in each. Builds on NSG 311 using critical thinking and nursing process in a team based learning format, paired with clinical application, to explore holistic nursing care of adults with acute and chronic health problems.

NSG 320. Child and Adolescent Health. 4 Hours.

PR: NSG 311 and NSG 376 with a minimum grade of C- in each. Didactic and clinical experiences focused on human response to alterations in health, developmental needs, and family-centered care specific to pediatric population with emphasis on the professional nursing role, evidence-based reasoning, therapeutic communications, and caring.

NSG 333. Ethics in Nursing. 3 Hours.

PR: ENGL 102 with a minimum grade of C-. Ethical issues and decision making in nursing and health care situations across the lifespan. Emphasizes professional writing skills.

NSG 350. Evidence Based Practice and Research. 3 Hours.

PR: NSG 211 and NSG 212 and (STAT 201 or STAT 211) with a minimum grade of C- in each. Theory, concepts, and methods of the research process intended to provide a basic understanding that is necessary for the translation of current evidence into nursing practice.

NSG 360. Ethics and Health Policy. 3 Hours.

PR: NSG 212 and ENGL 102 with a minimum grade of C- in each. Ethical decision-making in health care situations across the lifespan, including palliative and end of life care. Health care policy, legal and regulatory issues are discussed.

NSG 361. Health Assessment. 3 Hours.

Holistic health assessment of individuals and families across the lifespan, including physical, psychosocial, spiritual, and developmental assessment.

NSG 362. Clinical Health Promotion. 3 Hours.

PR: RN licensure. Theory and practice of promoting health and wellness for individuals and families across the lifespan. Emphasis will be placed on integrating knowledge and behaviors that support movement toward optimal health.

NSG 371. Basic Parish Nurse Education. 3 Hours.

Explores the nurse's role in managing care within faith communities. Focus is on dimensions of nurse's role: spiritual caregiver, health promoter, counselor, advocate, educator, care coordinator, resource agent and manager of developing practice.

NSG 372. Safety, Quality, and Information Technology. 2 Hours.

PR: RN Licensure. Examination of healthcare through information management to promote patient safety and quality of care. Emphasis on assessing and improving quality through prevention of adverse and never events.

NSG 373. Leadership in Organizations. 3 Hours.

PR: ENGL 102 with a minimum grade of C-. Leadership and management principles related to professional nursing roles in organizations and systems including system theory, change theory, and inter-professional team building.

NSG 374. School of Nursing Simulation Experience. 2 Hours.

PR: NSG 311 with a minimum grade of C- and for nursing students with second semester Junior or Senior status. Simulated patient care experiences in a safe practice environment.

NSG 375. ACLS Elective. 1 Hour.

PR: NSG 312 with a minimum grade of C-. The Advanced Cardiovascular Life Support (ACLS) Provider Course is designed for healthcare providers who either direct or participated in the management of cardiopulmonary arrest or other cardiovascular emergencies. Through didactic and active participation in simulated cases, students will enhance their skills in the recognition and intervention of cardiopulmonary arrest, immediate post-cardiac arrest, acute arrhythmia, stroke, and acute coronary syndromes.

NSG 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

NSG 400. Spirituality and Health. 3 Hours.

In this course, students will examine the mind/body/spirit connection that occurs in the process of healing and wellness. Theories and practices of relationships between mind/body/spirit will be examined as they impact health/wellness of patients.

NSG 411. Nursing in Complex Community Systems. 7 Hours.

PR: NSG 276 and NSG 310 and NSG 312 and NSG 320 and NSG 360 with a minimum grade of C- in each. Comprehensive theoretical introduction to community health nursing paired with clinical experience focused on promoting health and preventing disease in multiple populations. Culminates in a capstone project that addresses an identified community health need.

NSG 412. Leadership in Complex Systems. 7 Hours.

PR: (NSG 312 and NSG 360 and NSG 450) with a grade of C or better. Development of leadership and management skills necessary for professional nursing practice and interventions supporting multiple patients in acute-care complex systems. Classroom experiences paired with 225 hours of precepted leadership experience.

NSG 433. Seminar 8: Professional Role Synthesis. 3 Hours.

PR: NSG 343. Emphasis is on implementation of the professional nursing role within a changing health care system. Focuses on analysis of societal, institutional and economic factors that affect the delivery of health care.

NSG 435. Cardiology for Nursing. 2 Hours.

PR: Junior or Senior standing in BSN Program. Introduction to the interpretation and treatment of cardiac arrhythmias.

NSG 443. Seminar 6: Professional Role Development. 2 Hours.

Emphasis on professional nursing role in health promotion/ risk reduction in groups/communities of vulnerable populations. Focuses on multidisciplinary team approaches to problem solving in community health.

NSG 450. Alterations in Mental Health. 4 Hours.

PR: NSG 310 and NSG 312 and NSG 320 and NSG 360 with a minimum grade of C- in each. Theory and Practice of professional nursing in response to complex alterations in psychosocial function and their impact on individuals, families, and communities. Classroom and clinical experiences.

NSG 460. Care of the Critically Ill Patient. 4 Hours.

PR: NSG 312 and NSG 411 and NSG 450 with a minimum grade of C- in each. Focuses on the professional nursing role in supporting individuals and families experiencing complex physiological alterations in health. Paired with clinical experiences supporting individuals and families in critical care settings.

NSG 461. Health Policy for Professional Nursing Practice. 3 Hours.

PR: RN licensure. Fosters an appreciation for how policy drives the organization and financing of health care and shapes professional nursing practice. Issues of access to care, cost effectiveness, and quality of care are discussed and policy implications are considered.

NSG 465. Foundations of Research and Evidence Based Practice. 3 Hours.

PR: ENGL 102 and PR or CONC: (STAT 201 or STAT 211) with a minimum grade of C- in all. Introduction to the development and application of evidence with an emphasis on the fundamental elements of the research process, appraisal of current evidence, and interpretation of evidence to improve patient outcomes.

NSG 471. Community Health Nursing: Theory and Interventions. 4 Hours.

PR: NSG 362 with a minimum grade of C-. Concentrates on health promotion, disease and injury prevention to promote conditions and behaviors that improve the health of individuals, families, aggregates, communities, and populations through identifying determinants of health, available resources, and interventions.

NSG 475. Applied Research and Evidence Based Practice. 4 Hours.

PR: NSG 333 and NSG 371 and NSG 372 and NSG 461 and NSG 465 and PR or CONC: NSG 471 with a minimum grade of C- in all. Advanced study of the evaluation, integration, and dissemination of reliable evidence from multiple sources including scientific evidence and patient/family preferences to inform practice and make clinical judgments to improve patient outcomes. This course is the capstone course for the RN to BSN program.

NSG 477. NCLEX Remediation. 1-2 Hours.

PR: Consent. Course focus is on achievement of professional success by reinforcing/remediating preparation for RN NCLEX exam and enhancing NCLEX testing skills.

NSG 478. The Role of the Nurse in the Patient Experience. 2 Hours.

PR: NSG 212 with a minimum grade of C-. Didactic experience focused on exploring the nurse's role in the patient's and family's healthcare experience.

NSG 479. Care of the Hospitalized Obese Patient. 2 Hours.

PR: NSG 312 or Consent. Multifaceted approach to the care of a hospitalized obese patient. The linkage of Obesity to Metabolic Syndrome will be presented so there is clear understanding of pathologic processes. The pathophysiology of each body system will be explored and evidence based practice interventions specific to each condition will be presented.

NSG 480. Core Concepts in Gerontological Nursing. 2 Hours.

PR: NSG 211 and NSG 212 with a minimum grade of C- in each and Junior or Senior standing. Examination of patient specific concepts, nursing assessments, interventions, and models of care that guide nursing practice related to holistic care of the older adult.

NSG 481. Cardiac Nursing. 2 Hours.

PR: NSG juniors and seniors. Introduction to the interpretation and treatment of cardiac arrhythmias.

NSG 482. Palliative Care Nursing. 2 Hours.

Focus is on the care of patients with chronic non-curable conditions across the life span. The course analyzes the definition of palliative care and defines the role of hospice as a part of palliative care. Cultural sensitivity and communication with palliative care patients and their families is emphasized.

NSG 483. Holistic and Integrative Nursing. 2 Hours.

PR: NSG 212 with a minimum grade of C-. Theory and principles of holistic nursing and an introduction to alternative/complementary health therapies. Experiential learning and application of content to clinical setting will be explored.

NSG 484. Care of the Diabetic Patient. 2 Hours.

PR: Consent. In-depth analysis of nursing care of the patient with diabetes.

NSG 485. Children With Complex Health Needs. 2 Hours.

PR: NSG 320 with a minimum grade of C-. The nursing care of children with complex acute and chronic health problems with a focus on decision-making using a case study problem based learning approach.

NSG 486. NCLEX Review. 1 Hour.

PR: Senior status. Focuses on achievement of professional success by preparing for RN licensure. Preparation for NCLEX will be the focus of this by enhancing NCLEX testing skills.

NSG 487. Movies and Mental Health. 2 Hours.

Representations of psychopathological states in films within the context of contemporary social issues such as stigma and discrimination. Examination of personal biases towards psychiatric illnesses and how biases interfere with advocacy roles of practicing nurses.

NSG 488. Generics/Genomics in Health. 2 Hours.

Fundamentals of genetics and genomics for clinical practice with analysis of current state of the sciences and research translation. Genetic and genomic concepts within the context of current and future clinical applications, theories and therapeutics.

NSG 489. Reproductive Issues in Women. 2 Hours.

PR: NSG 310 and Nursing major. this course reviews reproductive health issues and prepares students for careers in maternal/child care. Complications, diseases, genetics, and nursing care: pre/intra and postpartum will be addressed.

NSG 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

NSG 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

NSG 496. Senior Thesis. 1-3 Hours.

PR: Consent.

NSG 497. Research. 1-6 Hours.

Independent research projects.

NSG 498. Honors. 1-3 Hours.

PR: Students in the Honors Program and consent by the honors director. Independent reading, study or research.

ORGL 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ORGL 310. Leadership and Ethical Decision Making Skills. 3 Hours.

PR: LDR 201 with a minimum grade of C-. In this course, ethical thinking strategy for decision-making and skill-based application for organizational leadership development is explored. Students will also investigate current research trends regarding ethical issues in businesses and other organizational contexts.

ORGL 320. Theories of Leadership and Organizational Change. 3 Hours.

PR: LDR 201 with a minimum grade of C-. In this course, leadership and organizational change theories required to initiate and sustain change in organizations are reviewed. Students compare, contrast and critique both seminal and modern theories and models of organizational learning, knowledge creation, and organizational capacity building.

ORGL 410. Youth Leadership Development. 3 Hours.

PR: LDR 201 with a minimum grade of C-. This course provides students with an understanding of how adolescents develop and emerge as leaders in their families, schools, organizations, and communities. The objective is to provide future and current leaders with the knowledge, skills, and experiences to develop and enhance the leadership skills and behaviors of the youth in their organizations.

ORGL 420. Nonprofit Leadership. 3 Hours.

PR: LDR 201 with a minimum grade of C-. The course is designed to help students understand the major concepts in the leadership of a nonprofit organization and will help them develop the skills to utilize this material in applied situations. Students will explore the mission of the nonprofit organization, marketing and funding, effective strategies for developing relationships and performance, and ways to enhance leadership skills.

ORGL 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

ORIN 100. Orientation to STEP. 1 Hour.

Support of STEP students to make a successful transition from high school to college; develop a better understanding of the learning process including critical thinking; and acquire basic academic and personal survival skills.

ORIN 110. Orientation to EXCEL. 1 Hour.

Support for the first-year student to make a successful transition from high school to college; develop a better understanding of the learning process including critical thinking; and acquire basic academic and personal survival skills.

ORIN 151. Choosing a Major and Career. 1 Hour.

Provide guidance and clarity to students that are unsure about a major and career. Course addresses first time freshman undecided and those students that discover that their initial major or career choice does not match their personal and professional aspirations. Students will be guided through a formal assessment of their personal characteristics, consider possible career choices and identify associated majors.

ORIN 152. Learning Career Skills. 1 Hour.

Provide students with information and resources necessary to begin building a strong foundation toward "Career Readiness" and an understanding of the importance of developing a comprehensive career plan. Students will be introduced to the advantages of developing an effective resume and associated career documents and the importance of beginning to define their career goals.

ORIN 161. Exploring Career Options. 1 Hour.

This course helps students explore the career that is best for them. Students receive individual counseling as well as an opportunity to talk with career mentors.

ORIN 162. Becoming Career Ready. 1 Hour.

This course helps students identify the personal and professional skill requirements of their selected career. The course involves a mix of group explorations, one-on-one discussions, and self-improvement exercises.

ORIN 164. Finding the First Job. 1 Hour.

This class helps students develop and execute a strategy for obtaining a first job that is consistent with the student's career interests.

ORIN 165. Starting Your Career. 1 Hour.

This class helps students prepare for the issues they will encounter early in their careers.

ORIN 175. Western Europe Study Trip. 3 Hours.

Exploration of Western European (Belgium, France, Germany, Luxembourg, Netherlands) history, culture, and politics with an emphasis on relevance and links to the U.S.

ORIN 220. Leadership Development. 2 Hours.

PR: Sophomore standing. Primarily for sophomores and juniors. A practical survey of leadership techniques taught by various instructors. Major emphasis placed upon improvement of leadership abilities within the WVU campus structure and problems particular to student organizations. (Pass/fail grading only.).

ORIN 251. Preparing for Success. 1 Hour.

Inform students of the various opportunities available to them through co- and extra-curricular activities that best meet the needs of their individual career planning and professional development. Students will evaluate and select opportunities in study abroad, leadership, professional organizations and service learning that will improve their competitiveness as they prepare for the job search process.

ORIN 252. Professional Development. 1 Hour.

Provide students with knowledge, skills and the ability to successfully launch a comprehensive job search. Students will learn how to search for potential employment opportunities and to utilize the latest available job search resources. Understanding the importance of professional branding, career development, and financial planning to meet life-long goals will also be covered.

ORIN 260. Preparation for Graduate Education. 1 Hour.

This course offers a comprehensive view into the graduate school application process. Assignments will mimic those required for actual admission into graduate programs.

ORIN 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ORIN 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

ORIN 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours). Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

ORIN 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ORIN 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

ORIN 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

ORIN 496. Senior Thesis. 1-3 Hours.

PR: Consent.

ORIN 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

OTH 100. Introduction to Occupational Therapy Profession. 1 Hour.

Provides students with an introduction to the profession of occupational therapy including knowledge base, practice areas, professional education and professional organizations. Intended for pre- and non-majors.

OTH 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

OTH 201. Medical Terminology for Occupational Therapy. 1 Hour.

The study of medical terminology with a focus on how terminology is used in the field of occupational therapy.

OTH 301. Professional Foundations of OT. 2 Hours.

PR: OTH student status. Introduction to fundamentals of professional behavior for the occupational therapist. Includes units on history, communication, documentation, ethics, interdisciplinary teamwork, and licensure requirements.

OTH 303. Functional Movement Across the Lifespan. 2 Hours.

PR: OTH student status. Including acquisition of developmental patterns, motor control, motor skill acquisition. This course also provides an overview of the effects of normative processes of aging on neuromotor patterns in occupational performance.

OTH 304. Physical Impairment and Function 1. 4 Hours.

Introduction to disease and injury and its functional implications on OT treatment. Emphasis is placed on the impact of orthopedic and general disorders on performance in areas of occupation, remediation, or compensation of these impairments.

OTH 307. Neurobiologic Foundations. 4 Hours.

PR: OTH student status. Basic and clinical applications of neuroanatomy and neurology. Includes lectures on neurophysiological basis of physical and occupational therapy practice.

OTH 308. Evaluation Procedures. 3 Hours.

PR: OTH student status. Theory and practice in evaluation procedures used by therapists. Includes Manual Muscle Test, isokinetic muscle testing, and assessment of components of movement, posture, balance, and hand function.

OTH 309. The Brain and Occupation in Occupational Therapy. 1 Hour.

Introduction to brain-behavior relationships and the study of cognitive, behavioral, and perceptual impairments that accompany common adult neurological conditions. Emphasis is on these impairments and the manner in which they impact human occupation and societal participation.

OTH 310. Critical Reasoning in Occupational Therapy. 3 Hours.

An introduction to critical reasoning analysis, and review relevant to Occupational Therapy. Students will critically analyze research articles and editorials specific to Occupational Therapy, in combination with additional writing assignments.

OTH 311. Anatomic Foundations of OT. 4 Hours.

PR: OTH Student Status. A study of the anatomical foundations of human occupational performance and movement. Emphasis is placed on understanding how impairments and disruption of anatomical structures impacts occupational performance.

OTH 312. Functional Kinesiology in Occupational Therapy. 2 Hours.

PR: OTH Student Status. Study of movement used in occupational performance using the principles of kinesiology including statics, dynamics, and biomechanics. Emphasis on conducting functional movement analyses of occupational performance.

OTH 321. Development Life Tasks. 3 Hours.

PR: OTH student status. Life-span human development across cognitive, psychosocial and neuromotor domains with particular emphasis on applications to physical or occupational therapy interventions. Includes focus on cultural influences in health and illness.

OTH 360. Research Methods in Occupational Therapy. 3 Hours.

PR: OTH student status. An introduction to principles of research methodology and data analysis in the realm of occupational science/occupational therapy. Includes a focus on scientific methodology, research design, data collection, data analysis, and ethical considerations.

OTH 361. Qualitative Research in Occupational Therapy. 1 Hour.

This course will introduce students to qualitative research methodologies, data collection and data analysis techniques within occupational therapy.

OTH 370. Principles of Occupational Science. 3 Hours.

PR: OTH student status. Students will review concepts associated with human behavior from the behavioral sciences, social sciences, and occupational science. This course will introduce students to the developing discipline of occupational science, occupational therapy's role in health, wellness, and prevention, and global issues affecting the profession.

OTH 384. Level 1 Fieldwork 1. 1,2 Hour.

Clinical instruction in the occupational therapy process. OT documentation, basic measurement skills, experiences with people with disabilities, and participation in professional activities. (Grading will be pass/fail.).

OTH 385. Level 1 Fieldwork 2. 1,2 Hour.

PR: OTH student status. Optional third short-term fieldwork experience, minimum 40 hours. Student will assist in collaboration of learning objectives. (Grading will be pass/fail.).

OTH 386. Level 1 Fieldwork 3. 1,2 Hour.

PR: OTH student status. Students will be provided with fieldwork experiences in occupational therapy processes. (Grading will be pass/fail.).

OTH 387. Level 1 Fieldwork 4. 1,2 Hour.

Clinical instruction in the occupational therapy process, OT documentation, basic evaluation and assessment skills, experiences with people with disabilities, and participation in professional activities.

OTH 400. Assistive Technology Practicum. 3 Hours.

PR: OTH 402 with a minimum grade of C- and consent. Students will learn through engaging in hands-on service at the West Virginia Department of Education's annual summer camp for assistive technology, Camp Gizmo. During the camp experience, students will be partnered with AT professionals who will guide the practicum experience.

OTH 401. Physical Impairment and Function 2. 4 Hours.

PR: OTH 304 and OTH student status. Study of neurological injury and its functional implications on occupations. Emphasis is placed on evaluation of performance in areas of occupation and performance skills and remediation, or compensation of these limitations or impairments.

OTH 402. Principles of Assistive Technology. 3 Hours.

PR: OTH 321 or PR or CONC: SPED 304 or DISB 380 with a minimum grade of C-. Covers the potential of assistive technology to enhance the lives of persons with disabilities. The course provides an overview of common AT application will discuss growing trends in the field.

OTH 403. Intro to Pediatrics in OT. 2 Hours.

PR: OTH 303 and OTH 321. Orientation to pediatric practice. Examines pediatric development beginning in utero, treatment techniques, standardized and non-standardized pediatric evaluations, documentation, and programming.

OTH 405. Upper Extremity Rehabilitation. 4 Hours.

PR: OTH student status. This course provides a holistic approach to occupational therapy evaluation and treatment of the upper extremity including common diagnoses and appropriate interventions, and splinting.

OTH 408. Physical Impairment and Function 3. 3 Hours.

PR: OTH 304 and OTH 401 and major status. Study of chronic neurological diseases and the functional implications on occupation. Emphasis is placed on evaluation and Occupational Therapy treatment in areas of performance skills, occupations and participation. Students complete the capstone client care experience.

OTH 416. Professional Decision-Making. 2 Hours.

PR: OTH student status. Students are provided with opportunities to develop critical thinking, clinical reasoning, and decision-making skills in occupational therapy. Emphasis is on autonomous practice and referral decisions.

OTH 417. Occupational Therapy in Geriatrics. 3 Hours.

PR: OTH student status. Overview of normative aging using an occupational therapy frame of reference. Common problems of seniors are discussed.

OTH 419. Professional Values. 3 Hours.

PR: OTH student status. An introduction to ethics and how it specifically applies to rural health and life in West Virginia. Students will be given an opportunity to explore their own conceptions of ethics in health care.

OTH 430. Occupational Therapy in Mental Health. 3 Hours.

PR: OTH student status. Clinical and functional science lectures pertaining to OT practice in mental health environments. Course includes introduction to occupational therapy clinical and functional assessment, and management protocols.

OTH 432. Occupational Therapy Interventions in Mental Health. 3 Hours.

PR: OTH student status. Occupational therapy interventions in mental health commonly used by occupational therapists in the field of mental health. Emphasis on group processes, life skills, reintegration strategies.

OTH 435. Therapeutic Activity. 3 Hours.

PR: OTH student status. Students will develop skills in performance component analysis, performance context analysis, and occupational performance analysis.

OTH 440. Cognition and Perception in Occupational Therapy. 2 Hours.

PR: OTH student status. Study of cognitive and perceptual impairments that accompany common adult neurological conditions. Emphasis is on application of occupational therapy assessment and treatment principles to understand the impact of impairments on functional performance and societal participation.

OTH 480. Current Topics in Occupational Therapy. 1-3 Hours.

PR: OTH student status. (Not to exceed 18 hours.) A seminar course designed to provide a forum for discussing the frontiers of the occupational therapy profession. Topics may include: research in progress, new developments, and salient professional issues.

OTH 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

OTH 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

OTH 497. Research. 1-6 Hours.

Independent research projects.

PALM 100. Medical Laboratory Science. 1 Hour.

Introduction to the profession of medical laboratory science and medical laboratory specialties. (Pass/Fail grading only).

PALM 101. Medical Laboratory Science 2. 1 Hour.

Continuation of PALM 100. (Pass/Fail grading only).

PALM 107. Introduction to Human Anatomy and Physiology. 4 Hours.

PR: BIOL 102 and CHEM 111 and PR or CONC: BIOL 104 and CHEM 112. Survey of human anatomy and physiology for pre-nursing and other pre-clinical students. Also listed as PSIO 107.

PALM 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

PALM 200. Medical Terminology. 3 Hours.

General medical terminology with emphasis on clinical and anatomic pathology terminology.

PALM 201. Basic Medical Laboratory Science. 1 Hour.

Basic techniques for the medical science laboratory and current issues related to the medical laboratory science profession. (Pass/Fail grading only).

PALM 205. Introduction to Human Anatomy. 3 Hours.

Introductory human anatomy course that uses a combined regional and systemic approach to examine the relationships and organization of the major structures within the thorax, abdomen, head/neck, and back/limbs regions of the body.

PALM 206. Human Anatomy Laboratory. 1-3 Hours.

PR: PALM 205 or PALM 301 or consent. Introductory human anatomy laboratory using a combined regional and systemic approach to examine the relationships and organization of the major structures with the thorax, abdomen, head/neck, and back/limb regions of the body.

PALM 207. Human Anatomy and Physiology 2. 4 Hours.

PR: PALM 107. Anatomy and Physiology with gross anatomy laboratory. Emphasis on clinical relevance for nursing.

PALM 300. Introduction to Pathology. 3 Hours.

A study of principles and processes of pathology from cellular to system, including etiology, pathogenesis, and clinical features of representative or commonly occurring disorders and diseases.

PALM 301. Principles of Human Anatomy. 3,4 Hours.

PR: Admission to WVU's dental hygiene, nursing, or pharmacy program or consent. Lectures and demonstrations on the gross and microscopic anatomy of the human body including development. Pre-requisite(s) and/or co-requisite(s) may differ on regional campuses.

PALM 302. Oral Pathology. 3 Hours.

PR: PALM 301, and dental hygiene major, or consent. Application of fundamental knowledge of general pathology to pathological conditions that occur in the oral cavity.

PALM 303. Clinical Lab Applications. 2 Hours.

Lectures and laboratory experience on laboratory safety, measurement, use and maintenance of laboratory equipment, preparation, and storage of reagents and solutions, and basic laboratory techniques.

PALM 304. Histotechnology Microanatomy. 3 Hours.

Microscopic identification of the morphology of human cells, tissues and organ systems with relationship to structure and function.

PALM 305. Staining Techniques 1. 4 Hours.

A lecture and laboratory course focusing on the theory and methodology of routine and special staining and the basic principles, components and use of instruments in the histopathology laboratory.

PALM 306. Histotechnique 1. 3 Hours.

A lecture and laboratory course focusing on the principles and theories of routine histologic techniques and the basic principles, components and use of instruments in the histopathology laboratory.

PALM 309. Oral Histology. 2 Hours.

PR: PALM 301. Histological structure and embryological development of the teeth, tissues and organs of the oral cavity. (Electronic delivery.).

PALM 310. Clinical Laboratory Mycology. 1 Hour.

How to isolate and identify the more commonly encountered pathogenic fungi as well as those fungi frequently seen as laboratory contaminants. The course will include basic taxonomy, isolation procedures, and identifying characteristics.

PALM 320. Basic Clinical Biochemistry. 3 Hours.

Introduction to basic biochemistry and human metabolism of amino acids, proteins, enzymes, carbohydrates, liquids, and nucleotides. Molecular biology and applications to the clinical laboratory are included.

PALM 323. Medical Microbiology Lab. 2 Hours.

PR: MICB 200. (For medical laboratory science students; other students with consent.) Emphasis is on clinical laboratory techniques and laboratory identification of pathogenic microorganisms.

PALM 329. Clinical Chemistry 1. 2 Hours.

Lectures in clinical chemistry analysis, clinical significance, clinical instrumentation, and implications of diagnosis.

PALM 340. Introduction to Hematology. 3 Hours.

Lectures and laboratory sessions to cover structure, morphology, and function of the cells of the blood, bone marrow and body fluids, with an overview of hematologic abnormalities.

PALM 380. Introduction to Immunology. 1 Hour.

Lectures in basic immunology, with emphasis on its structure and function. antigens, antibodies, and complement will be discussed and related to immune disorders and simple immunological tests.

PALM 381. Research and Educational Methodology. 2 Hours.

Lectures in ethics, techniques of research, and techniques of educational methodology for medical laboratory science students.

PALM 401. Phlebotomy. 1 Hour.

PR: PALM 303. Clinical laboratory practice, including venipuncture, finger sticks, and heel sticks; isolation, universal precautions and other safety techniques are included.

PALM 403. Community Service Practicum. 1 Hour.

PR: Senior year in medical laboratory science. Students will participate in approved community service activities. (Grading will be pass/fail.).

PALM 405. Staining Techniques 2. 4 Hours.

PR: PALM 305. A lecture and laboratory course focusing on the theory and methodology of immunohistochemistry.

PALM 406. Histotechnique 2. 3 Hours.

PR: PALM 306. A lecture and laboratory course focusing on the principles and theories of routine and advanced histologic techniques and the basic principles, components and use of instruments in the histopathology laboratory.

PALM 407. Histology Laboratory. 8 Hours.

This course consists of rotations in clinical and research histopathology.

PALM 408. Histotechnologist Practicum. 10 Hours.

Students will utilize their knowledge in routine and advanced histological techniques in a clinical setting.

PALM 409. Molecular Pathology for Laboratory Professionals. 2 Hours.

This course will provide students with an overview of the principles and applications of molecular techniques in pathology. A review of molecular and cancer biology will be included, and molecular pathways and biomarkers will be discussed with correlation to cancer types.

PALM 420. Immunology and Blood Banking. 3 Hours.

Lectures on immunohematology and blood banking theory and practice.

PALM 421. Immunohematology and Blood Banking Laboratory. 3 Hours.

Clinical laboratory practice in blood banking procedures. Emphasis on procedures required for collection and preparation of blood and blood components for transfusion, special techniques, antibody studies, and problem solving.

PALM 430. Clinical Chemistry 2. 3 Hours.

PR: PALM 329. Continuation of PATH 329, includes laboratory practice in methods of measurement.

PALM 431. Clinical Chemistry Laboratory. 3 Hours.

PR: PALM 329 and PALM 420. Application of clinical chemistry principles to laboratory medicine, to include routine and specialized procedures, specimen and result evaluation, and problem solving.

PALM 440. Clinical Hematology. 3 Hours.

Lectures in hematologic theory and practice, including coagulation and body fluids laboratory.

PALM 441. Clinical Hematology Laboratory. 3 Hours.

Application of hematological principles to laboratory medicine, including coagulation, urinalysis, and body fluids. Emphasis on routine and specialized procedures, evaluations, and problem solving.

PALM 450. Clinical Microbiology. 3 Hours.

Presentation and discussion of methodologies employed in the processing of clinical microbiology specimens, isolation, and identification of clinically significant microorganisms, and determination of antimicrobial susceptibilities with laboratory.

PALM 451. Clinical Microbiology Laboratory. 3 Hours.

Practice in the clinical microbiology laboratory to include isolation and identification of microorganisms, processing of specimens and antibiograms.

PALM 465. Medical Laboratory Management. 2 Hours.

Laboratory organization and principles of laboratory management.

PALM 470. Clinical Microscopy. 1 Hour.

The analysis of body fluids (urine, fluids, etc.) for abnormalities.

PALM 472. Urinalysis and Body Fluids Laboratory. 1 Hour.

PR OR CONC: PALM 470 or Consent. Clinical Laboratory principles and procedures used in analysis of urine and body fluids.

PALM 475. Medical Relevance - Capstone. 3 Hours.

Case studies of pathologic entities encountered in the medical laboratory and a review of medical laboratory science. Student will complete and give an oral presentation of the Capstone experience and pass a comprehensive examination.

PALM 480. Clinical Immunology. 2 Hours.

PR: Open only to MLS majors. Lectures in principles of immunological and serological procedures, immunological diseases, and significance of laboratory methods for diagnosis.

PALM 481. Clinical Immunology Laboratory. 1 Hour.

Clinical laboratory practice in immunological procedures. Emphasis on basic serological techniques, protein analysis, molecular methods, and tissue typing.

PASS 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

PASS 293. Special Topics. 1-6 Hours.

Investigation of topics not covered in regularly scheduled courses.

PASS 300. Career Exploration in Physical Activity and Sport Sciences. 3 Hours.

This course will help students develop critical inquiry skills, explore their potential careers, and enhance their professional development. Students will assess work related values, interests and skills to identify potential career choices. Students will become knowledgeable about careers of interest, and develop a structured career plan to guide them in their pursuits of career goals.

PASS 401. Foundations of Health Education. 3 Hours.

Principles and foundations of health promotion and education including health behavior theories, health-related data sources and data use, and health-related laws and regulations. Course materials will help students develop skills required to serve as a health promotion professional in the school community. Course content prepares students for Praxis II Health Education.

PASS 402. Core Concepts in Health Education. 3 Hours.

Addresses content areas for school and community health education, and healthy people 2020 related to mental and emotional health, family and social health, disease, nutrition, injury prevention, and health promotion. Course content will prepare students for Praxis II Health Education.

PASS 403. Program Design, Implementation, and Evaluation for Health Educators. 3 Hours.

Focuses on health education and pedagogical skills through curriculum design, program planning, implementation, and evaluation. Students will also learn about community health and advocacy related to the unique needs of diverse school communities. Prepares students for Praxis II Health Education.

PASS 489. Capstone Experience in PASS. 3 Hours.

PR: PASS 300 with a minimum grade of C- and senior status. An active learning experience integrating and applying the knowledge and skills acquired across three minors. Students utilize information literacy and reflection skills to prepare professional products and planning a future career.

PASS 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

PATH 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

PATH 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

PATH 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

PATH 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

PATH 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

PATH 496. Senior Thesis. 1-3 Hours.

PR: Consent.

PATH 498. Honors. 1-3 Hours.

PR: Students in the Honors Program and consent by the honors director. Independent reading, study, or research.

PCOL 260. Pharmacology. 3 Hours.

Interactions of clinically useful therapeutic agents with the mammalian systems.

PCOL 449. Drugs and Medicine. 3 Hours.

PR: ANPH 301 or BIOL 235 or EXPH 365 or PSIO 241 or consent. Introduction for interested students to information about drugs and pharmaceutical preparations including administration, mechanisms, therapeutic and adverse effects, drug interactions, and drug abuse.

PE 101. Badminton. 1 Hour.

(May be repeated for a maximum of 2 credit hours). Introduction to beginning knowledge and skills in badminton.

PE 103. Beginning Basketball. 1 Hour.

(May be repeated for a maximum of 2 credit hours). This course is designed to provide historical background, rules and regulations, and fundamental skills. These will be accomplished through instruction, drills, games and class team play.

PE 104. Intermediate Basketball. 1 Hour.

(May be repeated for a maximum of 2 credit hours). Introduction to intermediate knowledge and skills in basketball.

PE 105. Rifle Conditioning and Weight Training. 1 Hour.

(May be repeated for a maximum of 2 credit hours). Introduction to basic conditioning and weight training techniques for rifle.

PE 106. Rowing Conditioning/Weight Training. 1 Hour.

(May be repeated for a maximum of 2 credit hours). This course is designed to present students with hands-on approach to proper techniques of strength and conditioning as it applies to rowing athletes.

PE 107. Basketball Conditioning/Weight Training. 1 Hour.

(May be repeated for a maximum of 2 credit hours). Introduction to basic conditioning and weight training techniques for basketball.

PE 108. Football Conditioning/Weight Training. 1 Hour.

(May be repeated for a maximum of 2 credit hours). Introduction to basic conditioning and weight training techniques for football.

PE 109. Baseball Conditioning/Weight Training. 1 Hour.

(May be repeated for a maximum of 2 credit hours). Introduction to basic conditioning and weight training techniques for baseball.

PE 110. Military Physical Conditioning. 1 Hour.

(May be repeated for a maximum of 2 credit hours).

PE 111. Air Force Military Physical Conditioning. 1 Hour.

(May be repeated for a maximum of 2 credit hours). Introduction to basic conditioning techniques for military training.

PE 112. Gymnastics Conditioning/Weight Training. 1 Hour.

(May be repeated for a maximum of 2 credit hours). Introduction to basic conditioning and weight training techniques for gymnastics.

PE 113. Soccer Conditioning/Weight Training. 1 Hour.

(May be repeated for a maximum of 2 credit hours). Introduction to basic conditioning and weight training techniques for soccer.

PE 114. Tennis Conditioning/Weight Training. 1 Hour.

(May be repeated for a maximum of 2 credit hours). Introduction to basic conditioning and weight training techniques for tennis.

PE 115. Volleyball Conditioning/Weight Training. 1 Hour.

(May be repeated for a maximum of 2 credit hours). Introduction to basic conditioning and weight training techniques for volleyball.

PE 116. Wrestling Conditioning/Weight Training. 1 Hour.

(May be repeated for a maximum of 2 credit hours). Introduction to basic conditioning and weight training techniques for wrestling.

PE 117. Golf Conditioning and Weight Training. 1 Hour.

This strength and conditioning course is an introduction to safety, technique, skill, and physical fitness involved in sports specific strength training and conditioning.

PE 118. Swim Conditioning/Weight Training. 1 Hour.

(May be repeated for a maximum of 2 credit hours). Introduction to basic conditioning and weight training techniques for swimming.

PE 119. Track and Field Weight Conditioning. 1 Hour.

(May be repeated for a maximum of 2 credit hours). Introduction to basic weight training techniques for track and field.

PE 120. Canoeing. 1 Hour.

(May be repeated for a maximum of 2 credit hours). PR: Swimming skill. Types of canoeing strokes, life-saving techniques for recreational canoeing.

PE 121. Zumba. 1 Hour.

(May be repeated for a maximum of 2 credit hours). Fuses various fast and slow Latin rhythms and movements with resistance training to create dynamic fitness routine, balance, and introduces breathing techniques to increase energy and focus.

PE 122. Billiards. 1 Hour.

(May be repeated for a maximum of 2 credit hours). Introduction to beginning knowledge and skills in billiards.

PE 124. Fitness Walking. 1 Hour.

(May be repeated for a maximum of 2 credit hours). This course provides a supervised walking program in a safe, enjoyable environment. Classes meet ACSM guidelines for safe, effective classes. Includes warm-up, cardiovascular segment, cool-down, and stretch.

PE 125. Aerobics. 1 Hour.

(May be repeated for a maximum of 2 credit hours). Introduction to beginning knowledge and skills in aerobics.

PE 126. Aquatic Aerobics. 1 Hour.

(May be repeated for a maximum of 2 credit hours). Introduction to beginning knowledge and skills in aquatic aerobics.

PE 129. Spinning. 1 Hour.

(May be repeated for a maximum of 2 credit hours). This course provides a supervised, indoor cycling program in a safe, enjoyable environment. Classes meet ACSM (American College of Sports Medicine) guidelines for safety and effectiveness. Includes a warm-up, cardiovascular segment, cool-down, and stretch.

PE 130. Flag Football. 1 Hour.

(May be repeated for a maximum of 2 credit hours). Introduction to beginning knowledge and skills in flag football.

PE 131. Frisbee. 1 Hour.

(May be repeated for a maximum of 2 credit hours). Introduction to beginning knowledge and skills in frisbee.

PE 133. Beginning Archery. 1 Hour.

(May be repeated for a maximum of 2 credit hours). Introduction to beginning knowledge and skills in archery.

PE 135. Horsemanship 1. 1 Hour.

(May be repeated for a maximum of 2 credit hours). Introduction to beginning knowledge and skills in horsemanship.

PE 136. Horsemanship 2. 1 Hour.

(May be repeated for a maximum of 2 credit hours). Introduction to intermediate and advanced knowledge in horsemanship.

PE 137. Ice Skating. 1 Hour.

(May be repeated for a maximum of 2 credit hours). Introduction to beginning knowledge and skills in ice skating.

PE 143. Intermediate Ice Skating. 1 Hour.

(May be repeated for a maximum of 2 credit hours). Introduction to intermediate/advanced knowledge and skills in ice skating. For students with some previous skating experience.

PE 145. Karate. 1 Hour.

(May be repeated for a maximum of 2 credit hours). Introduction to beginning knowledge and skills in karate.

PE 146. Self-Defense. 1 Hour.

(May be repeated for a maximum of 2 credit hours). Introduction to beginning knowledge and skills in self-defense.

PE 149. Tae Kwon Do. 1 Hour.

(May be repeated for a maximum of 2 credit hours). Introduction to beginning knowledge and skills in tae kwon do.

PE 150. Martial Arts Fitness. 1 Hour.

(May be repeated for a maximum of 2 credit hours). Introduction to beginning knowledge and skills in martial arts fitness.

PE 151. Advanced Tae Kwon Do. 1 Hour.

(May be repeated for a maximum of 2 credit hours). This course builds on the techniques learned in PE 149, and introduces additional skills into practice and free sparring.

PE 152. Beginning Kickboxing. 1 Hour.

(May be repeated for a maximum of 2 credit hours). An introduction to the popular martial art and competitive sport of kickboxing. Emphasis is given to building flexibility and strength, the foundations of powerful kicking and punching techniques.

PE 153. Yoga for Fitness. 1 Hour.

(May be repeated for a maximum of 2 credit hours). This course introduces the student to basic yoga techniques that can be practiced as a way of developing a wide variety of sports.

PE 154. Racquetball. 1 Hour.

(May be repeated for a maximum of 2 credit hours). Introduction to beginning knowledge and skills in racquetball.

PE 157. Slow Pitch Softball. 1 Hour.

(May be repeated for a maximum of 2 credit hours). Introduction to beginning knowledge and skills in slow pitch softball.

PE 158. Indoor Soccer. 1 Hour.

(May be repeated for a maximum of 2 credit hours). Introduction to beginning knowledge and skills in indoor soccer.

PE 159. Soccer. 1 Hour.

(May be repeated for a maximum of 2 credit hours). Introduction to beginning knowledge and skills in soccer.

PE 160. Beginning Tennis. 1 Hour.

(May be repeated for a maximum of 2 credit hours). Introduction to beginning knowledge and skills in tennis.

PE 161. Tennis. 1 Hour.

(May be repeated for a maximum of 2 credit hours). Introduction to basic knowledge and skills for people who are familiar with tennis.

PE 162. Intermediate Tennis. 1 Hour.

(May be repeated for a maximum of 2 credit hours.) Introduction to intermediate/ advanced knowledge and skills in tennis.

PE 164. Weight Training. 1 Hour.

(May be repeated for a maximum of 2 credit hours). Introduction to beginning knowledge and skills in weight training.

PE 165. Conditioning. 1 Hour.

(May be repeated for a maximum of 2 credit hours). Introduction to beginning knowledge and skills in conditioning.

PE 167. Floor Hockey. 1 Hour.

(May be repeated for a maximum of 2 credit hours). Basic concepts and instructional techniques for learning floor hockey skills.

PE 168. Introductory Ice Hockey. 1 Hour.

(May be repeated for a maximum of 2 credit hours). Introduction to knowledge and skills of Ice Hockey. Students should have some previous skating experience.

PE 169. Outdoor Navigation and Survival. 1 Hour.

(May be repeated for a maximum of 2 credit hours). The objective of this course is to provide a comprehensive overview of outdoor navigation and survival techniques.

PE 170. Volleyball. 1 Hour.

(May be repeated for a maximum of 2 credit hours). Introduction to beginning knowledge and skills in volleyball.

PE 172. Cycling Basics. 1 Hour.

(May be repeated for a maximum of 2 credit hours). Provides a comprehensive overview of the activity of cycling. The course content will address the equipment, skills, and knowledge necessary to safely participate in the life-long activity of cycling for fitness and sport.

PE 173. Beginning Swimming. 1 Hour.

(May be repeated for a maximum of 2 credit hours). Introduction to beginning knowledge and skills in swimming.

PE 174. Intermediate Swimming. 1 Hour.

(May be repeated for a maximum of 2 credit hours). Introduction to intermediate knowledge and skills in swimming.

PE 175. Lifeguard Training. 2 Hours.

(May be repeated for a maximum of 2 credit hours). Red Cross certification for lifeguards.

PE 176. Advanced Swimming. 1 Hour.

(May be repeated for a maximum of 2 credit hours). Introduction to advanced knowledge and skills in swimming.

PE 179. Orientation to Scuba. 1 Hour.

(May be repeated for a maximum of 2 credit hours). Introduction to beginning knowledge and skills in scuba diving.

PE 181. Rock Climbing Basics. 1 Hour.

(May be repeated for a maximum of 2 credit hours). This course provides an overview of the activity of rock climbing. The course content will address the equipment, skills, and knowledge necessary to safely participate in the activity of rock climbing on a top-rope system.

PE 182. Bowling. 1 Hour.

(May be repeated for a maximum of 2 credit hours). Introduction to beginning knowledge and skills in bowling.

PE 183. Wilderness First Aid Basics. 1 Hour.

(May be repeated for a maximum of 2 credit hours). The objective of this course is to provide students with the knowledge and skills necessary to manage emergency medical situations when they occur in a delayed-help and/or wilderness setting.

PE 184. Snow Sport Basics. 1 Hour.

(May be repeated for a maximum of 2 credit hours). The objective of this course is to provide students with a comprehensive overview of several common snow sports including downhill snow skiing, snowboarding, and Nordic skiing.

PE 187. Golf. 1 Hour.

(May be repeated for a maximum of 2 credit hours). The course is designed to introduce students to the rules, skills, and strategies involved in golf.

PE 201. Pilates. 1 Hour.

(May be repeated for a maximum of 2 credit hours). Introduces students to basic techniques, postures, and controlled breathing designed to build core strength, improve flexibility, and increase physical fitness in a non-competitive atmosphere.

PE 202. Intermediate Yoga. 1 Hour.

(May be repeated for a maximum of 2 credit hours). PR: PE 153 or previous yoga experience. Emphasizes poses which build a combination of strength, flexibility, balance, and introduces breathing techniques to increase energy and focus. Moderately paced for students with previous yoga practice.

PE 203. Yoga for Health and Wellness. 1 Hour.

This course provides an introduction to yoga and yoga philosophy and encourages students to incorporate healthy lifestyles habits into their daily routines. This course has a positive impact on student's stress levels and outlook on life.

PE 206. Modified Indoor Tennis. 1 Hour.

Introduce students to the basic skills and techniques involved in playing Modified Indoor Tennis (Pickle ball).

PE 212. Confident City Cycling. 1 Hour.

Riding skills and crash avoidance maneuvers; how to control situations in traffic and ride confidently; bicycle maintenance; proper clothing and equipment selection; in classroom and on-bike instruction.

PE 214. Beginning Lacrosse. 1 Hour.

Introduces students to the basic skills and techniques involved in playing lacrosse.

PE 215. Intermediate Lacrosse. 1 Hour.

This course focuses on more advanced concepts and skills involved in the game of lacrosse for the experienced player.

PE 220. Striking and Field Games. 1 Hour.

This teaching games for understanding (TGfU) course is designed to introduce the students to the rules, skills, and strategies involved in playing striking and fielding games.

PE 221. Invasion Games. 1 Hour.

This teaching games for understanding(TGfU) course is designed to introduce the students to the rules, skills, and strategies involved in playing games where one invades their opponent's territory.

PE 223. Net and Wall Games. 1 Hour.

This teaching games for understanding (TGfU) course is designed to introduce the students to the rules, skills, and strategies involved in playing net and wall games.

PE 224. Enhancing Wellbeing. 1 Hour.

This course will help students recognize they are creative, resourceful and whole with the capability to optimize their wellbeing. Students will explore: self-responsibility and love, breathing, sensing, eating, moving, thinking, feeling, communication, intimacy, finding meaning, and transcending. Online resources and tools will be used to learn about each dimension, helping students set goals and create action steps.

PE 225. Dance Conditioning. 2 Hours.

The course provides the dance student with the tools to condition and maintain a healthy body. Through elementary anatomical vocabulary, basic theoretical concepts and experiential physical routines such as proper warm up and cross-training methodologies focused on dance, the student will acquire his/her own sequence and daily physical maintenance for dance.

PE 229. Fitness and Wellness. 2 Hours.

Basic concepts associated with the development and maintenance of physical activity. Exposure to local fitness opportunities. Engagement in health-promoting and wellness activities. Awareness and responsibility for the maintenance of health and physical well-being through physical activity.

PE 293. Special Topics. 1-6 Hours.

(May be repeated for a maximum of 2 credit hours). PR: Consent. Investigation of topics not covered in regularly scheduled courses.

PE 493. Special Topics. 1-6 Hours.

(May be repeated for a maximum of 2 credit hours). PR: Consent. Investigation of topics not covered in regularly scheduled courses.

PET 101. Games in American Culture. 3 Hours.

Examination of how the social history of a variety of American physical games has impacted their development and conversely how the games have impacted American society.

PET 124. Human Body: Structure and Function. 2 Hours.

Overview of the structure and function of the organ systems in the human body. Topics covered include the skeletal, muscular, nervous, digestive, respiratory, and cardiovascular systems.

PET 125. Principles of Human Movement. 2 Hours.

PR: PET 124. This course is designed to introduce prospective physical educators to the principles of human movement. Pre-requisite(s) and/or co-requisite(s) may differ on regional campuses.

PET 167. Introduction to Physical Education. 3 Hours.

Overview of physical education teaching profession including career opportunities, critical current issues/ trends, professional standards, and the professional organizations.

PET 175. Motor Development. 2 Hours.

To examine changes in human movement behavior across the lifespan, the processes that underline these changes, and the factors that contribute to those changes.

PET 228. Curriculum in Physical Education. 3 Hours.

PR: PET 101 and PET 124 and PET 125 and PET 167 and PET 175 and PET 244 and PET 276 and PR or CONC: PET 233 and PET 349 with a minimum grade of C- in all. Examination of curriculum and curriculum development; discussion of hidden curriculum issues in physical education.

PET 233. Pedagogy Theory and Application. 4 Hours.

PR: PET 101 and PET 124 and PET 125 and PET 167 and PET 175 and PET 244 and PET 276 and PR or CONC: PET 228 and PET 349 with a minimum grade of C- in all. Applied pedagogical theory, including assessment, planning, design, management, and delivery of instruction in physical education settings.

PET 244. Motor Learning and Performance. 2 Hours.

Introduction to principles related to teaching, learning, and performance of motor skills. Emphasizes the application of knowledge to teaching and learning strategies for motor-skill acquisition.

PET 276. Special Physical Education. 2 Hours.

Examines motor developmental characteristics of various handicapped groups and emphasizes physical education role in remediating possible developmental deficiencies.

PET 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

PET 324. Water Safety Instructorships. 2 Hours.

PR: Senior Lifesaving Certification. Teaching methods in swimming and water safety. Meet American Red Cross certification standards. Course completion carries eligibility for teaching swimming, lifesaving, and water safety.

PET 346. Teaching Physical Activities 1. 3 Hours.

PR: PET 350 and PET 369 and PET 379 and PR or CONC: PET 347 and PET 441 with a minimum grade of C- in all. Basic concepts and instructional techniques for teaching softball, floor hockey and flag football in public schools.

PET 347. Teaching Physical Activities 2. 3 Hours.

PR: PET 350 and PET 369 and PET 379 and PR or CONC: PET 346 and PET 441 with a minimum grade of C- in all. Basic concepts and instructional techniques for teaching soccer, basketball and volleyball in public schools.

PET 349. Health-Optimizing Physical Education. 3 Hours.

PR: PET 124 and PET 125 and PET 167 and PET 175 and PET 244 with a minimum grade of C- in all. Introduction to the foundations and components of health-related fitness, appropriate curriculum for K-12 programming, effective teaching principles, and assessment of physical activity and fitness.

PET 350. Teaching Primary Physical Education. 2 Hours.

PR: PET 124 and PET 125 and PET 167 and PET 175 and PET 244 with a minimum grade of C- in all. This course introduces prospective physical education teachers to the unique needs and characteristics of young children. Particular emphasis will be placed on developmentally appropriate practices, effective teaching practices and principles, and observation and assessment in movement education. Students participate in clinical laboratory experiences involving young children.

PET 355. Teaching Aquatics. 1 Hour.

Basic concepts and instructional techniques for teaching aquatics in public schools. (Activity.).

PET 369. Teaching K-2 Physical Education. 3 Hours.

PR: PET 228 and PET 233 and PET 349 and PR or CONC: PET 350 and PET 379 with a minimum grade of C- in all. This course enables teacher candidates to plan, organize and conduct physical education instruction for children in K-2. Special emphasis placed on interacting with developmentally appropriate lesson content, learning how to teach and assess student learning.

PET 379. Teaching 3-5 Physical Education. 3 Hours.

PR: PET 228 and PET 233 and PET 349 and PR or CONC: PET 350 and PET 369 with a minimum grade of C- in all. This course enables teacher candidates to plan, organize, and conduct physical education instruction for children in 3-5. Students learn how to interact with developmentally appropriate lesson content and how to teach and assess student learning.

PET 410. Laboratory in Pre-School Physical Education. 1-6 Hours.

Applied clinical experience in a physical activity program, which focuses on developing the motor skills of young children. Students can choose between land-based or water-based learning environments. Open to all majors.

PET 441. Technology in Physical Education. 3 Hours.

PR: PET 124 and PET 125 and PET 167 and PET 175 and PET 244 with a minimum grade of C- in all. Introduction to technology literacy with a focus on the effective use of technology in physical education settings. Application of technologies related to professional development, advocacy, planning and instruction, and assessment of student learning.

PET 447. Teaching Physical Activities 3. 3 Hours.

PR: PET 124 and PET 125 and PET 167 and PET 175 and PET 244 and PR or CONC: PET 449 with a minimum grade of C- in all. Basic concepts and instructional techniques for teaching pickleball, badminton, golf and disc games in public schools.

PET 449. Teaching Physical Activities 4. 3 Hours.

PR: PET 124 and PET 125 and PET 167 and PET 175 and PET 244 and PR or CONC: PET 447 with a minimum grade of C- in all. Basic concepts and instructional techniques for teaching aquatics, fitness, and dance in public schools.

PET 452. Teaching Outdoor Leisure Pursuits. 3 Hours.

Basic concepts and instructional techniques for teaching backpacking, orienteering, cycling, and leisure aquatic activities in public schools.

PET 477. Adapted Physical Education Practicum. 3 Hours.

PR: PET 346 and PET 347 and PET 441 and PR or CONC: PET 447 and PET 449 with a minimum grade of C- in all. A supervised practice teaching experience in adapted physical education.

PET 487. Student Teaching: K-5 Physical Education. 3 Hours.

PR or CONC: PET 488 and PET 489. A final, school-based practice teaching experience in elementary schools.

PET 488. Student Teaching: 6-12 Physical Education. 3 Hours.

PR or CONC: PET 487 and PET 489. A final, school-based practice teaching experience in secondary schools.

PET 489. Student Teaching Seminar. 2 Hours.

CoReq: PET 487 and PET 488. Discussions to enhance communication concerning the program's student teaching and stimulate critical thinking about the student teaching experience. (Seminar.).

PET 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

PET 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

PET 492. Directed Study. 1-3 Hours.

Directed study, reading, and/or research.

PET 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

PET 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

PET 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

PET 496. Senior Thesis. 1-3 Hours.

PR: Consent.

PET 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

PHAR 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

PHAR 199. Orientation to Pharmacy 1-2 Hr. 1,2 Hour.

Orientation to degree programs and requirements, departmental resources, curriculum options, student responsibilities, and opportunities.

PHAR 497. Research. 1-6 Hours.

PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation.

PHAR 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

PHIL 100. Problems of Philosophy. 3 Hours.

An elementary examination of such philosophical problems as the mind-body problem, the existence of God, freedom and determinism, and the nature of persons and their knowledge.

PHIL 120. Introduction to Ethics. 3 Hours.

Topics include the nature of the good life, whether ethics is relative or there are universal moral truths, the relationship between self-interest and morality, virtues and vices, and the nature of right and wrong.

PHIL 130. Current Moral Problems. 3 Hours.

An examination of current moral problems. Topics include some of the following: abortion, euthanasia, sexism and sexual equality, preferential treatment, animal rights, sexual morality, pornography, economic justice, paternalism, punishment, and nuclear deterrence.

PHIL 140. Historical Introduction to Philosophy. 3 Hours.

An introductory survey of the major philosophers and philosophical movements from ancient times to the present.

PHIL 147. Philosophy and Film. 3 Hours.

An introduction to philosophical questions and problems through the medium of film. Questions emphasized and films viewed will vary by semester and instructor.

PHIL 170. Introduction to Critical Reasoning. 3 Hours.

An elementary study of critical thinking and reasoning. For students who want to improve their skills in recognizing fallacious patterns of reasoning, constructing acceptable arguments, and criticizing faulty lines of reasoning.

PHIL 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

PHIL 212. Philosophy of Sport. 3 Hours.

Compare and evaluate issues, ideas and arguments on the Nature of Sport, Aesthetic value in Sport, and Ethics in Sport. The course also explores the history and language of sport as it relates to understanding Sport.

PHIL 244. History of Ancient Philosophy. 3 Hours.

PR: 3 hours in philosophy. An introduction to the philosophies of the pre-Socratics, Plato, Aristotle, the Epicureans, and the Stoics.

PHIL 248. History of Modern Philosophy. 3 Hours.

PR: 3 hours in philosophy. A study of selected writings by major philosophers of the Western world from Descartes to Kant.

PHIL 260. Introduction to Symbolic Logic. 3 Hours.

An introduction to modern symbolic logic (basically, propositional logic and the predicate calculus) for students who want to acquire the skill to represent symbolically the form of deductive arguments and to test formally for validity.

PHIL 285. Ethics Bowl. 3 Hours.

PR: PHIL 100. (May be repeated for a maximum of 9 credit hours.) Students learn skills related to researching, planning, and presenting oral and written arguments on various contemporary ethical debates. Students also prepare to compete in an ethics bowl competition.

PHIL 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

PHIL 301. Metaphysics. 3 Hours.

PR: 3 hours of philosophy. Traditional problems associated with reality and experience, universals and particulars, causality, space and time, matter and mind, and the nature of the self.

PHIL 302. Theory of Knowledge. 3 Hours.

PR: 3 hours of philosophy. The nature and scope of human knowledge. Topics may include perception, belief, truth, evidence, certainty, and skepticism.

PHIL 306. Philosophy of Mind. 3 Hours.

PR: 3 hours of philosophy or psychology major. Topics to be selected from: the mind-body problem, psychological explanation, psychology and the neurosciences, personal identity, consciousness, artificial intelligence, mental representation, emotions intentionality, folk psychology, and other minds.

PHIL 308. Philosophy of Religion. 3 Hours.

PR: 3 hours of philosophy or religious studies interdepartmental major. Examines questions of belief in God's existence, life after death, the problem of evil, determinism and divine fore knowledge, or other topics bearing upon the nature of a religious orientation to life.

PHIL 310. Philosophy of Science. 3 Hours.

PR: 3 hours philosophy or science major. Philosophical problems associated with the concepts and methodology of science.

PHIL 312. Philosophy of Language. 3 Hours.

PR: PHIL 100 or PHIL 120 or PHIL 130 or PHIL 140 or PHIL 170 or PHIL 212 or PHIL 260. An Introduction to the philosophical study of language focusing on questions and puzzles about reference, meaning, truth and necessity.

PHIL 314. Philosophy of Sex and Gender. 3 Hours.

PR: PHIL 100 or PHIL 130 or PHIL 170 or WGST 170. An examination of historical and contemporary philosophical debates about the nature of and ethical issues related to sex, gender, and sexuality. Topics covered include the nature of biological sex, the construction of gender, historical and contemporary works in feminist philosophy, and the ethics of sexual activities such as prostitution.

PHIL 315. Free Will and Moral Responsibility. 3 Hours.

PR: 3 hours of philosophy. Examines the concept of free will and the question of whether human beings are free in a way that allows them to be responsible for their behavior. Topics include the compatibility of freedom and determinism, the relationship between free will and moral responsibility, whether social factors and psychological impairments undermine freedom and responsibility, and the relationship between responsibility and punishment.

PHIL 321. Ethical Theory. 3 Hours.

PR: 3 hours of philosophy. Topics to be selected from the following: an examination of major ethical theories, justification in ethics, moral truth, ethical skepticism, moral rights and duties, and the meaning of ethical concepts.

PHIL 323. Social and Political Philosophy. 3 Hours.

PR: 3 hours philosophy or political science major. An examination of the relationships among the individual, society and the state. Possible topics include justifications of the state, justice, rights, liberty, equality, and arguments for socialism and capitalism.

PHIL 325. Philosophy of Law. 3 Hours.

PR: 3 hours of philosophy or pre-law student. An introduction to the philosophical study of law; topics to be selected from: theories of the nature of law, legal obligation, responsibility, punishment, free speech, paternalism, legal moralism, and legal ethics.

PHIL 331. Health Care Ethics. 3 Hours.

PR: 3 hours philosophy or pre-med or health sciences student. Topics: Clinician- patient relationship, life-sustaining treatment, physician assisted death, physician-nurse conflicts, confidentiality, research, reproductive technology, abortion, maternal/fetal conflicts, genetics, rationing, and access.

PHIL 346. History of Ethics. 3 Hours.

PR: 3 hours philosophy. An examination of such issues as the nature of the good life, the just society, and our moral responsibilities. Such major philosophers as Plato, Aristotle, Aquinas, Kant, and Mill will be studied.

PHIL 351. Topics in Medieval Philosophy. 3 Hours.

PR: 3 hours of philosophy. Introduction to the philosophies of St. Augustine, St. Thomas Aquinas, Peter Abelard, William of Occam, and other selected figures from the Medieval period.

PHIL 354. Themes in Continental Philosophy. 3 Hours.

Nineteenth and twentieth-century French and German philosophers such as Hegel, Marx, Nietzsche, Heidegger, Habermas, Sartre, Foucault, Derrida; philosophers and themes will vary.

PHIL 355. Existentialism. 3 Hours.

PR: 3 hours of philosophy or literature course in existentialism. Survey of the major existentialist thinkers.

PHIL 360. Truth, Proof, and Possibility. 3 Hours.

PR: PHIL 260. Concepts of mathematical, philosophical, and modal logic, including the proof theory, soundness and completeness of standard propositional and first order logic, trivalent and intuitionistic logics, and semantics for quantified modal logic.

PHIL 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

PHIL 480. Capstone Seminar. 3 Hours.

PR: 12 Hours in Philosophy, 6 Hours of PHIL 300 or higher. Advanced philosophical investigation of selected problems and/or major philosophers.

PHIL 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

PHIL 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours). Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

PHIL 492. Directed Study. 1-3 Hours.

Directed study, reading, and/or research.

PHIL 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

PHIL 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

PHIL 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

PHIL 496. Senior Thesis. 1-3 Hours.

PR: Consent.

PHIL 497. Research. 1-6 Hours.

Independent research projects.

PHIL 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

PHSC 101. Introductory Physical Science 1. 4 Hours.

(For Elementary Education majors only.) Emphasis on practicing reasoning abilities necessary to carry out simple scientific inquiry. Major concepts include properties of matter and astronomy. Majority of class time is spent in laboratory activities and solving problems using an activity-based approach.

PHSC 102. Introductory Physical Science 2. 4 Hours.

PR: PHSC 101. Continuation of PHSC 101. Concepts include electricity, motion, heat and temperature, energy, and chemistry.

PHSC 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

PHSC 490. Teaching Practicum. 1-3 Hours.

PR: PHYS 105 or consent. Teaching practice as a tutor or assistant. Opportunity to help teach an activity-based science course under the direction of experienced instructors. Emphasis on developing inquiry teaching skills useful for all levels of classroom instruction.

PHSC 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 Hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

PHSC 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

PHSC 496. Senior Thesis. 1-3 Hours.

PR: Consent.

PHSC 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

PHYS 101. Introductory Physics. 4 Hours.

PR or CONC: MATH 128 or MATH 129 or MATH 150 or MATH 153 or MATH 154 or MATH 155 or MATH 156 or consent or satisfactory performance on MATH departmental placement exam. The fundamental philosophy and principles of physics are applied to studies of mechanics, sound, heat, and thermodynamics through demonstrations, problems, and experiments. Pre-requisites and/or co-requisites may differ on regional campuses.

PHYS 102. Introductory Physics. 4 Hours.

PR: PHYS 101. The fundamental philosophy and principles of physics are applied to studies of electricity, magnetism, optics, light, and atomic and nuclear physics through demonstrations, problems, and experiments. Pre-requisite(s) and/or co-requisite(s) may differ on regional campuses.

PHYS 103. Physics 101 Lab Alternative. 1 Hour.

PR: PHYS 101 with a grade of C or higher. Laboratory component of survey of classical mechanics, thermodynamics and waves. (This lab is an alternative for students who transfer PHYS 101 without laboratory and need to complete the lab only).

PHYS 104. Physics 102 Lab Alternative. 1 Hour.

PR: PHYS 102 with a grade of C or higher. Laboratory component of survey of electricity, magnetism and optics. (This laboratory is an alternative for students who transfer PHYS 102 without laboratory and need to complete the lab only).

PHYS 105. Conceptual Physics. 4 Hours.

Basic principles of physics and their relationship to our modern technological society. Major topics include properties of matter, electricity, optics, motion, heat and temperature, and energy. Nonmathematical approach emphasized.

PHYS 107. Physics of Music. 3 Hours.

For all students including those in the liberal and fine arts. (No science or music prerequisites.) The physical and psychophysical principles underlying the nature, production, transmission, reception, and reproduction of sound.

PHYS 108. Light, Vision and Color. 3 Hours.

For all students including those in liberal and fine arts. Descriptive course emphasizing the basic principles of light with applications to color vision and optical phenomena in everyday environment and technology.

PHYS 111. General Physics. 4 Hours.

PR: MATH 155 with a grade of C or better or (MATH 153 with a grade of C or better and PR or CONC: MATH 154). Survey of classical mechanics, thermodynamics and waves.

PHYS 112. General Physics. 4 Hours.

PR: PHYS 111. Survey of electricity, magnetism, and optics.

PHYS 113. General Physics Honors. 1 Hour.

Additional honors hour companion course for Physics 111 in the spring semester and Physics 112 in the fall semester.

PHYS 114. Physics 111 Lab Alternative. 1 Hour.

PR: PHYS 111 with a grade of C or higher. Laboratory component of survey of classical mechanics, thermodynamics and waves. (This lab is an alternative for students who transfer PHYS 111 without laboratory and need to complete the lab only.).

PHYS 115. Physics 112 Lab Alternative. 1 Hour.

PR: PHYS 112 with a grade of C- or higher. Laboratory component of survey of electricity magnetism and optics. (This laboratory is an alternative for students who transfer PHYS 112 without a laboratory and need to complete the lab only).

PHYS 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

PHYS 199. Orientation to Physics. 1,2 Hour.

Orientation to degree programs and requirements, departmental resources, curriculum options, student responsibilities and opportunities.

PHYS 211. Introduction to Mathematical Physics. 3 Hours.

PR: MATH 251 and PHYS 112. Review of basic calculus with application to Physics; e.g. vector calculus and Maxwell's Equations, Fourier Series and the vibrating string, eigenvalues, eigenvectors and coupled oscillators. Complex algebra, linear algebra, differential equations, practical differential equations, Bessel functions, Legendre Polynomials, and Fourier Transforms.

PHYS 212. Oscillations and Thermal Physics. 3 Hours.

PR: PHYS 111 and PHYS 112 with a minimum grade of C- in each. Introduction to wave analysis of a variety of physical systems, as well as introductory thermodynamics. Topics covered include pendula, oscillatory circuits, mechanical and sound waves, Fourier series and transforms, the Doppler effect, heat transfer, gases, fluids, entropy and the basic elements of diffraction and apertures.

PHYS 225. Medical Imaging Physics. 3 Hours.

Introduces the physics of medical imaging and is intended for non-physics majors. The fundamental concepts and clinical applications of the major imaging techniques are presented. The subject matter is ideal for pre-med majors.

PHYS 290. Teaching Practicum. 1-3 Hours.**PHYS 293. Special Topics. 1-6 Hours.**

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

PHYS 301. Computational Physics. 3 Hours.

PR: MATH 261 and PHYS 314. Using basic numerical techniques to gain insight into physical systems. Numerical solutions for projectile motion, chaotic systems, and motion in a gravitational field (including N-body simulations). Numerical solutions to Maxwell's equations, the diffusion equation, the wave equation, Schrodinger's equation, and the hydrogen atom. Implementation of discrete Fourier Transforms and wavelet methods for analysis of time series.

PHYS 313. Introductory Electronics. 3 Hours.

PR: PHYS 111 and PHYS 112. Principles and applications of integrated circuits and digital electronics.

PHYS 314. Introductory Modern Physics. 4 Hours.

PR: PHYS 112 and MATH 156. Topics of modern physics of interest to science majors and engineers; atomic and molecular structure and spectra, solid state and nuclear physics, relativity, and elementary particles.

PHYS 315. Advanced Physics Problem Solving. 1 Hour.

PR: PHYS 314. Development of advanced problem solving techniques for all areas of physics. Topics covered include: mechanics, optics and waves, quantum mechanics, atomic physics, nuclear and particle physics, relativity and thermodynamics.

PHYS 321. Optics. 3 Hours.

PR: PHYS 111 and PHYS 112 and MATH 156. A basic course in physical optics covering wave mathematics, propagation, polarization, interference, and diffraction; applications in geometrical optics and selected topics in scattering and quantum optics.

PHYS 325. Atomic Physics. 3 Hours.

PR: PHYS 314. Relativistic mechanics, atomic structure, and spectra.

PHYS 331. Theoretical Mechanics 1. 3 Hours.

PR: PHYS 111 and PHYS 112 or equiv. PR or Conc: MATH 261. Scalar, vector, and tensor fields; curvilinear coordinate systems. Kinematics and dynamics of particles, systems of particles and rigid bodies.

PHYS 332. Theoretical Mechanics 2. 3 Hours.

PR or CONC: MATH 261 and PHYS 331 or equivalent. Scalar, vector, tensor fields; curvilinear coordinate systems. Lagrangian and Hamiltonian formulation. Relativistic motion.

PHYS 333. Electricity and Magnetism 1. 3 Hours.

PR: PHYS 111 and PHYS 112 or equiv. and PR or Conc.: MATH 261. Electrostatics, electrostatics in matter, magnetostatics, magnetostatics in matter.

PHYS 334. Electricity and Magnetism. 3 Hours.

PR or CONC: PHYS 333 or equiv. and MATH 261. Maxwell's equations, reflection and refraction, wave guides and cavities.

PHYS 340. Experimental Space Physics. 3 Hours.

PR: PHYS 112. Laboratory course consisting of an experimental project designed to acquaint students with current techniques for the design and construction of scientific payloads for suborbital and orbital space missions.

PHYS 341. Advanced Laboratory. 1-3 Hours.

PR: PHYS 111 and PHYS 112 and PHYS 314. Experiments in physics designed to complement theory courses, give experience in data taking and instrumentation, and learn methods of data evaluation and error analysis.

PHYS 376. Research Methods. 3 Hours.

PR: PHYS 112 and PR or CONC: ARSC 220. An introduction to the tools and mathematics that scientists use to solve scientific problems. Mathematical modeling, experimental design, hypothesis formulation, data collection, use of statistics, reading and evaluating the scientific literature, writing and reviewing scientific papers, and oral presentation of scientific research.

PHYS 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly schedule courses.

PHYS 451. Introductory Quantum Mechanics. 3 Hours.

PR: PHYS 314 and MATH 261. Fundamental principles of quantum mechanics; wave functions in position and momentum space, operators, Schrodinger's equation, applications to one-dimensional problems, approximation methods, the hydrogen atom, angular momentum and spin.

PHYS 452. Quantum Mechanics 2. 3 Hours.

PR: PHYS 451 and MATH 261. Angular momentum operators, including spin, and time-dependent perturbation theory. Applications of quantum mechanics, including the properties of atoms (hydrogen and multi-electron atoms), molecules, solids, identical particles of atoms (hydrogen and multi-electron atoms), molecules, solids, identical particles (e.g. black-body spectrum, Bose-Einstein condensation, and the free electron gas), and quantum effects of adiabatic changes.

PHYS 461. Thermodynamics and Statistical Mechanics. 3 Hours.

PR: PHYS 314 or equiv and MATH 251. Introduction to the statistical foundations of thermodynamics; applications of the fundamental laws of thermodynamics to physical and chemical systems.

PHYS 463. Nuclear Physics. 3 Hours.

PR: PHYS 314 and MATH 251. Study of characteristic properties of nuclei and their structure as inferred from nuclear decays and reactions, leading to a knowledge of nuclear forces and models.

PHYS 471. Solid State Physics. 3 Hours.

PR: PHYS 314 or equiv and MATH 251. Properties of crystalline solids; includes crystal structure, interatomic binding, lattice vibrations, electron theory of metals, and the band theory of solids with some applications.

PHYS 481. Plasma Physics. 3 Hours.

PR: PHYS 111 and PHYS 112 and PR or Conc: PHYS 334. Introductory course in the physics of ionized gases; particle and fluid treatment of plasmas, waves, equilibrium and stability, kinetic theory, and nonlinear effects.

PHYS 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

PHYS 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 Hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

PHYS 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

PHYS 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

PHYS 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

PHYS 496. Senior Thesis. 1-3 Hours.

PR: Consent.

PHYS 497. Research. 1-6 Hours.

PR: Consent. Independent research projects.

PHYS 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study, or research.

PLSC 105. Plants and People: Past and Present. 3 Hours.

A course focused on exploring the interaction between plants and humans, and the impact plants have had, and have on human society.

PLSC 140. Sustainable Living. 3 Hours.

Explores the personal, social, economic, and environmental aspects of making sustainable choices. Sustainability principles and practices are discussed along with assessments of consumption and lifestyle decisions. Also listed as DSGN 140 and RESM 140.

PLSC 206. Principles of Plant Science. 4 Hours.

Anatomy, morphology, and physiology of higher plants. Study of growth and development of economically important plants, their culture, and products.

PLSC 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

PLSC 444. Western European Gardens, Landscapes and Architecture. 6 Hours.

This is a travel course that includes visits to Belgium, France, Netherlands and Germany and focuses on a variety of environments- urban, agricultural/ rural, and natural. Major cities in the travel experience may include Brussels, Paris, and Amsterdam. The core work of the course consists of a journal/ sketchbook. (Also listed as LARC 444.).

PLSC 453. Organic Crop Production. 3 Hours.

PR: PLSC 206 and AGRN 202 and AGRN 203 or consent. Principles, practices, history, philosophy, and economics of organic farming and gardening. The National Organic Rule, farm certification, crop/livestock systems and international organic production. (Students may not receive credit for both PLSC 453 and PLSC 553).

PLSC 460. Plant Biochemistry. 3 Hours.

PR: (CHEM 231 or (CHEM 233 and CHEM 234)) and BIOL 219 or consent. Study of the biochemical processes and biosynthetic pathways leading to the formation of desirable plant products such as those used in food, feed, fiber, fuel and medicinal applications. (Credit cannot be received for both PLSC 460 and PLSC 560).

PLSC 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

PLSC 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

PLSC 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

PLSC 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

PLSC 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

PLSC 496. Senior Thesis. 1-3 Hours.

PR: Consent.

PLSC 497. Research. 1-6 Hours.

PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.).

PLSC 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

PLSC 499. Global Service Learning. 1-3 Hours.

PR: Consent. Theory and practice of global service learning. The main objective will be to pair the experiential aspects of meaningful and sustained service in the host community with work from the student's anchor course by offering a methodological framework for cultural immersion and community service as well as adding to the content of the anchor course.

PNGE 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

PNGE 200. Introduction to Petroleum Engineering. 3 Hours.

PR: Sophomore standing. Introduction; origin, migration, and accumulation of petroleum; reservoir fluids properties; properties of reservoir rocks; exploration; drilling technology; reservoir engineering; well completions; production engineering. Open to all students.

PNGE 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

PNGE 297. Research. 1-6 Hours.

Independent Research projects.

PNGE 300. Transport Phenomena in Petroleum Engineering. 3 Hours.

PR: MAE 241. Introduction to fluid flow in pipes, two-phase flow, rotary drilling hydraulics, primary cementing jobs, flow calculations, flow measuring devices, fluid machinery, dimensional analysis, and heat transfer.

PNGE 310. Drilling Engineering. 4 Hours.

PR: GEOL 101 and MAE 331. Rock properties, functions and design considerations of rotating system, hoisting system, and circulation system; drilling fluids calculations and selections; hydraulic programs; drilling optimization; casing string design; cementing programs; and pressure control.

PNGE 312. Drilling Fluids Laboratory. 1 Hour.

PR or Conc: PNGE 310. Topics include clay hydration, viscosity of water-based fluids, mud weight control, filtration studies, thinning agents, chemical contaminants, lime muds, polymer muds, rheological models, and liquid and solid determination.

PNGE 332. Petroleum Properties and Phase Behavior. 3 Hours.

PR: PNGE 200 and CHEM 116 and (ENGL 102 or ENGL 103). Theoretical and applied phase behavior of hydrocarbon system and hydrocarbon fluids. Applications to petroleum reservoirs and production engineering design. (2 hr. lec., 3 hr. lab.).

PNGE 333. Basic Reservoir Engineering. 3 Hours.

PR: PHYS 112 and MAE 331. Basic properties of petroleum reservoir rocks. Fluid flow through porous materials. Evaluation of oil and gas reserves.

PNGE 400. Petroleum Engineering Ethics. 1 Hour.

PR: PNGE 450 or consent. Introduction to petroleum and natural engineering ethics and moral issues concerning safety in engineering practice as well as those arising for engineers employed by corporations. Professionalism and professional registration.

PNGE 405. Multidisciplinary Team Project. 1 Hour.

PR: PNGE 434 and PNGE 470. Introduction to the need to seek input from other professionals, incorporate constraints imposed by other disciplines in solving petroleum and natural gas engineering design problems, and working with other professionals in a multi-disciplinary team.

PNGE 415. Well Control. 3 Hours.

PR: PNGE 310. Methods, techniques, equipment, and engineering calculations used in the control of oil and natural gas wells during drilling operations. Practical applications with rig floor simulator.

PNGE 420. Production Engineering. 3 Hours.

PR: PNGE 310 and PNGE 332. Well completion, performance of Productive formulation, drill stem tests, completion of wells, flowing wells, gas lift methods and equipment, pumping installation design, well stimulation, emulsions, treating, gathering, and storage of oil and gas, field automation. (3 hr. lec.).

PNGE 432. Petroleum Reservoir Engineering Laboratory. 1 Hour.

PR or Conc: PNGE 333. Laboratory evaluation of basic and special petroleum reservoir rock properties. (3 Hr. lab.).

PNGE 434. Applied Reservoir Engineering. 3 Hours.

PR: MATH 261 and PNGE 333 and PR or Conc: STAT 215 or IENG 213. Application of reservoir engineering data to calculation of recovery potentials and prediction of reservoir performance under a variety of production methods to effect maximum conservation.

PNGE 441. Oil and Gas Property Evaluation. 3 Hours.

PR: PNGE 333 and PR or Conc: PNGE 420 or consent. Reserve estimation decline analysis, petroleum property evaluation, including interest calculations, cost estimation and tax evaluation. Overview investment decision analysis and computer applications in property evaluation.

PNGE 450. Formation Evaluation. 3 Hours.

PR: PNGE 310 and PR or Conc: EE 221 or consent. Various well logging methods and related calculations with exercises in interpretation of data from actual well logs.

PNGE 460. Well Stimulation Design. 3 Hours.

PR: (MAE 243 and PNGE 420 and PNGE 333) or consent. Fundamentals of well stimulation and treatment design and their applications to low permeability formations.

PNGE 463. Horizontal Drilling. 3 Hours.

PR: MATH 261 and MAE 243 with a minimum grade of C- and PNGE 310 with a minimum grade of C. Fundamental concepts of horizontal drilling technology are introduced, which include (1) application of directional drilling, (2) design of directional well trajectory, (3) determination of well trajectory from survey data, (4) methods and tools of controlling wellpath while drilling, (5) calculation of torque and drag force in drillstring design, (6) application of geomechanics in directional drilling, and (7) borehole stability analysis.

PNGE 470. Natural Gas Engineering. 4 Hours.

PR: PNGE 333 and PR or Conc: MAE 320. Natural gas properties, compression, transmission, processing, and application of reservoir engineering principles to predict the performance and design of gas, gas-condensate, and storage reservoirs. Includes a laboratory devoted to gas measurements. (3 hr. lec, 3 hr. lab.).

PNGE 471. Natural Gas Production and Storage. 3 Hours.

PR: PNGE 470. Development of gas and gas-condensate reservoirs; design and development of gas storage fields in depleted gas, gas-condensate, oil reservoirs and aquifers.

PNGE 472. Shale Analytics. 3 Hours.

PR: PNGE 333 and PNGE 420. Combining domain expertise (reservoir and production engineering) with Artificial Intelligence and Machine Learning, this course introduces a new and realistic technology that avoids assumptions and interpretations in order to model the impact of completion, stimulation, and operational conditions on oil and gas production from the shale wells.

PNGE 480. Petroleum Engineering Design. 3 Hours.

PR: PNGE 420 and PNGE 434 and PNGE 441 and PR or Conc: PNGE 450. Comprehensive problems in design involving systems in oil and gas production, field processing, transportation, and storage.

PNGE 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

PNGE 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 Hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

PNGE 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

PNGE 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

PNGE 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

PNGE 496. Senior Thesis. 1-3 Hours.

PR: Consent.

PNGE 497. Research. 1-6 Hours.

Independent research projects.

PNGE 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

POLS 101. Introduction to Political Science. 3 Hours.

Introduction to government and politics. Origins, forms, and functions of the state; organization and processes of government; and the behavior of groups and individuals in various political systems.

POLS 102. Introduction to American Government. 3 Hours.

General survey of American national government and politics.

POLS 103. Global Political Issues. 3 Hours.

Analysis of issues in post-cold war international politics, ranging from traditional major power diplomacy and intervention to the newer problems of economic interdependence and development, human rights, population pressures on limited resources, and the environment.

POLS 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

POLS 199. Orientation to Political Science. 1,2 Hour.

Orientation to degree programs and requirements, departmental resources, curriculum options, student responsibilities and opportunities.

POLS 210. Law and the Legal System. 3 Hours.

Introductory course on the role of law in the political system. Includes a survey of subfields in United States law and an examination of participants, processes, and policy making in the United States legal system.

POLS 220. State and Local Government. 3 Hours.

The legal basis, structure, politics and operation of state and local governments, in the content of the American federal system.

POLS 230. Introduction to Policy Analysis. 3 Hours.

Examination of the causes and consequences of public policies. Substantive policies examined include: civil rights, housing, social services, environment, health, law enforcement, education, and taxation.

POLS 240. Introduction to Public Administration. 3 Hours.

The development, organization, and processes in governmental administration in the United States.

POLS 250. Introduction to Comparative Politics. 3 Hours.

An introduction to the political and governmental systems of industrialized and developing countries. Focuses on approaches to comparative political study, political cultures and participation, and government structures, processes, and policy performance.

POLS 260. Introduction to International Relations. 3 Hours.

Theories and concepts in international politics and their application to contemporary world politics.

POLS 261. Introduction to National Security. 3 Hours.

Introduction to theories related to security studies and national security. Includes discussions of intelligence, strategy, military operations, terrorism, and civil/military affairs, along with current events.

POLS 270. Concepts in Political Theory. 3 Hours.

Introduction to political theory using texts from antiquity through modernity. Themes include citizenship, power, justice, and political obligation.

POLS 271. History of Political Thought 2. 3 Hours.

Major political philosophers and ideas of the 17th, 18th, and 19th centuries, including Hobbes, Locke, Montesquieu, Rousseau, Burke, Bentham, Mill, Hegel, and Marx.

POLS 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

POLS 298. Honors. 1-3 Hours.

PR: Student in Honors Program and consent by the honors director. Independent reading, study or research.

POLS 300. Empirical Political Analysis. 3 Hours.

Designed to provide a basic understanding of how to read and conduct empirical political science research. Topics include research design, hypotheses testing, data collection, and statistical analysis. No prior knowledge of computers or statistics required.

POLS 301. Introduction to Intelligence Analysis. 3 Hours.

PR: POLS 260. A professionally-oriented survey of the history, logic, and methods of intelligence analysis as applied to policy-making in foreign policy and national security.

POLS 302. Intelligence Analysis Methods. 3 Hours.

PR: POLS 260 and POLS 301. An advanced course in the understanding and use of skills, processes, and tools currently used by intelligence analysts in the national security community.

POLS 310. American Presidency. 3 Hours.

Institutional, behavioral, and societal forces which have given rise to the modern presidency; factors which enhance and constrain the exercise of presidential power over those constituencies with which the president must interact; the nature and consequences of the presidential decision-making process; desirability and/or feasibility of reforming the presidency.

POLS 311. Political Parties & Elections. 3 Hours.

Parties and elections in America; emphasis on nomination and general election processes, campaigns, the mass media, campaign finance, voting, the electoral college, and parties in government.

POLS 312. Appellate Judicial Process. 3 Hours.

PR: POLS 210 or consent. The role of appeals courts and judges in American politics. Topics include appellate court organization and processes, the quantitative and qualitative analysis of judicial behavior, and the influence of courts on public policy.

POLS 313. American Constitutional Law. 3 Hours.

The role of the Constitution in the American political system. Topics include the political concept of constitutionalism; the role of the Supreme Court in the political process; division of powers among the three branches of government; and the constitutional relation between the national government and the states.

POLS 314. Civil Liberties in the United States. 3 Hours.

Issues in constitutional law concerning personal liberties against government action. Topics include free speech, press and association; religious freedoms; abortion; the right to privacy; due process of law; and criminal procedure safeguards.

POLS 315. Law and Public Policy. 3 Hours.

PR: POLS 210 or consent. Advanced examination of the role of trial courts in policymaking, including agenda-setting and policy formulation by courts, the outcomes of policy litigation, and the politics of legal reform.

POLS 316. Public Opinion and Politics. 3 Hours.

In-depth treatment of the origins, content, and impact of public opinion in American politics; political ideology, partisanship, socialization, mass media, opinion polls, and survey research techniques.

POLS 317. Interest Groups and Democracy. 3 Hours.

The role of interest groups in American politics, focusing on their distribution and internal dynamics, their involvement in campaigns and elections, their influence on public policy, and their place in a democratic system.

POLS 318. Legislative Process. 3 Hours.

Structure, organization and processes of legislative bodies; powers of the legislature; detailed study of law-making processes and procedures.

POLS 320. American Federalism and Policy. 3 Hours.

Examines the history and philosophical justification of federalism, the relationships among the federal, state and local levels of government, and the contemporary debate over what those governmental relationships should be in America today.

POLS 321. West Virginia Government. 3 Hours.

Organization and operation of the state government of West Virginia.

POLS 322. Race, Ethnicity & US Politics. 3 Hours.

Examines the influence of race and ethnicity on U.S. politics, including contemporary scientific research on minority politics. The focus is on African American politics, and, to a lesser extent, Latino or Hispanic politics, but other racial and ethnic groups are also discussed.

POLS 323. Religion & Politics. 3 Hours.

Examines how religion and religious institutions affect political outcomes and vice versa. The focus is on American politics, but the effects of religion on politics in other nations will also be discussed.

POLS 324. Sexuality, Law, and Politics. 3 Hours.

PR: Sophomore standing. Examines politically significant legal debates regarding sex, sexuality, sexual orientation, and gender identity, focusing primarily on the United States from the middle of the twentieth century to the present.

POLS 331. Criminal Law Policy and Administration. 3 Hours.

Legal and administrative approach to policy issues in criminal justice. Focuses on the criminal law, police, court decisions, and the implementation of law and policy in the criminal field.

POLS 332. Civil Society in Context. 3 Hours.

Classic theories of citizenship and organization and critical examination of contemporary dynamics of ethnicity, minority politics, and social reform.

POLS 333. Politics of Social Welfare. 3 Hours.

Questions of poverty and inequality: who are the poor; what causes economic inequality; what have been governmental and private solutions to the problem of poverty; and what successes and failures have there been in the war against poverty.

POLS 334. Politics of Economic Policy. 3 Hours.

An examination of U.S. economic policy, with an emphasis on the political considerations that influence policy development and implementation in government regulation, taxation, and spending.

POLS 335. Civil Rights, Policy, and Politics. 3 Hours.

Analysis of the law, politics, and policy related to discrimination in public accommodations, voting, education, housing and employment based on race, gender, national origin, handicapped status, and age.

POLS 337. Gender/Politics and Policy. 3 Hours.

Comparative study of how gender differences affect politics across the world. Emphasis on advanced industrial democracies. Topics include: political attitudes and behavior, gender differences in political recruitment, and the impact of gender on public policy.

POLS 338. Environmental Policy. 3 Hours.

Explores the formulation and implementation of environmental policy, using both a policy process approach and policy analysis. Includes a discussion of the scientific, technological, risk, economic, and political variables which affect policy making in this area.

POLS 339. National Security Analysis. 3 Hours.

Introduction to the analysis of national security issues. Examines historical development of defense and military policy, arms procurement and transfers, deterrence, the application of game theory, and intelligence analysis.

POLS 340. Social Movements in Fiction and Film. 3 Hours.

In this course, students engage social movement theory through a varied selection of novels and film, which are used to illustrate abstract concepts related to political activism. The course is organized around three central themes: identity politics and activism, networked social movements, and social movement outcomes. It emphasizes liberal social movements in the American political context.

POLS 342. Bureaucratic Politics. 3 Hours.

Analysis of the nature and processes of American public administration (political, legal, economic, and social), including the role of bureaucracy in a democracy.

POLS 344. Administrative Law. 3 Hours.

Administrative powers and limitations; procedures in administrative adjudication and rule-making; discretion, ultra vires as a check on administrators; notice and hearing; administrative penalties; judicial control; and administrative liability.

POLS 350. Government of Japan. 3 Hours.

Survey of political institutions and governmental processes in Japan with special emphasis on the analysis of political problems in the post-war period.

POLS 351. Russian and Post-Soviet Politics. 3 Hours.

PR: POLS 250 or POLS 260. Survey of the politics and government in Russia and post-Soviet states.

POLS 352. Politics of the European Union. 3 Hours.

PR: POLS 250. Examination of the evolution of European integration and the political and institutional dynamics of the contemporary European Union.

POLS 353. Western Democratic Governments. 3 Hours.

Cross-national and/or country based analysis of selected western democracies, such as Canada, Great Britain, France, Italy, and the European Union.

POLS 354. Government of China. 3 Hours.

Survey of political institutions and governmental process in the People's Republic of China with special emphasis on the analysis of political problems since 1949.

POLS 355. Governments of Latin America. 3 Hours.

Comparative study of the government and politics of the Latin American states.

POLS 356. Politics of the Middle East. 3 Hours.

Survey of the domestic and international political dynamics of the Middle East.

POLS 357. Comparative Law and Politics. 3 Hours.

An introduction to the comparative analysis of law and politics. Examines the forms of law, legal communities, judiciaries, and justice systems of polities other than the United States.

POLS 358. Politics of Africa. 3 Hours.

Historical legacies and current political processes of tropical African countries.

POLS 359. Politics of Terrorism. 3 Hours.

Terrorism is a method used against civilian population to affect political change. To understand this, the course will examine the ideology, history and tactics used of those engaged in violence.

POLS 360. International Political Economy. 3 Hours.

Analysis of the relationship between international relations and economics. Topics include free trade, globalization, regionalism, and development.

POLS 361. International Law and Institutions. 3 Hours.

Analysis of the development of international organizations, norms, and law, as well as the creation and functioning of the United Nations and the European Union.

POLS 362. Comparative Foreign Policy. 3 Hours.

PR: POLS 260. Introduction to comparative foreign policy focused on political structures and processes in advanced industrial democracies, transitional polities, and Third World states. Includes three weeks international system simulation.

POLS 363. International Law. 3 Hours.

Law governing relations among nations, including development of rules, means of enforcement, and conflict between theory and practice.

POLS 364. American Foreign Relations. 3 Hours.

PR: POLS 260 or consent. Examination of contemporary U.S. foreign policy and its historical, cultural, and domestic political roots. Substantive and theoretical issues in understanding foreign relations since WW II, including both continuity and change in the emerging post-cold war system.

POLS 365. Foreign Policy Decision-Making. 3 Hours.

PR: POLS 260. An advanced course examining the psychological and political dynamics by which decision-making formulates foreign policy with emphasis on American national security. Includes three weeks' simulation.

POLS 368. Politics of War and Peace. 3 Hours.

PR: POLS 260 or consent. Analysis of great power politics in the international system. Examination of theories of war, historical patterns of the balance of power, and origins of the 20th century's major conflicts: WW I, WW II, and the Cold War.

POLS 369. Far East International Affairs. 3 Hours.

International relations of countries of the Far East with emphasis on historic roots of recent conflicts, the roles of the United States and other major powers, confrontation between the countries in the region, and the regional cooperation and security problems in the post-World War II period.

POLS 370. Dictatorship and Democratization. 3 Hours.

Examines the politics of authoritarian rule by focusing on dictators and their demise. Compares current scholarship with real-world accounts of a variety of dictatorships, differentiating among governing strategies and long-term impacts. Students will gain the ability to analyze trends and outcomes, as well as comprehension of different approaches to the study of dictatorship.

POLS 371. History of Political Thought 2. 3 Hours.

Major political philosophers and ideas of the 17th, 18th, and 19th centuries, including Hobbes, Locke, Montesquieu, Rousseau, Burke, Bentham, Mill, Hegel, and Marx.

POLS 372. Modern Political Thought. 3 Hours.

Beginning with early Marxist thought, this course examines the evolution of the concepts of rights, justice, liberty, democracy, and equality from 1850 through the present, using the works of both classical and contemporary political theorists.

POLS 373. American Political Philosophy. 3 Hours.

Major American political ideas and their influence upon American society and government from the 17th century to the present.

POLS 374. Ancient Political Thought. 3 Hours.

Focuses on ancient Greek, Roman, and near-eastern political thought, while arguing for the contemporary relevance of ancient texts.

POLS 375. Psychological Theories of Politics. 3 Hours.

Introduction to rational choice theory and various psychological theories of politics; application of psychological theories to both international relations and American politics.

POLS 376. Contentious Politics. 3 Hours.

This course focuses on non-institutional forms of disruptive political behavior, including public demonstrations, riots, strikes, roadblocks, terrorism, and civil war. In studying these phenomena, the course explores what fuels "claim-making," the circumstances under which contentious political participation becomes more likely, and how movements organize. Case studies of current and recent contentious events are examined.

POLS 383. Debate. 3 Hours.

Intensive research and writing on policy options related to the annual intercollegiate debate topic. Research will focus on both the policy and political implications of enacting and implementing a variety of options.

POLS 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

POLS 450. Elections and Political Parties Around the World. 3 Hours.

Analyzes international election rules and their effects in theory and practice, addressing questions such as: How do groups make decisions? What are the advantages/disadvantages of different decision rules? What are the origins and functions of political parties? By the end of the term, students should hone their skills in the research process, fact-checking, cooperative learning, and public speaking.

POLS 452. European Union Law/Legal Systems. 3 Hours.

3 Hr. An introduction to the politics of law in Europe. Examines the forms of law, legal communities, judiciaries, and justice systems of the major European politics (Great Britain, France, and Germany.).

POLS 453. European Union Law/Institutions. 3 Hours.

3 Hr. An examination of the European Union with respect to the evolution of its legal framework, core decision making institutions, and current issues of constitutional prospects, further economic integration, and protection of human rights.

POLS 460. Gender and International Relations. 3 Hours.

PR: POLS 260. Focuses on how women affect and are affected by international conflict, development, and human rights issues, using a 'feminist' lens and methodology in studying international relations.

POLS 461. Transformation of War. 3 Hours.

The nature of war has changed significantly in the past half-century. This course examines the new aspects of violent conflict, specifically asymmetric war, insurgency, and Fourth Generation Warfare, through theory and case studies.

POLS 462. Intelligence Failures. 3 Hours.

Explores complicated attempts to understand what constitutes an intelligence failure and how policy, intelligence, and decision-makers approach these issues. Evaluates the validity of theories of intelligence failure in analyzing case studies.

POLS 484. Capstone: Build a Politics Podcast. 3 Hours.

PR: Political science major. Students work in teams to apply knowledge and skills they have gained as political science majors to creating podcast episodes that describe and explain political events or theories about politics to a broad audience. This course serves as a capstone for political science majors.

POLS 485. Great Books-American Politics. 3 Hours.

Allows students from all disciplines to explore the history, institutions, and major actors of the American political system and American politics by reading and studying important books and literature in the discipline.

POLS 487. Capstone: Senior Paper. 3 Hours.

One of three capstone options for Political Science majors. Students choosing this option undertake a faculty-supervised independent research project culminating in a written research paper and oral presentation at a faculty/student colloquium.

POLS 488. Capstone: Political Simulation. 3 Hours.

One of three capstone options for Political Science majors. Students choosing this option conduct research and participate in role-playing exercises through planned political simulations involving both U.S. politics and international relations.

POLS 489. Capstone: Citizenship Seminar. 3 Hours.

One of three capstone options for political science majors. Students choosing this option participate in a seminar focusing on the role of citizens in a democracy, with emphasis on experimental learning through civic participation.

POLS 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

POLS 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours). Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

POLS 491A. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours). Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

POLS 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

POLS 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

POLS 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

POLS 496. Senior Thesis. 1-3 Hours.

PR: Consent.

POLS 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

POLS 499. Global Service Learning. 1-3 Hours.

PR: Consent. Theory and practice of global service-learning. The main objective will be to pair the experiential aspects of meaningful and sustained service in the host community with work from the student's anchor course by offering a methodological framework for cultural immersion and community service as well as adding to the content of the anchor course.

PORT 101. Elementary Portuguese 1. 3 Hours.**PORT 102. Elementary Portuguese 2. 3 Hours.**

PR: PORT 101 or equivalent.

PORT 203. Intermediate Portuguese 1. 3 Hours.

PR: PORT 102 or equivalent.

PORT 204. Intermediate Portuguese 2. 3 Hours.

PR: PORT 203 or equivalent.

PORT 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

PORT 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

PORT 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours). Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

PORT 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

PORT 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

PORT 496. Senior Thesis. 1-3 Hours.

PR: Consent.

PORT 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

PPTH 401. General Plant Pathology. 4 Hours.

Nature and causes of plant diseases; methods of control.

PPTH 409. Nematology. 3 Hours.

Nematode biology, ecology, taxonomy, and control, with particular emphasis on plant parasitic forms.

PPTH 470. Forest Pest Management. 4 Hours.

PR: (FMAN 311 and BIOL 101 and BIOL 103 and PLSC 206) or BIOL 115 and BIOL 117. Relationship of insects and disease organisms to the forest ecosystem; recognition of agents that affect forest health; management strategies for regulating their damage. (Also listed as ENTO 470.).

PPTH 471. Urban Tree and Shrub Health. 1 Hour.

PR: PPTH 470 or ENTO 470 or PPTH 401 and ENTO 404. The unique problems associated with managing trees and woody shrubs in an urban environment will be observed and discussed; management options will be evaluated. (Also listed as ENTO 471).

PPTH 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

PPTH 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

PPTH 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

PPTH 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

PPTH 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

PPTH 496. Senior Thesis. 1-3 Hours.

PR: Consent.

PPTH 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study, or research.

PR 215. Introduction to Public Relations. 3 Hours.

Introduces the principles of public relations. Examines the definition and historical development, opportunities and challenges, and techniques and management of public relations. Students cannot receive credit for both PR 215 and either of ADV 215 or STCM 215, which are considered equivalent courses.

PR 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

PR 301. Writing for Public Relations. 3 Hours.

PR: JRL 101 and (PR 215 or ADV 215) with a minimum grade of C- in each and Public Relations minors only. Provides an introduction to writing for a wide range of public relations purposes. Students improve writing skills as they become prepared to effectively communicate with various audiences in multiple formats.

PR 319. Creative Design and Strategy. 3 Hours.

PR: STCM 215 or PR 215 or ADV 215 with a minimum grade of C- in each. Editing and production techniques for public relations media (brochures, reports, newsletters, etc.) including copy preparation, typography, graphic design, layout and desktop publishing.

PR 324. Public Relations Writing and Applications. 3 Hours.

PR: PR 319 or JRL 319. Writing, design, graphics, and desktop publishing as major tools of public relations practitioners and planners.

PR 333. Web Development. 3 Hours.

PR: STCM 215 or PR 215 or ADV 215 with a minimum grade of C- in each. Using the web in PR campaigns, hand-coding HTML, design concepts, layout, hyperlinks, images, tables, web production software, establishing and maintenance of web server account, uploading files.

PR 401. Applied Public Relations. 3 Hours.

PR: JRL 101 and (PR 215 or ADV 215) with a minimum grade of C- in each and Public Relations minors only. Covers in-depth case studies of public relations programs. Primary emphasis is placed on successful campaigns; however, unsuccessful efforts are also examined for causes of failure.

PR 410. Integrated Marketing Communications for Public Relations. 3 Hours.

PR: JRL 101 and (PR 215 or STCM 215 or ADV 215) with a minimum grade of C- in each. Describes the essential role of public relations in integrated marketing communication. Examines successful IMC campaigns and the campaign mindset as it applies to employee relations, government affairs, reputation management, corporate social responsibility, and more.

PR 412. IMC for Sport. 3 Hours.

PR: ADV 201 or ADV 215 or PR 215 or STCM 215 with a minimum grade of C-. Describes the essential role of public relations in integrated marketing communication using sport-specific examples to examine the attributes of successful IMC campaigns and the campaign mindset as it applies to sport promotion and communications.

PR 431. Promotion for Entertainment Media. 3 Hours.

PR: JRL 101 and (PR 215 or STCM 215 or ADV 215) with a minimum grade of C- in each and Entertainment Media minors only. This online course offers an exploration of the foundations of entertainment promotion and the various opportunities and channels available.

PR 432. Entertainment Media Branding. 3 Hours.

PR: JRL 101 and (PR 215 or STCM 215 or ADV 215) with a minimum grade of C- in each and Entertainment Media minors only. This course offers an examination of the issues facing entertainment brands with case studies that illuminate both successful and unsuccessful instances of entertainment branding.

PR 433. Entertainment Media Campaigns. 3 Hours.

PR: JRL 101 and (PR 215 or STCM 215 or ADV 215) with a minimum grade of C- in each and Entertainment Media minors only. This course offers students the opportunity to apply accumulated knowledge to various real-world entertainment promotional campaigns via case studies.

PR 436. Event Planning. 3 Hours.

PR: JRL 101 and (PR 215 or STCM 215) with a minimum grade of C- in each and Event Planning minors only. This course offers an exploration of the foundations of event planning including an examination of the uses and purposes of events to clients.

PR 437. Event Promotion. 3 Hours.

PR: JRL 101 and (PR 215 or STCM 215) with a minimum grade of C- in each and Event Planning minors only. This course offers an examination of the issues facing events and the promotional tactics used to ensure they are successful.

PR 438. Event Execution. 3 Hours.

PR: JRL 101 and (PR 215 or STCM 215) with a minimum grade of C- in each and Event Planning minors only. This course offers an application of knowledge of how events operate and an examination of what tactics can lead to success.

PR 455. Strategic Event Planning and Promotion. 3 Hours.

PR: STCM 315 with a minimum grade of C-. This course provides a hands-on introduction to special event and festival management. Students will learn how to plan, implement and evaluate special events. Students will learn foundational concepts and professional skills of event planning, coordination, sponsorship, programming, vendor management, volunteer management and risk management and will creatively apply research techniques, writing and editing skills.

PR 458. Health Public Relations. 3 Hours.

PR: STCM 421 with a minimum grade of C- or consent. In-depth research, study, and development of active PR campaigns in the healthcare field. Students serve as the PR agency for a healthcare-related organization.

PR 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant. (Course will be graded on a pass/fail basis.).

PR 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development. (Course will be graded on a pass/fail basis.).

PR 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

PR 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

PR 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

PR 496. Senior Thesis. 1-3 Hours.

PR: Consent. (Course will be graded on a pass/fail basis.).

PR 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

PSIO 107. Introduction to Human Anatomy and Physiology. 4 Hours.

PR: BIOL 102 and CHEM 111 and PR or CONC: BIOL 104 and CHEM 112. Survey of human anatomy and physiology for pre-nursing and other pre-clinical students. Also listed as NBAN 107.

PSIO 241. Elementary Physiology. 4 Hours.

PR: College biology and chemistry, or consent. (For undergraduate students in paramedical sciences and nursing students on regional campuses.) Systematic presentation of basic concepts.

PSIO 298. Honors. 1-3 Hours.

PR: Students in the Honors Program and consent by the honors director. Independent reading, study, or research.

PSIO 441. Mechanisms of Body Function. 4 Hours.

PR: College chemistry, biology, physics, and algebra or graduate status and consent. A systematic examination of the homeostatic functions of the human body with emphasis on the physicochemical mechanisms involved. Pathophysiology and clinical correlations are introduced in relation to normal physiology. (4 hr. lec.).

PSIO 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

PSYC 101. Introduction to Psychology. 3 Hours.

Survey of general psychology.

PSYC 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

PSYC 201. Psychology as a Profession. 1 Hour.

PR: PSYC 101. Orientation to opportunities for experience, employment, and graduate and professional training in psychology.

PSYC 202. Research Methods in Psychology. 3 Hours.

PR: PSYC 101 and (STAT 201 or STAT 211). Research methods in experimental, developmental, clinical, and community-social psychology in the laboratory and the natural environment.

PSYC 203. Research Methods & Analysis 1. 3 Hours.

PR: PSYC 101 and (MATH 124 or higher, or a satisfactory ACT/SAT math score, or satisfactory math placement exam performance). Research methods and data analysis utilizing descriptive and correlational designs in developmental, experimental, clinical, and social psychology in the laboratory and the natural environment.

PSYC 204. Research Methods & Analysis 2. 3 Hours.

PR: PSYC 203 with a minimum grade of C-. Research methods and data analysis utilizing experimental and quasi-experimental designs in developmental, experimental, clinical, and social psychology in the laboratory and the natural environment.

PSYC 231. Leadership and Human Relations. 3 Hours.

PR: PSYC 101. Concentrates on principles of psychology that can be applied to improving relations with others as well as being a more effective leader. Pragmatic orientation includes using the principles to solve problems in relationships, in small organizations, and in large systems.

PSYC 232. Sex Roles and Behavior. 3 Hours.

PR: PSYC 101. Relates sex-typed behavior to physiological, social, and cultural processes. Current social concerns such as rape and abortion legislation, child care, and expanded career options for both sexes are examined from a psychological perspective.

PSYC 234. Drugs and Behavior. 3 Hours.

PR: PSYC 101. Behavioral, neurochemical, pharmacological, historical, legal, social, and clinical aspects of commonly used and abused psychoactive drugs.

PSYC 241. Introduction to Human Development. 3 Hours.

PR: PSYC 101. Survey of human psychological development across the life span with emphasis on change in biological, cognitive, and social-emotional processes. Special attention given to theoretical, conceptual, methodological, and practical issues.

PSYC 251. Introduction to Social Psychology. 3 Hours.

PR: PSYC 101. Examination of social interaction and behavior from a psychological perspective. Topics include: attraction, social perception and cognition, attitudes and attitude change, social influence and group process, prosocial behavior and aggression, cultural influence, and prejudice.

PSYC 281. Introduction to Abnormal Psychology. 3 Hours.

PR: PSYC 101. Introduction to major categories of behavior disorders; etiology, prevention and treatment.

PSYC 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

PSYC 298. Honors. 1-3 Hours.

PR: Students in the Honors Program and consent by the honors director. Independent reading, study, or research.

PSYC 301. Biological Foundations of Behavior. 3 Hours.

PR: PSYC 101 and (PSYC 202 or PSYC 204). Introduction to animal behavior. Survey of fundamental concepts (evolution, genetics, adaptation, and learning) and research methods in understanding animal behavior including primate species. Includes laboratory exercises and demonstrations.

PSYC 302. Behavior Principles. 4 Hours.

PR: PSYC 101 and (PSYC 202 or PSYC 204 for Psychology majors) or (BIOL 302 or STAT 312 for Neuroscience majors). Principles of behavior and learning and the significance of these principles for psychological theory and application; laboratory exercises and demonstrations.

PSYC 304. Critical Thinking in Psychology. 3 Hours.

PR: PSYC 101 with a minimum grade of C-. This course teaches critical thinking skills in psychology, which include the ability to recognize patterns; to solve problems in practical, creative, or scientific ways; to engage in psychological reasoning; and to adopt different perspectives when evaluating ideas or issues.

PSYC 315. Professional Development. 2 Hours.

PR: PSYC 101. Expand students' awareness of careers that utilize psychological concepts. Students will integrate course concepts with the application of psychology, apply best practices for career development and evaluate their fit for various careers.

PSYC 331. History and Systems of Psychology. 3 Hours.

PR: PSYC 202 or PSYC 203 or PSYC 204 or PSYC 231 or PSYC 232 or PSYC 241 or PSYC 251 or PSYC 293 and at least junior or senior standing. A survey of psychology from its origins in philosophy, biology, and physics through the early major schools of psychological thought to modern perspectives on the science of behavior and its applications to human affairs.

PSYC 332. Multiculturalism in Psychology. 3 Hours.

PR: PSYC 101. Theoretical and empirical issues in multicultural psychology. Topics include psychological processes and impact of bias, discrimination, racism, and privilege, as well as awareness, sensitivity, and tolerance in cross-cultural interactions.

PSYC 341. Child Development. 3 Hours.

PR: PSYC 101 and PSYC 241. This course focuses on cognitive, social, and emotional developmental processes in childhood. Empirical findings in child development as well as the methods used to obtain those findings will be emphasized throughout the course.

PSYC 342. Prenatal and Infant Development. 3 Hours.

PR: PSYC 241 and junior or senior standing. Behavior and development from conception to two years. Includes behavioral genetics and hazards of prenatal development, as well as sensory motor, cognitive, language, and socioemotional behavior during infancy.

PSYC 343. Child and Adolescent Development. 3 Hours.

PR: PSYC 241 and junior or senior standing. Theory and research on major psychological processes in childhood and adolescence; maturation, personality, socialization, sensory, and cognitive development.

PSYC 344. Adolescent Development. 3 Hours.

PR: PSYC 241. This course focuses on cognitive, social, and emotional developmental processes during adolescence. Special emphasis is placed on critical evaluation of research on adolescent development.

PSYC 345. Adulthood and Aging. 3 Hours.

PR: PSYC 241 and junior or senior standing. Psychological issues in the study of adulthood, with an emphasis on the characteristics of older adults. Topics include the psychosocial and biological context of aging, cognitive and personality changes from early to late adulthood, psychopathology in later life, dementia, issues in caregiving, and death and dying.

PSYC 351. Topics in Social Psychology. 3 Hours.

PR: PSYC 251 and junior or senior standing. Social factors that determine human behavior, survey of research in selected areas of social psychology and their implications for social phenomena.

PSYC 362. Psychological Assessment. 3 Hours.

PR: PSYC 202 or PSYC 204 and at least junior standing. Psychometric theory and development of psychological assessment instruments. Includes behavioral, personality, intellectual, neuropsychological, forensic, achievement, and aptitude assessment.

PSYC 363. Personality Theory. 3 Hours.

PR: PSYC 202 or PSYC 204 and at least junior standing. Theoretical and empirical readings in a survey of major perspectives in personality theory, including dynamic, cognitive, humanistic, and behavioral.

PSYC 364. Psychology of Adjustment. 3 Hours.

PR: PSYC 202 or PSYC 204 or PSYC 231 or PSYC 232 or PSYC 241 or PSYC 251 or PSYC 293 and at least junior standing. Dynamic principles of human personality adjustment.

PSYC 365. Forensic Psychology. 3 Hours.

PR: PSYC 101 and junior or senior standing. Surveys role of psychology in the legal system. Issues addressed include: insanity, child custody, sexual abuse, police fitness, eye witness and jury selection.

PSYC 367. Introduction to Clinical Psychology. 3 Hours.

PR: (PSYC 202 or PSYC 204) and PSYC 281 and junior or senior standing. Surveys field of clinical psychology, including its development, important issues regarding the training and practice of clinical psychologists, some of the politics of the profession, and future directions for the field.

PSYC 368. Ethics and Practice in Behavior Analysis. 3 Hours.

PR: PSYC 101. Introduction to ethical guidelines and practice issues in Applied Behavior Analysis. Covers the Behavior Analysis Certification Board Compliance Code, client intake and identification of the problem, behavioral assessment, and fundamental elements of behavior change.

PSYC 370. Emotions and Mood. 3 Hours.

PR: PSYC 202 or PSYC 204 or PSYC 304. Theories, concepts and methodologies pertaining to emotions and mood. Topics also include development and socialization of emotions, and outcomes.

PSYC 379. Community Psychology. 3 Hours.

PR: PSYC 202 or PSYC 203 or PSYC 204 or PSYC 231 or PSYC 232 or PSYC 241 or PSYC 251 and at least junior standing. Applications of learning principles to community programs. Topics may include education, youth violence, drug abuse, behavioral safety, and organizational behavior management.

PSYC 382. Exceptional Children. 3 Hours.

PR: PSYC 241 and junior or senior standing. Exceptional mental retardation or advancement; organic disabilities having behavioral consequences, such as cerebral palsy or deafness; and behavior disorders.

PSYC 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

PSYC 401. Psychology Capstone Experience. 1 Hour.

PR: PSYC 101 and PSYC 201 and STAT 211 and senior standing. Experience in coursework, research, or service that integrates knowledge gained as a major in psychology. To be taken concurrently with capstone experience, details of which are to be determined in consultation with advisor.

PSYC 411. Applying to Graduate School. 1 Hour.

PR: Senior psychology major. Designed to guide students through the process of applying to graduate school in psychology. Students will investigate graduate training alternatives, select potential graduate programs, complete application packages, and prepare for interviews. (Course will be graded on a pass/fail basis.).

PSYC 423. Cognition and Memory. 3 Hours.

PR: Psychology or Neuroscience majors with junior or senior standing, Psychology majors with PSYC 202 or PSYC 204, Neuroscience majors with PSYC 204 or BIOL 302 or STAT 312. Theoretical and empirical issues in cognitive psychology. Topics include mechanisms and theories of attention, memory, language, and conceptual processes.

PSYC 424. Learning and Behavior Theory. 3 Hours.

PR: PSYC 302 and junior or senior standing. Advanced course in empirical and theoretical issues in the psychology of learning.

PSYC 425. Perception. 3 Hours.

PR: PSYC 202 or PSYC 204 or BIOL 302 or STAT 312 and junior or senior standing, Psychology or Neuroscience major. Survey of the structure and function of human sensory systems (primarily visual and auditory), perceptual issues and theories.

PSYC 426. Physiological Psychology. 3 Hours.

PR: PSYC 301 or NRSC 201 and junior or senior standing. Advanced study of the physiological mechanisms of behavior. Topics include neural and endocrine mechanisms of behavior and issues, methods, and findings in behavioral neuroscience.

PSYC 427. Psychobiology of Sleep. 3 Hours.

PR: PSYC 202 or PSYC 204 or PSYC 304 or BIOL 302 or STAT 312, Psychology or Neuroscience major. Empirical topics including physiology, development, assessment, circadian rhythmicity, pharmacology, sleep disorders and consequences of poor or disordered sleep.

PSYC 428. Hormones and Behavior. 3 Hours.

PR: PSYC 301 or NRSC 201, Psychology or Neuroscience major. Explores the complex interactions between the endocrine system, brain, and behavior in a broad range of animals, including people. Special emphasis is placed on reproductive hormones, as well as systems of homeostasis, aggression, and biological rhythms.

PSYC 474. Applied Behavior Analysis. 3 Hours.

PR: PSYC 302 and junior or senior standing. The application of basic learning principles to changes in socially significant human behavior.

PSYC 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

PSYC 490A. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

PSYC 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experimental learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

PSYC 491A. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experimental learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

PSYC 492. Directed Study. 1-3 Hours.

Directed study, reading, and/or research.

PSYC 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

PSYC 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regularly scheduled courses.

PSYC 495A. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regularly scheduled courses.

PSYC 497. Research. 1-6 Hours.

Independent research projects.

PSYC 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

PSYC 498A. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

PT 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study, or research.

PUBA 479K. . 1-6 Hours.**PUBH 101. Introduction to Public and Community Health. 3 Hours.**

This course will provide students with an overview of the principles and practice of public and community health. Students will learn about the history, core function and essential services of public health, as well as engage in discussions about current public health events and issues.

PUBH 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

PUBH 199. Orientation to Public Health. 1,2 Hour.

Orientation to degree programs and requirements, departmental resources, curriculum options, student responsibilities, and opportunities.

PUBH 200. Introduction to Public Health Careers and Information. 1 Hour.

Students will explore public health careers and popular public health websites, identify and present public health data, and develop information literacy skills.

PUBH 201. Global Perspectives of Public Health. 3 Hours.

This introduction to global public health will strengthen students' perspectives and understanding of disease prevention and treatment issues in westernized and developing/underdeveloped countries. Topics include health disparities, economic/political structures/systems impacting health, maternal and child health (including family planning), socio-cultural factors affecting health care delivery and the global burden of infectious and chronic diseases, injuries and disasters.

PUBH 202. Social Determinants of Health. 3 Hours.

The purpose of this course is to provide an introduction to the social factors/determinants that influence health. Theoretical and methodological approaches to the study of social determinants will be discussed from a social ecological perspective. The course is designed to help students develop basic literacy regarding social concepts and processes that influence health status and health disparities.

PUBH 205. Writing for Public Health Audiences. 3 Hours.

PR: PUBH 101 and PUBH 202. Students will develop original written materials pertaining to current public health issues that target specific populations. They will also gain a basic understanding of health, information and functional literacy; and evaluate existing materials for literacy levels and readability.

PUBH 211. Biostatistics for Population Health. 3 Hours.

PR: MATH 121 or higher and PUBH 101. This course provides students with an introduction to statistical concepts that are important for solving real-world public health problems. This course will present statistical principles and associated scientific reasoning underlying public health practice and health policy decision-making. Topics include data visualization, summary statistics, statistical inference, and strategies for articulating and evaluating claims using statistical constructs.

PUBH 222. Epidemiology for Public Health. 3 Hours.

PR or CONC: PUBH 211 or STAT 211. This introductory course explores the historical roots of the practice of epidemiology. The course will provide students with a foundation in the study of the distributions of health-related states or events (including injury and disease) in human populations and the control of these health-related problems.

PUBH 241. Biological Basis of Public Health. 3 Hours.

PR: PUBH 101 and ((BIOL 101 and BIOL 103) or (BIOL 102 and BIOL 104) or higher). Provides a basic understanding of human changes associated with or resulting from those chronic or infectious diseases or injuries that are of public health importance in the US and globally. Students will: 1) understand core concepts of health and disease, 2) recognize common infectious diseases and their influence on public health, and 3) identify chronic disease burden.

PUBH 243. Issues in Environmental Health. 3 Hours.

PR: PUBH 101. Provides an overview of environmental and occupational issues relating to air, water, and solid waste as they relate to human health. Basic environmental health concepts, technologies and underlying data will be examined to better understand local, national and global solutions to environmental health problems.

PUBH 260. Principles of Patient Navigation. 3 Hours.

Reviews roles and responsibilities of Patient Navigators. Provides overview of Patient Navigator competencies, comprising: the basics of health services delivery and health insurance; health of the individual; accessing and analyzing health information; approaches to communication, including motivational interviewing and group dynamics; and healthcare ethics. Includes required shadowing experience.

PUBH 293. . 1-6 Hours.

Investigation of topics not covered in regularly scheduled courses.

PUBH 311. Health Research Data Management and Reporting. 3 Hours.

PR: PUBH 211. This course will provide an introduction to data management and reporting principles, and the associated tools that are instrumental in public health research. Topics include data documentation, data structure, relational database theory, data manipulation, basic logic for programming, literate programming, and reporting.

PUBH 331. Introduction to Health Policy. 3 Hours.

PR: PUBH 101. This course provides an overview of the inner workings of health care policy making, from the legislative process to socioeconomic impacts, with both historical and modern perspectives. Students will explore factors that shape the United States health care system and policy, such as values, models, and stakeholders, and compare them to other countries for international context.

PUBH 333. Comparative Health Systems and Policy. 3 Hours.

PR: PUBH 331. In this course, students will examine the structure of healthcare systems in selected countries worldwide. Specific attention is paid to the developmental history of the national healthcare systems, financing, and delivery infrastructure. The impact of international relations is also examined.

PUBH 334. Emergency Preparedness for Public Health. 3 Hours.

This course provides an overview of the dimensions of disasters and emergencies through the lens of Public Health professionals with special focus on the rural environment and uses the Homeland Security Exercise Evaluation Program (HSEEP) model for the final exercise. Students completing this course will also complete several FEMA certifications during the course.

PUBH 338. Public Health Project Management. 3 Hours.

Introduces students to the basics of project management: the process of initiating, planning, executing, controlling and closing out a project. Project leadership is explored in the context of building effective project teams and maintaining stakeholder relationships. Concepts include developing and monitoring budgets, developing Gantt charts, reporting, working with stakeholders, flow charts and more.

PUBH 352. Introduction to Social and Behavioral Science and Practice. 3 Hours.

PR: PUBH 101 and PUBH 202. Introduces the historical and philosophical background of the social and behavioral sciences, covering theories of behavioral science applied to health behaviors; socio-cultural factors of disease etiology, prevention and population health; individual, group, community, and technology-based strategies for health behavior change; and current issues in behavioral sciences for health promotion including its application to achieving the Healthy People 2020 goals.

PUBH 353. Mastering Health and Wellness. 3 Hours.

This course will provide students with information about current health and wellness issues, diseases and disorders across the lifespan and how to prevent them and improve their health outcomes. Students will examine biological, psychological, and social aspects that affect and can assist in achievement of optimal health. Lecture, discussion, films, and experimental learning activities will be utilized.

PUBH 356. Worksite Wellness. 3 Hours.

Designed to be a comprehensive introduction to the field, integrating health promotion with a primary focus on population health management in a worksite setting. Covers topics such as rationale statements, programmatic models, program components addressing specific wellness topical areas, effectiveness design, implementation, reporting, and evaluation, as well as strategies to maximize employer support.

PUBH 360. Health Navigation: Prevention and Community Health. 3 Hours.

PR: PUBH 260. Students will explore the relationship between psychosocial, behavioral and biological risk factors as they affect chronic conditions; learn about screening, prevention, diagnosis and treatment for the most common chronic diseases, and discuss proven methods and strategies (including immunizations, health screenings, educational programs, behavior change programs and health policies) to promote prevention among targeted communities.

PUBH 361. Health Insurance for Patient Navigators. 3 Hours.

PR: PUBH 260. Covers basic concepts, terminology and processes pertaining to Medicaid, Medicare, worker's compensation, major insurers, and disability insurance, including eligibility, billing, claims and reimbursement. Provides the skills needed to communicate sometimes complex health insurance information to patients and facilitate patient decision making.

PUBH 393. Special Topics. 1-6 Hours.

Investigation of topics not covered in regularly scheduled courses.

PUBH 400. Field Placement and Capstone Preparation Seminar. 1 Hour.

Students will coordinate plans for their field placement assignments by completing all on-boarding requirements, developing an up-to-date resume and preparing materials for field practice agencies, job searches and/or graduate school application.

PUBH 423. Introduction to Modern Epidemiologic Research. 3 Hours.

PR: PUBH 222. This intermediate course will provide students with a foundation in the research tools utilized to explore the determinants of health-related states or events (including injury and disease) in human populations.

PUBH 442. Public Health in the Workplace. 3 Hours.

PR: PUBH 222 and PUBH 243. Overview of workplace health issues as they affect human health, including exposure to chemical, physical, biological and mechanical hazards. Basic occupational safety and health concepts, technologies and underlying data will be examined to better understand the potential solutions for workplace safety and human health issues.

PUBH 454. Introduction to Public Health Research Methods. 3 Hours.

PR: PUBH 222 and PUBH 352. This course provides an overview of public and community health research methods. Content includes the purpose and foundations of research, identifying and framing topic of interest and formulating research questions, ethical standards and reviews, study populations and samples, study designs, question construction and questionnaire development, data collection and analyses approaches, and the reporting and dissemination of findings.

PUBH 460. The US Healthcare System: Structures and Incentives. 3 Hours.

PR: PUBH 360 and PUBH 361. Exploration of the multifaceted US healthcare system, including its structure, delivery, and financing. Students will learn about key stakeholders within the healthcare system and how they interact with each other. Further, they will gain insight into how these interactions can inform health policy, within the state of WV and beyond.

PUBH 461. Legal and Ethical Issues for Patient Navigators. 3 Hours.

PR: PUBH 360 and PUBH 361. Covers the rights, responsibilities and concerns of patient navigators in the context of their roles with healthcare consumers and healthcare providers. Focuses on the social, legal, and ethical issues when interacting with patients and how to promote patient-healthcare team partnerships via improved communication and problem solving techniques. Prepares students for Patient Navigator Experiential Agency Rotations.

PUBH 462. Clinical Research Methods and Practice. 3 Hours.

Students learn research methods and techniques for application to a wide variety of cardiovascular, neurological, trauma and social services emergency care topics. Students also participate in real-time clinical research and interact with patients/potential study subjects. Also listed as PUBH 662; only one of which can be counted toward degree requirements.

PUBH 481. Public Health Field Experience and Capstone. 6 Hours.

PR: PUBH 480. Students complete a 75 hour group project with a local agency, supervised by a community partner. The capstone portion includes reflective journal essays, meetings to discuss observations and connections to program skills and knowledge, and a poster presentation to stakeholders.

PUBH 486. Patient Navigator Experiential Agency Rotations and Capstone. 6 Hours.

PR: PUBH 460 and PUBH 461. Students complete three rotations, two in health-related agencies and one with a community health worker, supervised by a mentor (patient navigator, community health worker or care coordinator). Each placement comprises 25 hours (total of 75 hours). Capstone portion includes reflective journal essays, meetings to discuss observations and connections to program skills and knowledge and a poster presentation to various stakeholders.

PUBH 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice such as a tutor or assistant.

PUBH 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

PUBH 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

PUBH 496. Senior Thesis. 1-3 Hours.

PR: Consent.

PUBH 497. Research. 1-6 Hours.

Independent research projects.

RBA 293. Special Topics. 1-6 Hours.**RBA 393. Special Topics. 1-6 Hours.****RBA 493. Special Topics. 1-6 Hours.****RDNG 293. Special Topics. 1-6 Hours.**

Investigation of topics not covered in regularly scheduled courses.

RDNG 403. Literature for Children. 3 Hours.

A survey of children's literature, with attention to historical development as well as current trends. Emphasizes selection, critical evaluation, and utilization of literary materials for developmental, recreational, and curriculum needs. Appropriate media included.

RDNG 421. Developmental Reading. 3 Hours.

PR: Consent. Fundamentals of reading instruction. Emphasizes classroom organization and teaching techniques.

RDNG 422. Reading in the Content Areas. 3 Hours.

Skills and strategies needed by content area teachers to reinforce the reading skills necessary for the effective learning of secondary students in the content areas.

RDNG 423. Literacy and the Young Child. 3 Hours.

This course studies exxential emergent literacy skills in young children and examines ways that these skills are developed in primary grade classrooms and at home.

RDNG 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

RDNG 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

RDNG 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

REHB 494. Seminar. 1-3 Hours.

REHB 494. Seminar. 1-3 Hr PT: Consent. Presentation and. discussion of topics of mutual concern to students and faculty.

RELG 102. Introduction to World Religions. 3 Hours.

This course explores five of the most widely practiced world religions; Judaism, Christianity, Islam, Hinduism, and Buddhism. Students are introduced to the history and basic tenets of each faith.

RELG 105. Introduction to Issues in Religious Studies. 3 Hours.

Leading issues involved in religious studies: transcendence, the God question, evil, redemption, community, eschatology, symbolism, ethics, examples of the relationship between religion and culture.

RELG 120. Introduction to the Study of Religion. 3 Hours.

Religious Studies as a field is interdisciplinary in its approaches. Drawing on sociology, anthropology, psychology, theology, and other perspectives, students will explore key themes, major ideas, and important figures in the study of religion. We will examine what it means to "study religion," and explore what different perspectives might contribute to the field.

RELG 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

RELG 219. The History of Christianity. 3 Hours.

This course explores the birth and evolution of Christianity from its inception until the modern era. Emphasis will be placed upon the significant people and events that shaped Christianity.

RELG 222. Origins of Judaism. 3 Hours.

Main beliefs and practices of the Jewish religion in its formative period, 500 B.C. to 500 A.D. Selections from the late Old Testament writings, the Apocrypha and Pseudepigrapha, the Dead Sea Scrolls, and rabbinical literature.

RELG 223. Christianity in America. 3 Hours.

Explore the history of American Christianity, as republican ideology, democratic polity, and commitment to individual freedom create a competitive religious marketplace without an established church.

RELG 230. Religions of India. 3 Hours.

Proto-Indian religion, Hinduism, beginnings of Buddhism, Jainism, Sikhism; historical and theological foundations; developments of thought; and contemporary expressions and encounters with the modern world.

RELG 231. Religions of China and Japan. 3 Hours.

Buddhism, Confucianism, Taoism, Shintoism; historical and theological foundations; developments of thought; and contemporary expressions and encounters with the modern world.

RELG 232. History and Practice of Islam. 3 Hours.

Examines the origins and development of Islam from its inception in ancient Arabia to the modern era. The central beliefs, practices, and denominations associated with Islam will also be explored.

RELG 242. Theological Perspectives in Modern Literature. 3 Hours.

Theological perspectives in selected modern writers including Beckett, Camus, Faulkner, Hesse, Hopkins, Wiesel, Eliot, and Auden. Theological insights into nihilism, evil, redemption, and meaning, as well as psychological analyses of religion, will be examined in these authors.

RELG 255. Religion Across Cultures. 3 Hours.

Introduces cross- cultural study of religion, with emphasis on non-western examples; surveys classic statements by major modern theorists, focusing on comparison in modern and secular academic setting.

RELG 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

RELG 301. Studies in Asian Scriptures. 3 Hours.

Explores the content and background of Hindu, Buddhist, and Confucian scriptures from the Vedic period through the modern era. Examines the historical, cultural, and religious settings of the texts as well as their theological concepts.

RELG 302. Studies in Islamic Scriptures. 3 Hours.

Explores Islamic scriptures including the Qur'an and Hadith from the time of revelation through the modern era. Examines the historical, cultural, and religious settings of the texts along with theological concepts.

RELG 303. Studies in Christian Scripture. 3 Hours.

This course explores the origin and development of the Christian Bible. The historical, cultural, and religious settings of the texts, as well as their theological intent, will be examined.

RELG 304. Studies in Hebrew Scriptures. 3 Hours.

This course explores the origin and development of the Hebrew Bible. The historical, cultural, and religious settings of the texts, as well as their theological intent, will be examined.

RELG 305. Biblical History/Archaeology. 3 Hours.

Explores development of the biblical world from 2,000 BCE through the first century CE. Various cultures will be examined socially, historically, and religiously. How biblical archaeology impacts understanding of the Bible will also be discussed.

RELG 306. Biblical History and Archeology of Israel. 1-6 Hours.

Study abroad program in Israel. Students explore the biblical world from the Iron Age to the Roman era through participation in an archaeological dig. Examines social, historical, and religious dimensions of various ancient cultures.

RELG 310. Historical Theology. 3 Hours.

Explore the historical development of Judeo-Christian theology from ca. 1000 BCE through the mid-20th century. Topics will include the nature of God, Christology, and apocalypticism.

RELG 350. Biblical Ethics/Current Issues. 3 Hours.

Introduction to biblical ethics and its application to current issues. Issues such as war, the environment, and biotechnology are explored by interpreting biblical texts as a touchstone of ethical principles and values.

RELG 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

RELG 410. Apocalypse. 3 Hours.

PR: ENGL 102 or ENGL 103. Examine the apocalyptic literature of Judaism and Christianity and consider its perspectives and functions by tracing the impact of leading theologies and interpretations of end-time prophecy.

RELG 482. Interactions in World Religions. 3 Hours.

PR: 12 credits of RELG course work or consent. Explores the in-depth history and interactions among major world religions and cultures from ancient times through the modern era. Emphasis upon specific geographical regions including the Middle East, Asia Minor, and the Far East.

RELG 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

RELG 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

RELG 492. Directed Study. 1-3 Hours.

Directed study, reading, and or research.

RELG 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

RELG 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

RELG 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

RELG 496. Senior Thesis. 1-3 Hours.

PR: Consent.

RELG 497. Research. 1-6 Hours.

Independent research projects.

RELG 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

RESM 140. Sustainable Living. 3 Hours.

Explores the personal, social, economic and environmental aspects of making sustainable choices. Sustainability principles and practices are discussed along with assessments of consumption and lifestyle decisions. Also listed as DSGN 140 and PLSC 140.

RESM 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

RESM 390. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

RESM 440. Foundations of Applied Geographic Information Systems. 3 Hours.

An introductory course designed to provide the necessary background and techniques to use GIS technology to analyze and solve spatial problems. An emphasis is placed on acquisition, management, and manipulation of spatial data.

RESM 441. Introduction Geographic Information Systems Natural Science. 2 Hours.

PR or CONC: RESM 440. Using Geographic Information Systems (GIS) to solve problems in environmental and natural resource management.

RESM 442. Introduction Geographic Information Systems Social Science. 2 Hours.

PR or CONC: RESM 440. Using Geographic Information Systems (GIS) to solve problems in the social sciences.

RESM 444. Advanced GIS for Natural Resource Management. 3 Hours.

PR or CONC: RESM 440 with a minimum grade of C- or consent. Provides advanced training using geographic information systems to address the spatial issues of managing natural resources.

RESM 445. Spatial Hydrology and Watershed Analysis. 3 Hours.

PR: RESM 440 or consent. Introduction to applied spatial hydrology using GIS; integrates statistical modeling and terrain analysis; provides insights into water quality and quantity analysis for local and regional watershed scales. (Credit cannot be received for both RESM 445 and RESM 545.).

RESM 450. Land Use Planning Law. 3 Hours.

Focus is on identification and understanding of legal issues related to planning and land use. This involves understanding rights, regulations, and responsibilities associated with land use, planning, and related activities.

RESM 455. Practice of Land Use Planning. 3 Hours.

Examines comprehensive land use planning including planning's origin and evolution plus the processes used to create and implement a plan. Focus is on land use and how it relates to other issues.

RESM 460. Energy Project and Program Management. 3 Hours.

PR: Junior or Senior Standing. The concepts and best practices of modern project management as applied to manage activities that meet the requirements of energy and environmental resource industry related programs and projects.

RESM 480. Environmental Regulation. 3 Hours.

Course focusing on laws and policies applicable to the environment. Students will learn to read and interpret statutes, regulations and cases that impact water, air, toxic substances, land and endangered species.

RESM 491. Professional Field Experience. 1-18 Hours.

PR: Consent (may be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

RESM 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

RESM 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

RESM 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

RESM 496. Senior Thesis. 1-3 Hours.

PR: Consent.

RESM 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

RPTR 140. Adventure West Virginia. 3 Hours.

This course provides incoming WVU freshmen with the information and tools helpful for a successful transition from high school to college through a field-based, experiential curriculum and classroom sessions. Significant attention is given to critical thought and reflection on oneself, relationships, and place in society.

RPTR 140A. Adventure West Virginia. 3 Hours.

This course provides incoming WVU freshman with the information and tools helpful for a successful transition from high school to college through a field-based, experiential curriculum.

RPTR 142. Introduction to Recreation, Parks and Tourism. 2 Hours.

Recreation, parks and tourism philosophy, environments, agency contexts, historical antecedents, service delivery systems, special settings and populations, leadership programs and professional challenges. 30 hour, field placement with local recreation, park or tourism agency.

RPTR 145. Recreation Services for Special Populations. 3 Hours.

PR: Consent. Introductory analysis of current therapeutic recreation and park services to include members of special populations; familiarization with planning for the conduct of such services.

RPTR 148. Wilderness First Responder. 3 Hours.

PR: Consent. This course provides training necessary to become certified in dealing with various aspects and levels of outdoor/ wilderness crises for forestry, recreation, or any outdoor professionals. (Grading will be pass/fail.).

RPTR 150. Backcountry Living Skills. 1,3 Hour.

PR: Consent. The purpose of this course is to develop and refine the skills necessary to camp and travel in the outdoors.

RPTR 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

RPTR 225. Foundations of Facilitation. 1 Hour.

This course examines the foundations to effective group facilitation and provides practical experience putting facilitation techniques to use with ground-based initiatives and low challenge course elements.

RPTR 239. Sustainable Tourism Development. 3 Hours.

This course will introduce students to the phenomenon and significance of global tourism and teach them how to apply tourism principles to support community economic development.

RPTR 242. Environmental and Cultural Interpretation. 3 Hours.

This course is about people, communication and natural resource management. It focuses on theory and application of communication methods for natural resource settings and topics, including communication of technical information to lay publics.

RPTR 249. GIS in Recreation and Tourism. 3 Hours.

Covers GIS applications in the temporal and spatial complexities of recreation and tourism.

RPTR 251. Leadership in Experiential Education. 3 Hours.

This course focuses on elements of leadership in outdoor and experiential education and provides students with hands-on learning opportunities.

RPTR 255. Adventure New Zealand: Wilderness Leadership in an International Context. 6 Hours.

This course will provide a theoretical and applied study of wilderness leadership in an international context. Participants will study relevant leadership theory, critical wilderness skills, and international programming concepts. The program will culminate in a student led final in which the instructors step back to observe the students put their new knowledge and skills to the test.

RPTR 263. Program Planning in Recreation, Parks and Tourism. 3 Hours.

PR: RPTR major or consent. Fundamentals of general program planning, needs, facilities, age groups, local customs, climatic factor, etc.; settings such as parks, playgrounds, indoor centers, playing fields, hospitals, voluntary agencies, industrial settings, and campuses.

RPTR 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

RPTR 325. Challenge Course Facilitation. 3 Hours.

This course involves learning the background philosophies, theories, and structures that have led to development of the challenge course industry. Students will also learn the basic skill necessary to safely facilitate a group.

RPTR 326. Canopy Tour Facilitation. 3 Hours.

Exposes the student to the skills and knowledge necessary to act as a canopy tour guide including: risk management, operations, technique, facilitation, and an overview of the industry. Successful completion of the course will qualify the student to take the Association for Challenge Course Technology (ACCT) Level 1 Practitioner Certification Exam.

RPTR 335. Management in Recreation, Parks and Tourism Organizations. 3 Hours.

PR: 12 hours of RPTR courses, junior standing, or consent. Principles of administration as applied to the operation of recreation, parks and tourism organizations, including policy, legal foundations, organization, personnel, and finance.

RPTR 351. Sustainable Tourism. 3 Hours.

PR or CONC: RPTR 352. The purpose of this course is to provide students of all majors with an understanding of both theory and practical applications of concepts surrounding sustainable tourism development in the South Pacific.

RPTR 352. Marine Ecotourism. 3 Hours.

PR or CONC: RPTR 351. This course will focus on developing interpretation and information strategies in tourism to protect and conserve marine ecosystems.

RPTR 353. Sustainable Tourism in Patagonia. 3 Hours.

PR: RPTR 150; Winter Break excursion in Patagonia, Chile. This course will provide a theoretical and applied study of sustainable tourism and the ecosystems and culture of the Aysen region of Patagonian Chile. Alongside local guides and entrepreneurs, students will explore nature-based tourism and investigate how this tourism can be an agent of sustainable development. Student will investigate contemporary controversial issues in Chilean Patagonia.

RPTR 365. Planning and Design in Recreation, Parks and Tourism. 3 Hours.

PR: RPTR major or consent. Study of planning and design concepts, standards and guidelines, use continuum, grants-in-aid, and planning of selected areas and facilities: parks, pools, centers and recreation areas.

RPTR 380. Expedition Planning and Education in the Outdoors. 3 Hours.

PR: RPTR 251 with a minimum grade of C- or consent. This course is intended to examine and practice principles of expedition planning and education in outdoor and experiential settings. The course will focus on conceptualization, design, and implementation of two backcountry experiences, and students will practice curriculum development and educational strategies through guided lesson planning and facilitation.

RPTR 433. Recreation Resource Management. 3 Hours.

An analysis of land management agencies and major legislation concerned with recreation resource management; review, develop, and apply recreation resource and visitor use management plans.

RPTR 434. Wilderness in American Society. 3 Hours.

PR: RPTR 433 or consent. A seminar examining political, sociological, and environmental aspects of American wilderness. A discussion on articles concerning wilderness preservation, management, and aesthetics.

RPTR 442. Advanced Interpretive Techniques. 3 Hours.

PR: RPTR 242 or consent and junior standing. This is an advanced course on the development of interpretive programs that reflect the historical, cultural, and natural resources of an area. The course employs a project-based approach. Students will develop and critique both personal and non-personal products.

RPTR 448. Ecotourism Development. 3 Hours.

Covers applied approaches to the development and operation of nature-based tourism businesses. Sustainable tourism principles, business planning, marketing strategies, and management issues are thoroughly examined.

RPTR 450. Social Research Methods in Natural Resource Management. 3 Hours.

Social research methods in natural resource management with concentration on problem identification and solving. Data collection methods and applications specific to natural resource management social settings will be studied.

RPTR 472. Tourism System and Destination Management. 3 Hours.

Analysis of the demand and supply components of the tourism system and identification of destination management approaches to manage this tourism system in-order to build and maintain a competitive and sustainable destination.

RPTR 485. Professional Development Seminar. 1 Hour.

This course is a capstone preplanning course for the professional internship program. The course emphasizes professional development and career planning.

RPTR 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

RPTR 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

RPTR 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

RPTR 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

RPTR 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

RPTR 496. Senior Thesis. 1-3 Hours.

PR: Consent.

RPTR 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

RUSS 101. Elementary Russian 1. 3 Hours.

PR: No prior study of the language. Introduction to the sound and writing systems of the language, with emphasis on listening, reading, speaking, and writing.

RUSS 102. Elementary Russian 2. 3 Hours.

PR: RUSS 101 or equivalent. Continuation of RUSS 101. Introduction to the sound and writing systems of the language, with emphasis on listening, reading, speaking, and writing.

RUSS 203. Intermediate Russian 1. 3 Hours.

PR: RUSS 102. Continued development of basic skills in listening, reading, speaking, and writing Russian.

RUSS 204. Intermediate Russian 2. 3 Hours.

PR: RUSS 203. Continuation of RUSS 203. Capstone course for the RUSS 101 through 204 sequence and foundation for advanced Russian study. Continued development of basic skills in listening, reading, speaking, and writing Russian.

RUSS 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

RUSS 301. Conversation and Composition 1. 3 Hours.

PR: RUSS 204. Emphasis on development of written and oral communicative skills of contemporary Russian.

RUSS 302. Conversation and Composition 2. 3 Hours.

PR: RUSS 301. Continuation of RUSS 301. Emphasis on development of written and oral communicative skills of contemporary Russian.

RUSS 303. Advanced Structure and Reading 1. 3 Hours.

PR: RUSS 204. Development of communicative skills, with emphasis on reading authentic texts and review of Russian language.

RUSS 304. Advanced Structure and Reading 2. 3 Hours.

PR: RUSS 303. Continuation of RUSS 303. Development of communicative skills, with emphasis on reading authentic texts and review of Russian language structures.

RUSS 331. The Russian Short Story. 3 Hours.

PR: RUSS 204. Reading, discussing, and writing in Russian about short stories of selected nineteenth-century Russian writers.

RUSS 332. The Russian Short Story. 3 Hours.

PR: RUSS 204. Reading, discussing, and writing in Russian about short stories of selected contemporary Russian writers.

RUSS 341. Survey of Russian Literature. 3 Hours.

PR: RUSS 204. Major works of selected Russian authors from the beginning through the nineteenth century, including those of Pushkin, Lermontov, Gogol, Turgenev, Dostoevsky, and Tolstoy.

RUSS 342. Survey of Russian Literature. 3 Hours.

PR: RUSS 204. Major works of selected Russian authors from the beginning of the twentieth century to the present.

RUSS 351. Russian Through Music. 3 Hours.

PR: RUSS 204 or consent. Conducted in Russian. Course acquaints students with the diverse music styles and genres in Russian culture, and develops Russian language proficiency through exposure to authentic textual and audio-visual materials of Russian classical and contemporary songs and music pieces, as well as discussions.

RUSS 352. Russian in Action. 3 Hours.

PR: RUSS 204 or consent. Conducted in Russian. Course helps students improve fluency and authentic flair of speech by providing intensive practice in contemporary standard Russian pronunciation, stress, and intonation. Course helps students improve pronunciation and aural sensitivity to Russian speech.

RUSS 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

RUSS 450. Modern Russian Society. 3 Hours.

PR: RUSS 204 or consent. Conducted in Russian. For students in the fourth year of Russian or higher. Course improves students' reading, speaking, listening, and grammatical skills, with a particular emphasis on post-Soviet language and culture. Topics focus on idiomatic language use and contemporary society.

RUSS 451. Russian Culture. 3 Hours.

PR: RUSS 204. A study of Russian civilization, customs, and ethos.

RUSS 452. Business and Political Russian. 3 Hours.

PR: RUSS 204 or consent and recommended for students in third- or fourth-year Russian or higher. Conducted in Russian. Course advances competencies in formal communication and introduces basic concepts and topics from the business and political realms in contemporary Russian society, the Russian-speaking world, and the global workplace.

RUSS 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

RUSS 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 Hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

RUSS 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

RUSS 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

RUSS 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

RUSS 496. Senior Thesis. 1-3 Hours.

PR: Consent.

RUSS 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

SAFM 470. Managing Construction Safety. 3 Hours.

Focuses on management and planning aspects of construction safety, including fall protection, scaffolding, excavation, hand and power tools, cutting and welding, others. Compliance aspects of 29CFR 1926 (with various subparts) concerned with building and highway construction.

SAFM 471. Motor Fleet Safety. 3 Hours.

Safety elements of automotive transportation including design, operation, planning, control, and effects of legislation.

SAFM 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled coourses.

SBEN 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

SBEN 495. Independent Study. 1-6 Hours.

Faculty-supervised study of topics not available through regular course offerings.

SCFD 100. Education in the American Culture. 3 Hours.

SCFD 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

SCFD 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

SCFD 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

SCFD 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

SCFD 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

SCFD 496. Senior Thesis. 1-3 Hours.

PR: Consent.

SEES 101. Introduction to Slavic and Eastern European Studies. 3 Hours.

This course offers a multidisciplinary introduction to the geography, history, culture, societies, religions, and politics of slavic and Eastern Europe, a broad region between contemporary Germany and Eurasian Russia and the Baltic and Black Sea.

SEES 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

SEES 492. Directed Study. 1-3 Hours.

Directed study, reading, and/or research.

SEES 495. Independent Study. 1-6 Hours.

Faculty-supervised study of topics not available through regular course offerings.

SEES 497A. Research: Capstone. 1-6 Hours.

Independent research projects.

SEP 210. Professional Issues. 1 Hour.

An introduction to professional issues relevant to the field of sport psychology. Provides opportunities for students to gain practical experiences within the field.

SEP 271. Sport in American Society. 3 Hours.

Sociocultural investigation of sport in American society.

SEP 272. Psychological Perspectives of Sport. 3 Hours.

An examination of personality and behavioral factors as they affect participation in sport. Topics such as stress and sport, body image, aggression and the sport participant, and the licensure of sport psychologists highlight the course.

SEP 273. Sport and Exercise Psychology Lab. 1 Hour.

This course is designed to help students understand and utilize in their own lives, the skills and constructs taught from a theoretical perspective in SEP 272. This course will help students enhance their knowledge of sport and exercise psychology constructs and allow them to implement these skills within a laboratory setting.

SEP 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

SEP 312. Professional Issues in Sport Psychology 3. 1-2 Hours.

PR: SEP 210 and SEP 271 and SEP 272 with a minimum grade of B- in each. This course provides students majoring in Sport and Exercise Psychology with an introduction to graduate school and the necessary skills needed to prepare them for graduate education.

SEP 313. Professional Issues in Sport Psychology 4. 1-2 Hours.

PR: SEP 210. This course provides students majoring in Sport and Exercise Psychology with the necessary skills needed to succeed upon their graduation from the Sport and Exercise Psychology program.

SEP 373. African Americans in Sports. 3 Hours.

Sociocultural and historical overview of the contributions of African Americans in sport in America.

SEP 374. Sport Studies Research Methods. 3 Hours.

An analysis of descriptive and experimental research in sport psychology and sport management. Course requirements include completion of capstone research project.

SEP 383. Exercise Psychology. 3 Hours.

Introduction to motivational and mental health factors associated with exercise participation.

SEP 385. Social Psychology of Sport. 3 Hours.

PR: SEP 271 and SEP 272 or consent. An introduction to the study of how and why performance is affected by interactions with others in sport.

SEP 415. Physical Activity Promotion. 3 Hours.

Focuses on the health effects of physical activity and exercise. Prepares students to promote, initiate and evaluate physical activity programs in community settings.

SEP 420. Sport Performance Enhancement. 3 Hours.

PR: SEP 272. An introduction to the processes and techniques involved in using psychology to help athletes and coaches improve their performance.

SEP 425. Psychological Aspects of Sport Injury. 3 Hours.

PR: SEP 271 and SEP 272. This upper level course involves the study of various topics related to the psychological aspects of sport injury. In general this course will examine issues associated with the onset, treatment and rehabilitation of sport injury.

SEP 430. Cross Cultural Perspectives in Sport and Society. 3 Hours.

Faculty led study abroad course associated with travel to a foreign country at student's expense. Students on the trip are exposed to foreign culture, landmarks, and sport facilities while meeting and interacting with sport-science professionals. The course prepares students for the travel experience and allows them to reflect upon it after returning.

SEP 474. Sport Studies Research Methods. 3 Hours.

PR or CONC: SEP 210 and SEP 271 and SEP 272 with a minimum grade of B- and senior standing. An analysis of descriptive and experimental research in sport psychology and sport management. Course requirements include completion of capstone research project.

SEP 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

SEP 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

SEP 492. Directed Study. 1-3 Hours.

Directed study, reading, and/or research.

SEP 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

SEP 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

SEP 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

SEP 496. Senior Thesis. 1-3 Hours.

PR: Consent.

SEP 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

SHED 250. Foundations of School Health. 3 Hours.

The goals for this course include introducing students to the field of school health education and promotion and developing the theoretical background, philosophical approach, and professional skills required to effectively serve as a school-based public health professional. Further, this course emphasizes child and adolescent health promotion and advocating for student health and wellbeing in school and community settings.

SHED 300. Health Education for Elementary School Teachers. 2 Hours.

Designed specifically for future elementary school teachers, this course provides an overview of the elementary coordinated school health program. It emphasizes goals for elementary school programs, current research related to the 10 priority school health content areas, program development and organization, community and national partnerships, and instructional methods and student assessment in elementary school health education/promotion. No field experience required.

SHED 401. Elementary School Health Program. 4 Hours.

Designed specifically for our majors, this course provides an overview of the elementary coordinated school health program. It emphasizes goals for elementary school programs, current research related to the 10 priority school health content areas, program development and organization, community and national partnerships, and instructional methods and student assessment in elementary school health education/promotion. It culminates in a field experience.

SHED 402. Secondary School Health Program. 4 Hours.

This course provides an overview of the coordinated school health program for secondary schools. It includes goals for the secondary school program, a review of current research related to the 10 priority school health content areas, organizing the program, participating in community and national partnerships, and instructional methods and student assessment in secondary school health education and promotion.

SHED 403. Health in the School Community. 3 Hours.

Examines the role of public schools as an important community in which health promotion takes place. Additionally, we discuss the major structural and social forces that influence school and student health outcomes and consider the unique needs of diverse communities of children, adolescents, and families represented within the broader school organization.

SHED 450. Contemporary Issues in School Health. 3 Hours.

This course addresses current and emerging issues in child and adolescent health that should be of significance to school health educators. These issues include public health and prevention priorities related to the top causes of premature death and disability among children and adolescents as well as developmental risk factors associated with diminished health throughout the lifespan.

SHED 480. Supervised Field Experience in School Health. 3 Hours.

This course emphasizes applying the pedagogical skills and content-based learning acquired in the school health academic curriculum to developing, delivering, and evaluating school health lessons and programs in professional practice. With the support and assistance of the course instructor, students will develop original school health programming, implement those programs in the field, and evaluate relevant student, faculty, and community outcomes.

SHED 485. School Health Teaching Seminar. 2 Hours.

This course is designed for students who plan to complete their student teaching requirement in health education. The format of the course will include lecture, discussion, and student teaching in a public school.

SM 167. Introduction to Sport Management. 3 Hours.

Overview of the sport management profession including career opportunities, critical current issues, trends, professional standards and the professional organizations.

SM 225. Practicum in Collegiate Athletics. 2 Hours.

PR: SM 167. This course provides students with the opportunity to gain supervised experience working in collegiate athletics. Students learn about the operations of the many units of a collegiate athletic department. Students are then placed within one or more units of a collegiate athletic department to work under the supervision of a professional within that unit.

SM 275. The Olympic Games. 3 Hours.

An examination of the historical development of the Olympic Games from the Greek classic period (500 B.C.) to the games of the XXVI Olympiad of Atlanta in 1996.

SM 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

SM 340. Sport Governance. 3 Hours.

This course examines how sport organizations interact and coordinate with numerous policy actors to facilitate and coordinate the mechanisms of governance.

SM 345. Technology in Sport Management. 2 Hours.

PR: Majors only. This course provides an understanding of the technological concepts and principles relevant to sport management and provides student with practical experiences in the use of emerging technologies in the field.

SM 350. Leadership in Sport Management. 2 Hours.

PR: Majors only. The purpose of this course is to identify the fundamental leadership behaviors in sport management. This course provides sport management students the opportunity to explore current leadership theories and practices in sport.

SM 355. Orientation in Sport Management. 1 Hour.

PR: Majors only. In this course students will identify and develop the skill sets necessary for successful completion of an internship in sport management.

SM 370. Sport Finance and Economics. 3 Hours.

The purpose of this course is to provide financial and economic overview of professional, collegiate and recreational sports. Students will learn financial structures of sport organizations and various economic principles applied to the sport industry.

SM 375. Sport in the Global Market. 3 Hours.

An examination of the role of sports within the broader process of globalization. Its impact on culture, politics, economics and how these influences shape today's sport.

SM 380. History and Philosophy of Sport. 3 Hours.

This course is designed to acquaint students with philosophical issues related to sport and sport management and with individuals and events that helped shape the history of sport.

SM 387. Issues in Sport Studies. 3 Hours.

PR: ENGL 102. An in-depth analysis of critical issues impacting sport and the sport industry.

SM 425. Sport Facility and Event Management. 3 Hours.

PR: Consent. This course is designed to inform students of the principles and practice of planning, funding, and managing of sport facilities and event management.

SM 426. Liability in Sport. 3 Hours.

An overview of the legal system as it applies to sport, including contracts, tort law, drug testing, types of athletes, product liability, and legal duties of coaches, facilities supervisors, and athletic directors.

SM 485. Sport Management. 3 Hours.

PR: Senior standing. The study of management principles as they relate to sport organizations. The analysis includes specific references to planning, organizing, leading and evaluating functions of management in sport.

SM 486. Sport Marketing & Sales. 3 Hours.

The study of marketing principles as they relate to sport organizations. Specific attention is focused on the marketing planning process, marketing informational systems, and internal marketing.

SM 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

SM 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

SM 492. Directed Study. 1-3 Hours.

Directed study, reading, and/or research.

SM 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

SM 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

SM 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

SM 496. Senior Thesis. 1-3 Hours.

PR: Consent.

SM 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

SOCA 101. Introduction to Sociology. 3 Hours.

Basic course intended to develop a perspective about the nature of social processes and the structure of society.

SOCA 105. Introduction to Anthropology. 3 Hours.

Essentials of human evolution and prehistory with a concentration on the varieties of languages and cultures found among peoples of the world.

SOCA 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

SOCA 199. Orientation to Sociology and Anthropology. 1 Hour.

Orientation to degree programs and requirements, departmental resources, curriculum options, student responsibilities and opportunities.

SOCA 207. Social Problems in Contemporary America. 3 Hours.

Sociological analysis of the causes, effects and approaches to preventing and reducing social problems in American society.

SOCA 221. Families and Society. 3 Hours.

Historical comparative approach to changing structure and functions of the family institution. Effect of economic, demographic, and cultural changes on relationships, gender roles, marriage, childcare; variations by socioeconomic status, race, ethnicity, gender, sexual orientation.

SOCA 223. Death and Dying. 3 Hours.

Sociological and anthropological perspectives on death and dying. Examines sociopsychological and structural factors supporting the beliefs and practices associated with the institution of death, both historically and in contemporary society.

SOCA 225. Inequality and the Media. 3 Hours.

Analyzes how media reflects and shapes inequalities in society with emphasis on race, class, gender, and sexual orientation. Content is based on research findings derived from studies of contemporary society and media.

SOCA 226. Sexuality and Society. 3 Hours.

Examines sociological perspectives on sexuality, sexual identity, and associated attitudes and beliefs. Emphasis is given to processes through which these concepts and our understandings of them are socially constructed.

SOCA 232. Criminology. 3 Hours.

PR: SOCA 101. Exploration of various theories of criminal behavior; emphasis on a critical study of the criminal justice system and efforts to reform the penal system.

SOCA 234. The Criminal Justice System. 3 Hours.

PR: SOCA 101. A sociological introduction to the justice system. Focuses on analysis of police work, court activities, and correction within the context of American social organization and societal definitions of crime and justice.

SOCA 235. Race and Ethnic Relations. 3 Hours.

Racial and ethnic groups are examined in terms of their history, transformation over time, and the contemporary conditions and issues they face. Emphasis is on prejudice as well as systemic racism.

SOCA 252. Biological Anthropology. 3 Hours.

Fossil evidence for human evolution, racial variation, and relationship between biology and behavior.

SOCA 254. Cultural Anthropology. 3 Hours.

Introduction to the history, methods, and current directions of cultural anthropology. Focus on living cultures across the world, encompassing the whole range of human activities. Consideration of identity, economy, politics, kinship, meaning, language, and inequality.

SOCA 258. Introduction to Archaeology. 3 Hours.

Comprehensive introduction to the field of archaeology. Course investigates the methods and theories used by archaeologists to understand culture change through time, and the reconstruction of the past through material culture analysis.

SOCA 259. The Craft of Anthropology. 3 Hours.

Orientation to the anthropological discipline. Focus on disciplinary ethics and building anthropological reading, writing, and research skills.

SOCA 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

SOCA 301. Sociological Theory. 3 Hours.

PR: SOCA 101 and SOCA 105 and (STAT 201 or STAT 211). Systematic analysis of major sociological theories viewed from the historical perspective and in terms of current research.

SOCA 302. Deviant Behavior. 3 Hours.

PR: SOCA 232 and (SOCA 234 or CJ 101) or consent. Examination of the processes by which deviance is defined in society, and the methods of social control attempted. Provides a critical understanding of society from the perspective of those defined as outsiders-criminals, addicts, etc.

SOCA 303. Juvenile Delinquency. 3 Hours.

PR: SOCA 232 and (SOCA 234 or CJ 101) or consent. Nature, extent, and causal explanation of forms of juvenile delinquency. The nature of juvenile courts, the correctional systems, and prevention programs. Emphasizes current issues.

SOCA 304. Complex Organizations. 3 Hours.

PR: 6 hours of SOCA or consent. The structure and functioning of large-scale, bureaucratic organizations, including studies of industrial organizations, prisons, hospitals, and government.

SOCA 311. Social Research Methods. 3 Hours.

PR: SOCA 101 and (STAT 201 or STAT 211 or ECON 225). Logic of social research, elements of research design, and problems of measurement, with emphasis on survey research methodology and data analysis.

SOCA 312. Death and Dying. 3 Hours.

This course explains the issues and problems associated with death in American society. Topics such as changing attitudes, grief, funeral practices, life after death, the dying patient, and widowhood are presented from a variety of perspectives.

SOCA 318. Hate Crime. 3 Hours.

PR: SOCA 232 and (SOCA 234 or CJ 101) or consent. Builds on basic knowledge in sociology to provide a detailed example of an emerging social problem, i.e., hate crime. Explores the ways social phenomena become social problems. Examines the causes and consequences of hate crime.

SOCA 319. Police Culture and Socialization. 3 Hours.

PR: SOCA 232 and (SOCA 234 or CJ 101). Examines the institution of policing in the United States. Builds on basic sociological concepts to provide a sociological and historical perspective on the formal and informal structures and processes in the American system of policing.

SOCA 320. Social Psychology. 3 Hours.

PR: SOCA 101. Provides a basic but detailed knowledge of the tenets of sociological social psychology, with an emphasis on symbolic interaction. Focuses on how individual identity is formed through a social process.

SOCA 321. Punishment and Social Control. 3 Hours.

PR: SOCA 232 and (SOCA 234 or CJ 101). Builds on basic sociological concepts to provide detailed knowledge about the use of prisons and incarceration among other forms of punishment and surveillance in contemporary society.

SOCA 323. Sociology of Rural Life. 3 Hours.

PR: SOCA 101 or consent. Social aspects of rural living. Characteristics of rural population, social structure, and institutional arrangements: family, community, education, religion, recreation, health, welfare, and local government.

SOCA 324. Gender and Crime. 3 Hours.

PR: SOCA 232 and (SOCA 234 or CJ 101). Builds on basic sociological principles and concepts, and focuses on issues of social structure and process that are at the intersection of gender crime, and crime control.

SOCA 331. Sociology of Law. 3 Hours.

PR: SOCA 232 and (SOCA 234 or CJ 101) or consent. Development and practice of law as part of social systems; theoretical treatments of the relationship between law and social order; emphasis on issues of class, race, and gender.

SOCA 333. Sociology of Work and Work Places. 3 Hours.

PR: SOCA 101 or consent. Explores the significance of work and work relations in contemporary society. Emphasis is given to the analysis of employment settings including industrial organizations.

SOCA 334. Corporate and White Collar Crime. 3 Hours.

PR: SOCA 232 and (SOCA 234 or CJ 101). Examines law-breaking by respectable organizations and individuals engaged in professional economic activity. Studies sociocultural sources of such crime, consequences for victims, and public policy responses. Includes recent criminal cases, legal changes, and enforcement trends.

SOCA 337. Sociology of American Business. 3 Hours.

PR: 6 hours of SOCA or consent. The changing role of business and the debate over its social responsibilities are the major issues of the course. Corporate structures, ownership, governance, power, policy, crime, philanthropy, and work life are examined.

SOCA 345. Terrorism. 3 Hours.

PR: SOCA 232 and (SOCA 234 or CJ 101). A sociological understanding of terrorism, including its causes, relations to social context, and trends. Emphasis is placed on major terrorist groups, selected cases, explanatory theories and policies of containment and prevention.

SOCA 346. Victimology. 3 Hours.

PR: SOCA 232 and (SOCA 234 or CJ 101). Introduction to the sociological study of victimization, which includes an examination of risks and frequencies, perceptions and fears, and the social and psychological impact of crime, accident and illness on individuals and their societies.

SOCA 350. Latin American Culture. 3 Hours.

Ethnographic analyses of the peoples, culture, history, and politics of Latin America, and its relation to the global processes. Consideration of popular cultures, political violence and impacts of colonialism, neocolonialism and globalization.

SOCA 352. Historical Archaeology. 3 Hours.

Archaeology of European colonization and post-colonial material culture in North America since 1492. Course examines analytical techniques including documentary research, artifact analysis and field excavation while scrutinizing archeological interpretation and its connections to present constituencies.

SOCA 354. Mesoamerican Archaeology. 3 Hours.

Overview of the diverse environments, social organizations, and lives of people in prehispanic cultures; from early food foragers through the Olmec, Maya, Teotihuacan, Zapotec, and Aztec. Explores how we understand and apply the Mesoamerican past.

SOCA 355. Cultural Resource Management. 3 Hours.

Overview and evaluation of government-sponsored preservation and study of archaeological and historical resources in the U.S., emphasizing West Virginia. Considers attitudes/relationships between participants including descendant communities, looters, public and private sectors.

SOCA 356. Ethnographic Field Methods. 1-6 Hours.

PR: Consent. (May be repeated for a maximum of 6 credit hours.) The distinctive craft of data gathering in cultural anthropology. Development of skills in field methods and participant observation.

SOCA 357. Archaeological Field School. 1-6 Hours.

(May be repeated for a maximum of six credit hours if different field schools.) Practical experience with the recovery and scientific study of archaeological remains. Emphasizes site survey, excavation, and laboratory techniques.

SOCA 358. Anthropology of Health and Illness. 3 Hours.

PR: 6 hours SOCA or consent. Health and disease, diagnosis, and healing in cross-cultural perspective; analyses of social, cultural, political, and economic factors in modern and traditional medical systems.

SOCA 359. Anthropological Thought. 3 Hours.

Analyzes and critiques anthropology as a discipline through humanistic and scientific approaches drawn from archaeological, biological, linguistic, and cultural perspectives. Examines social and intellectual history, principal theories, methods, practices, and ethical questions at an advanced undergraduate level.

SOCA 360. Women and Men in Society. 3 Hours.

PR: SOCA 101 or WGST 170. Sociological study of gender stratification. Emphasis on social, structural, historical, cultural bases of gender relations. Structured around issues of theoretical debate and research interest concerning U.S. gender system. Includes cross-cultural and international comparisons.

SOCA 361. Practicing Sociology and Anthropology. 1 Hour.

Career applications of sociological and anthropological knowledge and skills and practical concerns with preparing for life after graduation. Provides for personalized career exploration and planning.

SOCA 389. Writing in Sociology and Anthropology. 1 Hour.

Integration of context with writing about the important topics; must be taken concurrently with an approved writing content course. (For majors only; permit required.).

SOCA 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

SOCA 393B. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

SOCA 405. Class, Status, and Power. 3 Hours.

PR: Junior standing or consent. Sociological study of inequality within the U.S. with an emphasis on social class and socio-economic status; also highlights the intersection of gender, race/ethnicity, sexual orientation, place, age, ability, and poverty.

SOCA 407. Constructing Social Problems. 3 Hours.

PR: SOCA 232 and (SOCA 234 or CJ 101). Focuses on the dynamics of defining social problems, with emphasis on claims makers, especially activist groups and mass media. Examines how power influences perceptions, how perceptions affect policies, and how problem definitions relate to social change.

SOCA 415. Mass Media, Crime and Deviance. 3 Hours.

PR: SOCA 232 and (SOCA 234 or CJ 101). Critically examines how mass media and popular culture depict crime and deviance, and explores how these depictions influence social policies. Focuses especially on portrayals involving race, gender, class and ethnicity in particular historical contexts.

SOCA 417. Sociology of Globalization. 3 Hours.

Examines the social origins and implications of the growing interconnectedness of our world. Emphasis is given to economic, political, cultural, and environmental dimensions of globalization.

SOCA 431. Cybercrime. 3 Hours.

PR: SOCA 232 and (SOCA 234 or CJ 101). Examines the legal, social, and technical impacts of illegal activities facilitated through the use of computers or other technology devices. Focus is on these activities as a criminological phenomenon.

SOCA 432. Drugs, Crime, and Society. 3 Hours.

PR: SOCA 232 and (SOCA 234 or CJ 101). Examines the relationships between drugs and society from both micro and macro perspectives, including the effects of drug use and abuse in everyday life and government intervention efforts.

SOCA 433. Inside Out Prison Exchange. 3 Hours.

PR: SOCA 232 and (SOCA 234 or CJ 101) and consent. Experiential program which brings together students and incarcerated men or women inside prison to exchange ideas about criminal justice processes, analyze a designated concern, and produce recommendations for improvement.

SOCA 435. Criminal Justice Process. 3 Hours.

PR: SOCA 232 and (SOCA 234 or CJ 101). A sociological introduction to the formal and informal processes in the American criminal justice system that affect the investigation and prosecution of criminal cases, including the collection, analysis, and presentation of evidence.

SOCA 444. Neighborhoods and Crime. 3 Hours.

PR: SOCA 232 and (SOCA 234 or CJ 101). This course introduces students to the growing sociological literature on neighborhoods and crime, with an emphasis on issues related to the race/ethnicity and economic inequality.

SOCA 450. Archaeology of Ancient States. 3 Hours.

Using case studies such as ancient Sumer, Egypt, Indus, China, Mesoamerica, the Andes, and North America, this course surveys the theories and debunks the myths surrounding the emergence (and collapse) of cities and complex societies.

SOCA 457. Social Movements. 3 Hours.

Ethnographic approaches to the study of power, politics, and social change in the contemporary world. Focuses on past and present injustices, why ordinary people mobilize politically for change, and how to study these movements.

SOCA 458. Environmental Anthropology. 3 Hours.

Critical ethnographic analysis of environmental problems, activism, and potential solutions, including issues related to biodiversity conservation, sustainability, natural disasters, industrial contamination, environmental knowledge, risk perception, and nature/culture dynamics among Western and non-Western peoples.

SOCA 461. Issues in Crime and Justice. 3 Hours.

PR: SOCA 232 and (SOCA 234 or CJ 101). Senior seminar on crime and social organization of justice. Focus on problems of prevention, enforcement, corrections and institutional reform. Emphasis on recent research, emerging trends, and policy.

SOCA 463. Economy and Society. 3 Hours.

PR: 6 hours SOCA or consent. Examines the role that the economy as a social institution plays in the historical paradigms in sociology and modern social theory, as well as in organization and inequality models in sociology.

SOCA 464. Rural Criminology. 3 Hours.

PR: SOCA 232 and (SOCA 234 or CJ 101). The sociological study of crime and social control in rural communities. Focuses on theories and empirical research on rural and small-town crime, and implications for preventing and controlling crime in rural areas.

SOCA 470. Cities and Urban Life. 3 Hours.

PR: SOCA 232 and (SOCA 234 or CJ 101). This course introduces students to the scientific study of urban social activity and urban problems, including crime. The primary goals are to present the methods, theories, and key concepts of sociological perspectives on cities.

SOCA 478. Violence Against Women. 3 Hours.

PR: SOCA 232 and SOCA 234. Introduction of sociological studies of violence against women in intimate relationships. Examination of definitions, theories, and the latest empirical findings on a broad range of issues related to male-to-female psychological, physical, and sexual assaults. Exploration of progressive ways of preventing and controlling violence against women in private places.

SOCA 481. Society and Health. 3 Hours.

Examines the social causes and consequences of health and illness, including the health care structure, as related to culture, norms and social institutions.

SOCA 488. The Capstone Experience. 3 Hours.

PR: SOCA 359 or (SOCA 301 and SOCA 311) and senior standing. Senior capstone seminar in which students articulate how sociologists, criminologists and/or anthropologists come to an understanding of the social world and the human condition, and the significance of that knowledge. Students conduct in-depth research projects under the guidance of the course instructor, oriented to course-specific substantive emphases and ways of engaging with theory and evidence.

SOCA 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

SOCA 491. Professional Field Experience. 1-12 Hours.

PR: Consent. (May be repeated up to a maximum of 12 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

SOCA 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

SOCA 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

SOCA 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

SOCA 496. Senior Thesis. 1-3 Hours.

PR: Consent.

SOCA 497. Research. 1-6 Hours.

Independent research projects.

SOCA 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study and research.

SOCA 499. Global Service Learning. 1-3 Hours.

PR: Consent. Theory and practice of global service-learning. The main objective will be to pair the experiential aspects of meaningful and sustained service in the host community with work from the student's anchor course by offering a methodological framework for cultural immersion and community service as well as adding to the content of the anchor course.

SOWK 105. Social Welfare Institutions. 3 Hours.

Examines the historical development of social welfare in the United States and the values that shape social welfare institutions. (3 hr. lec.).

SOWK 147. Human Diversity. 3 Hours.

(Must be completed before applying to the major.) Covers a range of diverse populations especially those historically subjected to oppression and social and economic injustice. Addresses the causes and effects of institutionalized forms of oppression.

SOWK 151. Introduction to Social Work. 3 Hours.

PR: Consent. (Must be completed before applying to the major.) Overview of the social welfare field and social work profession. Emphasizes social work values and ethics.

SOWK 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

SOWK 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

SOWK 300. Social Welfare Policy and Services 1. 3 Hours.

PR: SOWK 151. Review of current and historical perspectives on the social welfare institution. Includes philosophical and ideological factors that influence U.S. social welfare policy and services.

SOWK 310. Social Welfare Policy and Services 2. 3 Hours.

PR: SOWK 300. Explores the social welfare policy-making process. Analyzes current social welfare programs and possible reforms, policy responses to social issues, and strategies for shaping and influencing policy and their impact on vulnerable populations.

SOWK 319. Skills Lab 1. 1 Hour.

PR: SOWK 151. This experiential component of SOWK 320 focuses on developing communication and interviewing skills, relationship building, and problem solving. (Grading will be pass/fail.).

SOWK 320. Social Work Methods 1. 3 Hours.

PR: SOWK 147 and SOWK 151. Presents a broad range of generalist practice knowledge, values and skills. Focuses on theories and interventions with individuals, and introduces evaluation of practice effectiveness. (30-hour service learning requirement.).

SOWK 322. Social Work Methods 2. 3 Hours.

PR: SOWK 319 and SOWK 320. Builds on Methods 1 by focusing on more specific theories, methods, and intervention models with groups, communities, and organizations. Introduces program evaluation. (30-hour service learning requirement.).

SOWK 324. Methods 3: Organizations and Communities. 3 Hours.

PR: SOWK 319 and SOWK 320 and SOWK 322. Focuses on applying theories and concepts of generalist social work practice at the macro (organization/community) system level with an emphasis on rural environments.

SOWK 330. Human Behavior in the Social Environment 1. 3 Hours.

PR: SOWK 147 and SOWK 151. Individual development within the family context. Provides students with a life course perspective, and the understanding of the relationships among biological, social, psychological, and spiritual dimensions as they are affected by human behavior and family life.

SOWK 350. Human Behavior in the Social Environment 2. 3 Hours.

PR: SOWK 319 and SOWK 320 and SOWK 330. Groups, organizations, and communities. Examines, using an ecosystem's perspective, the influence of communities, organizations and groups on human functioning. Emphasis on the challenges and opportunities offered by rural environments.

SOWK 360. Social Work Research and Statistics. 3 Hours.

PR: SOWK 300. Introduces and applies research and statistical methods social workers use to evaluate practice and programs, to critique research, to build knowledge for practice, and to address ethical standards of scientific inquiry.

SOWK 380. Child Welfare. 3 Hours.

Introduction to issues in the field of child welfare. Includes policies, practice, protective services, family centered services, prevention, out of home placement, and in-home placement.

SOWK 400. Legal Issues in Social Work. 3 Hours.

PR: SOWK 300 and SOWK 320 and SOWK 330. Explores legal and ethical issues and obligations affecting social workers and social work practice.

SOWK 401. Social Work Practice and Human Sexuality. 3 Hours.

PR: SOWK 319 and SOWK 320 and SOWK 330. Focus on issues of sexuality that impact direct/micro and mezzo practice, and indirect/macro social work practice.

SOWK 403. Social Issues of Public Health. 6 Hours.

Examines issues related to assessment and intervention in community health/mental health in Vietnam and Cambodia.

SOWK 404. Social Work Practice and End of Life Care. 3 Hours.

PR: SOWK 300 and SOWK 319 and SOWK 320 and SOWK 330. Applies a multidisciplinary and multidimensional approach to the study of end of life. Addresses death, dying, and bereavement across the lifespan.

SOWK 481. Senior Capstone. 3 Hours.

PR: Completion of advanced SOWK courses with a grade of C- or higher in each course. Provides educational direction and support for students' field placement experience. Assists students in the integration, mastery, and application of practice theory in conjunction with placement learning activities, and provides opportunities to apply research to practice by evaluating the effectiveness of practice and programs.

SOWK 491. Professional Field Experience. 1-12 Hours.

PR: Consent. (May be repeated up to a maximum of 12 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

SOWK 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

SOWK 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

SOWK 494A. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

SOWK 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

SOWK 499. Global Service Learning. 1-3 Hours.

PR: Consent. Theory and practice of global service-learning. The main objective will be to pair the experiential aspects of meaningful and sustained service in the host community with work from the student's anchor course by offering a methodological framework for cultural immersion and community service as well as adding to the content of the anchor course.

SPAN 100. Intensive Elementary Spanish. 6 Hours.

PR: Score of S1 on placement test or no prior study of the language or departmental consent. Equivalent of SPAN 101 and 102 combined into one course.

SPAN 101. Elementary Spanish 1. 3 Hours.

PR: Score of S1 on placement test or no prior study of the language or departmental consent. Introduction to the sound and writing systems of the language with emphasis on listening, speaking, reading and writing within an authentic cultural context. (Course presumes no prior knowledge of the language.)

SPAN 102. Elementary Spanish 2. 3 Hours.

PR: SPAN 101 or score of S2 on placement exam. Continuation of SPAN 101. Introduction to the sound and writing systems of the language with emphasis on listening, speaking, reading, and writing within an authentic cultural context.

SPAN 200. Intensive Intermediate Spanish. 6 Hours.

PR: SPAN 102 or SPAN 100 or consent. The equivalent of SPAN 203 and 204 combined into one course.

SPAN 203. Intermediate Spanish 1. 3 Hours.

PR: SPAN 102 or score of S3 on placement exam. Continuation of SPAN 102.

SPAN 204. Intermediate Spanish 2. 3 Hours.

PR: SPAN 203 or score of S4 on placement exam. Foundation for advanced study of Spanish. Emphasis on oral and written communication.

SPAN 260. Intensive Intermediate Spanish in Latin America. 3-6 Hours.

PR: SPAN 102. Development of intermediate reading writing, listening, and speaking skills taught on location, as part of a faculty-led program in Latin America.

SPAN 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

SPAN 298. Honors. 1-3 Hours.

PR: Student in Honors Program and consent by the honors director. Independent reading, study or research.

SPAN 310. Spanish for Heritage Speakers. 3 Hours.

Grammar, reading, writing, and culture for heritage speakers of Spanish with little or no formal education in Spanish language.

SPAN 311. Readings in Spanish. 3 Hours.

PR: SPAN 200 or SPAN 204 or a satisfactory score on the Spanish placement test. Major emphasis on improving reading skills in Spanish through comprehension exercises, discussion, and written analyses. Grammar review when appropriate.

SPAN 312. Writing in the Hispanic World. 3 Hours.

PR: SPAN 200 or SPAN 204 or a satisfactory score on the Spanish placement test. Major emphasis on improving writing skills in Spanish such as description, narration and argumentation through exposure to different types of cultural texts.

SPAN 313. Spanish Through Media. 3 Hours.

PR: SPAN 310 or SPAN 311 or SPAN 312. Explores Spanish language and Hispanic cultures through audio-visual materials.

SPAN 314. Spanish Conversation. 3 Hours.

PR: SPAN 311 or SPAN 312 or SPAN 313. Conversational skills are emphasized through class discussions and oral reports. Students cannot receive credit for both this course and SPAN 310.

SPAN 330. Latin American Culture. 3 Hours.

PR: Two courses from SPAN 310, SPAN 311, SPAN 312, SPAN 313, SPAN 314. Survey of Latin American Civilization and culture from Pre-Columbian period to the present.

SPAN 331. Early Spanish American Literature. 3 Hours.

PR: Two 300-level SPAN courses. Readings in Spanish American literature from the colonial period to Modernism.

SPAN 332. Modern Spanish American Literature. 3 Hours.

PR: Two 300-level SPAN courses. Readings in Spanish American literature from Modernism to the present.

SPAN 333. Spanish American Literature. 3 Hours.

PR: Two 300-level SPAN courses. Readings in Spanish American literature from the colonial period to the present.

SPAN 334. Seminar in Spanish American Literature. 3 Hours.

PR: Two courses from SPAN 310, SPAN 311, SPAN 312, SPAN 313, SPAN 314. In-depth study of key words of the Spanish American literary canon.

SPAN 335. Seminar in Spanish-American Culture. 3 Hours.

PR: 2 courses from SPAN 310, SPAN 311, SPAN 312, SPAN 313, SPAN 314. Examination of media, film, dance, music, visual arts, food, or other non-literary cultural production of Spanish America.

SPAN 340. Culture of Spain. 3 Hours.

PR: Two courses from SPAN 310, SPAN 311, SPAN 312, SPAN 313, SPAN 314. Survey of Spanish civilization and culture from its origins to the present day.

SPAN 341. Early Literature of Spain. 3 Hours.

PR: SPAN 304. Readings in Spanish literature from the medieval period to the eighteenth century.

SPAN 342. Modern Literature of Spain. 3 Hours.

PR: Two courses from SPAN 310, SPAN 311, SPAN 312, SPAN 313, SPAN 314. Readings in Spanish literature from the eighteenth century to the present.

SPAN 343. Spanish Literature. 3 Hours.

PR: Two 300-level SPAN courses. Readings in Spanish literature from the medieval period to the present.

SPAN 345. Seminar in Spanish Culture. 3 Hours.

PR: Two courses from SPAN 310, SPAN 311, SPAN 312, SPAN 314. Examination of media, film, dance, music, visual arts, food, or other non-literary cultural productions of Spain.

SPAN 350. Phonetics and Pronunciation. 3 Hours.

PR: Two of the following: SPAN 310, SPAN 311, SPAN 312, SPAN 313, SPAN 314, or consent. Introduces key concepts and terminology associated with the sound system of Spanish and prepares students to improve their pronunciation.

SPAN 360. Intensive Advanced Spanish in Latin America. 3-6 Hours.

PR: SPAN 204. Development of advanced reading writing, listening, and speaking skills taught on location, as part of a faculty-led program in Latin America.

SPAN 361. Commercial Spanish. 3 Hours.

PR: Two courses from SPAN 310, SPAN 311, SPAN 312, SPAN 313, SPAN 314. Development of advanced speaking, reading, and writing skills appropriate for business contexts within the Spanish-speaking world.

SPAN 363. The Avant-Garde. 3 Hours.

PR: Three SPAN courses 300 level or above. Examines the Avant-Garde in Spain and Latin America, providing in-depth study of literature, film, art, and other cultural products.

SPAN 370. Advanced Spanish Language in Spain. 3 Hours.

PR: SPAN 204 or SPAN 200 or score of 494 or higher on placement test. Overview of reading writing, listening and speaking skills taught on location, as part of a faculty-led summer program in Spain.

SPAN 371. Introduction to Spanish Culture in Spain. 3 Hours.

PR: SPAN 204 or SPAN 200 or a score of 494 or higher on placement test. Overview of Spanish culture taught on location as part of the faculty-led summer program in Spain.

SPAN 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

SPAN 401. Grammar Review. 3 Hours.

Intensive grammar review for graduate students. (Credit does not count toward 36 hours required for master's degree.).

SPAN 480. Issues in the Hispanic World. 3 Hours.

PR: Completion of 21 upper division hours in Spanish. An examination of contemporary issues facing the Hispanic world, with particular attention given to cultural developments and influences.

SPAN 481. Hispanic Presence in the World. 3 Hours.

Completion of 21 upper-division hours in Spanish. This course is designed to provide Spanish majors with a capstone experience and offers them a more comprehensive view of the role of Spanish in the world.

SPAN 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

SPAN 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

SPAN 492. Directed Study. 1-3 Hours.

Directed study, reading, and/or research.

SPAN 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

SPAN 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

SPAN 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

SPAN 496. Senior Thesis. 1-3 Hours.

PR: Consent.

SPAN 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study, or research.

SPED 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

SPED 304. Special Education in Contemporary Society. 3 Hours.

Special education principles and practices, interactions between disability and diversity in identification and intervention, and influences of family, professional, school and community infrastructures on educational programs/ outcomes for children and adults. (Equivalent of DISB 304).

SPED 311. Developmental Assessment for Young Children with Special Needs. 3 Hours.

Biological and environmental factors associated with developmental disabilities, delays and at risk conditions in young children, their impact across developmental domains, and assessment procedures to identify needs and plan interventions in the early childhood years.

SPED 312. Differentiated Instruction for Young Children. 3 Hours.

Individualized instruction for young children with special needs in early childhood education programs through curriculum modifications, instructional adaptations, and environmental accommodations.

SPED 314. Center-Based Programs Early Intervention. 3 Hours.

PR: SPED 312. Policies and practices for center-based early childhood special education for young children from ages 3-6; individual education plans to promote early learning and child-peer interactions in preschool settings.

SPED 315. Home-Based Programs Early Intervention. 3 Hours.

PR: SPED 312. Policies and practices for home-based early intervention for young children with special needs from 0-3; individual family service plans and intervention programs to support early development and family interactions in the home settings.

SPED 316. Behavior Support Young Children Special Needs. 3 Hours.

Emotional and social development in young children; causes and characteristics of problem behaviors in early childhood; assessment of behavior; and positive behavior supports for individuals and groups in- home and center- based preschool settings.

SPED 317. Technology for Young Children with/without Special Needs. 3 Hours.

Developmentally appropriate use of technology in early childhood education programs; assistive devices and services to accommodate young children with special needs; integration of technology into curriculum to address early learning standards.

SPED 360. Differentiation of Instruction for Students with Special Needs. 3 Hours.

Strategies for differentiation of instruction for students with special needs in general and special education settings, using an individualized, data-based decision making-process for organization, adaptation, and implementation of curriculum, methods and materials.

SPED 364. Individualized Educational Programming. 3 Hours.

PR: SPED 304. Individualized curriculum planning and instructional program design for students with mild disabilities at elementary and secondary school levels; evidence-based practice in special and inclusive classrooms; lesson planning, implementation and evaluation.

SPED 365. Technology and Universal Design for Learning. 3 Hours.

Application of computer hardware and software, adaptive and assistive devices, instructional and productivity software, and principles and practices of Universal Design for Learning for students with special needs.

SPED 366. Transition Planning. 3 Hours.

PR: SPED 304. Assessment, planning, and programs to promote transition to post-secondary education and employment for students with special needs through individual transition plan process.

SPED 381. Special Problems and Workshop in Special Education. 2-4 Hours.

PR: Consent. To take care of credits for special workshops and short intensive unit course on methods, supervision, and other special topics.

SPED 381A. Special Problems and Workshop in Special Education. 2-4 Hours.

PR: Consent. To take care of credits for special workshops and short intensive unit course on methods, supervision, and other special topics.

SPED 402. Educational Assessment for Students with Special Needs. 3 Hours.

Formal and informal assessment procedures for eligibility decisions, program development, and progress assessment in special education, assessment accommodations, designing appropriate educational programs from assessment data.

SPED 403. Behavior Support for Students with Special Needs. 3 Hours.

Theory and classroom application of intervention procedures to implement behavior changes in students with special needs; effective group and individual behavior management.

SPED 419. Internship: Preschool Special Needs. 6 Hours.

Internship or advanced student teaching for certification or additional endorsement to work with children ages birth to pre-kindergarten with special needs.

SPED 460. Differential Elementary Instruction. 3 Hours.

PR: SPED 304. Strategies for individualizing instruction for diverse learners in core content/tool skills for grades K-6, including universal design for learning, response to intervention, curriculum modifications, specialized interventions, ongoing assessment, and co-planning and co-teaching processes.

SPED 461. Differentiated Secondary Instruction. 3 Hours.

PR: SPED 304. Strategies for individualizing instruction for diverse learners in academic content areas for grades 5- 12, including universal design for learning, response to intervention, curriculum modifications, specialized interventions, ongoing assessment, and co-planning and co-teaching processes.

SPED 463. Collaborative-Consultative Inclusion Strategies. 3 Hours.

Strategies for building and maintaining effective collaborative teams for the inclusive school environment; skills for communication, decision making, group dynamics, and conflict resolution.

SPED 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

SPED 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated for a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

SPED 492. Directed Study. 1-3 Hours.

Directed study reading and/or research.

SPED 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

SPED 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

SPED 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

SPED 496. Senior Thesis. 1-3 Hours.

PR: Consent.

SPED 497. Research. 1-6 Hours.

Independent research projects.

SRVL 179. Introduction to Service Learning for Student Support Services/TRIO. 1 Hour.

This course allows SSS/TRIO participants to work in small peer groups to complete volunteer work with a local non profit/community partner. Students will acquire transferable skills and knowledge that will be useful in college and as a life-long learner.

SRVL 199. Orientation to Service Learning. 1,2 Hour.

Orientation to degree programs and requirements, departmental resources, curriculum options, student responsibilities and opportunities.

SRVL 200. Serving the Public Schools. 3 Hours.

Provides educational direction and support for students who perform community service in public schools. Students serve as tutors, student advisors, and mentors and help to instill the benefits of higher education.

SRVL 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

SRVL 298. Honors. 1-3 Hours.

PR: Student in the Honors Program and consent. Independent reading, study or research.

SRVL 300. Intro to WVU Peer Advocates. 3 Hours.

Professional training in crisis intervention and prevention of student sexual assault and other personal violence. Includes a service-learning component.

SRVL 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

SRVL 400. WVU Peer Advocates Advanced. 3 Hours.

PR: SRVL 300. Advanced approaches to responding, advocating, and preventing sexual assault, power based personal violence, and forms of discrimination.

SRVL 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

SRVL 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

SRVL 492. Directed Study. 1-3 Hours.

Directed study, reading, and or research.

SRVL 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

SRVL 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

SRVL 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

SRVL 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study, or research.

SRVL 499. Global Service Learning. 1-3 Hours.

PR: Consent. Theory and practice of global service learning. The main objective will be to pair the experiential aspects of meaningful and sustained service in the host community with work from the student's anchor course by offering a methodological framework for cultural immersion and community service as well as adding to the content of the anchor course.

STAT 111. Understanding Statistics. 3 Hours.

Introduction to basic concepts and ideas of statistics. Methodologies and case studies to prepare students to understand the use of statistics in the mass media and professional publications in their major field of study. Not open to students who have earned credit for STAT 211 or STAT 215.

STAT 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

STAT 201. Applied Statistical Modeling. 3 Hours.

PR: MATH 121 or higher. Introduction to modeling in the social, behavioral, and health sciences. Descriptive statistics, probability, discrete/continuous distributions, random variables, sampling distributions, t-tests, regression, correlation, categorical models, repeated measures, one- and two-way ANOVA, covariance models.

STAT 205. Introductory Probability and Statistical Inference. 3 Hours.

PR: MATH 150 or equivalent. Probability, random variables, expectation, random sampling, descriptive statistics, sampling distributions, estimation, hypothesis testing, linear regression, and nonparametric statistics.

STAT 211. Elementary Statistical Inference. 3 Hours.

PR: WVU and PSC sections require MATH 122 with a minimum grade of C- or MATH 124 or higher, or advanced placement, Tech sections require MATH 124 or higher, or advanced placement. (Not open to students who have completed STAT 215.) Basic concepts of descriptive and inferential statistics: descriptive measures, random variables, sampling distributions, estimation, tests of hypotheses, chi-square tests, regression and correlation. (Equivalent to ECON 225.).

STAT 215. Introduction to Probability and Statistics. 3 Hours.

PR: MATH 156. Probability, random variables, discrete and continuous probability distributions, joint probability distributions, and expected value. The central limit theorem. Point and interval estimation and tests of hypotheses. Chi-square tests, linear regression, and correlation.

STAT 217. Industrial Statistics. 3 Hours.

PR: STAT 215 or equivalent. Statistical methods for solving industrial problems including statistical quality and process control, reliability modeling, sequential analysis, and time series analysis. Methodology for these problems will utilize a statistical software program.

STAT 222. Numerical and Symbolic Methods in Mathematics and Statistics. 3 Hours.

PR: MATH 156. Data manipulation, data visualization in two and three dimensions including animation, and scientific programming using a high-level language, symbolic manipulators, and other packages. Applications to problems in mathematics and statistics. (Equivalent to MATH 222.).

STAT 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

STAT 298. Honors. 1-3 Hours.

PR: Students in the Honors Program and consent by the honors director. Independent reading, study or research.

STAT 312. Intermediate Statistical Methods. 3 Hours.

PR: STAT 211 or STAT 215 or equivalent. Extension of basic concepts of statistical inference: estimation and hypothesis testing for more than two populations, multiple regression and correlation, curvilinear regression, analysis of variance and covariance.

STAT 313. Introductory Design and Analysis. 3 Hours.

PR: STAT 312. Introduction to the linear model, the complete and fractional factorial experiment, and the completely random, randomized complete block, Latin square, and split-plot experimental designs.

STAT 316. Forensic Statistics. 3 Hours.

PR: STAT 215. Probabilistic and statistical evaluation of evidence in forensic science: concepts of uncertainty/variation, discriminating power, coincidence/significance probabilities, historical overview, transfer evidence, DNA profiling, fingerprint identification, biometric identification, and selected forensic statistics topics/ case studies.

STAT 331. Sampling Methods. 3 Hours.

PR: STAT 211 or STAT 215 or equivalent. Methods of sampling from finite populations, choice of sampling unit and sample survey design. Estimation of confidence limits and optimum sample size. Single and multi-stage sampling procedures.

STAT 421. Statistical Analysis System (SAS). 3 Hours.

PR: (STAT 211 or STAT 215 or equivalent) and (CS 110 or equivalent). Introduction to the use of the Statistical Analysis System (SAS), a statistical computer program. Students will perform statistical data analysis, data file modifications, and statistical report writing.

STAT 423. Bioinformatics Computing. 3 Hours.

PR: STAT 312. Introduction to R computing within a bioinformatics context. Topics include: R packages, data structures, objects, and data input/output; R data Visualization; R/Perl text processing; accessing bioinformatics databases; and R interfaces to Perl, Java, and SQL databases.

STAT 443. Computational Genomics. 3 Hours.

PR: STAT 312. Introduction to computational genomics and bioinformatics based on probabilistic and statistical models. DNA sequence analysis, multiple sequence alignment, signaling in DNA, gene expression analysis, phylogenetic trees, and linkage disequilibrium. The use of R/Bioconductor computational tools.

STAT 445. Data Analysis. 3 Hours.

PR: STAT 312 or equivalent. Computer analyses of simulated or real unbalanced data using a matrix approach to linear models. The techniques will include least squares analysis of variance and covariance, multiple and polynomial regression, and multiple discrimination.

STAT 461. Theory of Probability. 3 Hours.

PR: MATH 251. Theoretical coverage of probability, random variables, and discrete and continuous probability distributions. Expected value, moment generating functions, and special probability distributions. Random sampling and distributions of certain functions of random variables. The Central Limit Theorem.

STAT 462. Theory of Statistics. 3 Hours.

PR: STAT 461. Theoretical introduction to statistical inference. Properties of estimators and techniques of estimation. Hypotheses testing including the Neyman-Pearson Lemma and likelihood ratio tests. Regression and correlation. Selected topics.

STAT 482. Statistics Practicum. 1 Hour.

PR: STAT 313. A capstone experience core course. Students are expected to: research and design (optionally) a study, do independent statistical analyses of a data set, and present the results in both verbal and written forms.

STAT 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

STAT 491. Professional Field Experience: Capstone. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

STAT 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

STAT 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

STAT 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

STAT 496. Senior Thesis. 1-3 Hours.

PR: Consent.

STAT 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

STCM 315. Strategic Advertising and Public Relations Writing. 3 Hours.

PR: (STCM 215 or ADV 215 or PR 215) and JRL 215, with a minimum grade of C- in each. This class provides exposure to and practice in developing the kinds of writing required in advertising and public relations careers. (Course is equivalent to ADV 315 & PR 324.).

STCM 421. Advertising & PR Audience Insights & Analysis. 3 Hours.

PR: STCM 315 or ADV 315 or PR 324 with a minimum grade of C-. This course focuses on in-depth examination of the multi-faceted world of advertising and public relations research, and the array of complex tools used to produce meaningful results. (Also listed as ADV 421, PR 422, & STCM 521).

STCM 438. Branded Content and Narrative. 3 Hours.

PR: JRL 101 and (ADV 201 or ADV 215 or PR 215 or STCM 215) with a minimum grade of C- in each. This course provides an introduction into how the role of content is evolving in the modern marketing communications landscape and how to apply different types of content generation to new and traditional channels. Additional topics cover the pros and cons of content marketing vs. traditional marketing communication strategies.

STCM 439. Strategic Social Media. 3 Hours.

PR: JRL 101 and (PR 215 or ADV 201 or ADV 215 or STCM 215) with a minimum grade of C- in each. This online majors-only course is an accelerated examination of the social media landscape with a focus on crafting messages and successful case studies related to how social media channels can be strategically used to meet the goals of corporate, non-profit, political and issue-based outreach messaging.

STCM 452. Strategic Communication Strategy and Management. 3 Hours.

PR: JRL 101 and JRL 215 and (PR 215 or ADV 215 or STCM 215) with a minimum grade of C- in each. This course covers strategic communications from a client's perspective and includes campaign planning and management of various marketing communication agencies.

STCM 457. Martin Hall Agency Experience. 3 Hours.

PR: STCM 421 and (ADV 315 or PR 324) with a minimum grade of C- in each. This capstone course is designed as a faculty-advised advertising and public relations agency, designed to provide a real-world professional experience in the university setting. Students manage accounts and work in interactive teams to develop integrated multi-media advertising and public relations strategies, materials and campaigns to address the strategic communication needs of real-world clients.

STCM 459. Strategic Communication Campaigns for Public Relations and Advertising. 3 Hours.

PR: STCM 315 and STCM 421 with a minimum grade of C- in each. This capstone course synthesizes knowledge from all prior major courses and applies it to the development of a Strategic Communications (Advertising and Public Relations) campaign in a real world environment. (Also listed as ADV 459, PR 459 and STCM 559).

STCM 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

STCM 499. Global Service Learning. 1-3 Hours.

PR: Consent. Theory and practice of global service learning. The main objective will be to pair the experiential aspects of meaningful and sustained service in the host community with work from the student's anchor course by offering a methodological framework for cultural immersion and community service as well as adding to the content of the anchor course.

THET 101. Introduction to the Theatre. 3 Hours.

(Open to all students.) A survey of the nature and function, the arts and crafts, and major phases in the historical development of the theatre.

THET 102. Acting. 3 Hours.

(Open to all students.) Basic theories and concepts in stage acting for the beginning student. Emphasis on the physical, intellectual, emotional, and personality languages of acting.

THET 103. Stagecraft. 3 Hours.

Fundamentals of scenery construction and technical theatre through formal lecture. Requirements include assignments on running crews for Division productions.

THET 104. Stagecraft Lab. 1 Hour.

PR or CONC: THET 103. (May be repeated for a maximum of 3 credits.) Fundamentals of scenery construction and technical theatre through practical crew experience. Requirements include assignments on scenic construction for Division productions.

THET 105. Costuming. 3 Hours.

Introduction to Stage Costuming through lecture and demonstration. Emphasis on the application of basic sewing skills and processes used in costume construction.

THET 106. Costuming Lab. 1 Hour.

(May be repeated for a maximum of 3 credit hours.) Introduction to stage costuming through practical experience. Emphasis on the application of basic sewing skills and processes used in costume construction for Division productions.

THET 113. Stage Management Principles. 1 Hour.

An examination of the fundamental principles that govern the contemporary stage manager.

THET 143. Freshman Directing Workshop. 1 Hour.

Exploration of the collaborative relationship between actor and director from the actor's point of view.

THET 144. Fundamentals of Acting. 3 Hours.

PR: Theatre major. An introduction to the fundamental techniques of acting with a focus on ensemble building, action, imagination, concentration of attention, and objectives. Course projects include structured improvisations and exercises leading to beginning scene study in Realism. Pre-requisite(s) and/or co-requisite(s) may differ on regional campuses.

THET 160. Theatre Fundamentals. 3 Hours.

An examination of basic theatre concepts, the roles of practitioners in the production process, and an analysis of scripts in light of major theoretical and critical movements.

THET 170. World Theatre and Drama. 3 Hours.

Introduction to theatre and drama traditions in ten world cultures. An intercultural study of theaters, performance and staging practices, the cultural milieu, and dramatic literature.

THET 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

THET 200. Production Practicum. 1 Hour.

PR: THET 104 or THET 106 or consent. (May be repeated for a maximum of 4 hours.) Assigned theatre projects as an introduction to the elements of theatrical production.

THET 213. Stage Management Practicum. 2 Hours.

PR or CONC: THET 113. Practical production experience as stage manager. (May be repeated for a maximum of 6 hrs.).

THET 219. Intermediate Costume Construction. 3 Hours.

PR: THET 105. Study and practical application of costume construction techniques and introduction to pattern making with an emphasis on their applications through extensive hands-on experience with construction projects for division productions.

THET 220. Fundamentals of Lighting. 3 Hours.

PR: THET 103. Fundamentals of stage lighting through formal lecture and practical experience. Laboratory requirements include assignments on the lighting/electrics crews for school productions.

THET 221. Theatre Makeup. 3 Hours.

Lecture-laboratory course in art of stage makeup. Practical makeup for the University Theatre productions.

THET 222. Drafting for the Stage. 3 Hours.

PR: THET 103. Techniques in drafting in accordance with current graphic standards for stage design and technology. Introduction and refinement of technique and graphic style through projects and exercises.

THET 225. Introduction to Stage Design 1. 3 Hours.

PR: THET 110 and THET 111. Study elements/principles of two/three dimensional design and application to scenery, lighting and costume design. Emphasis on creative analysis and communication using techniques in drawing, painting, and model making.

THET 226. Introduction to Stage Design 2. 3 Hours.

PR: THET 225. Experience applying elements/principles of two/three dimensional design to study of scenery, lighting, and costume design. Studio course focusing on color theory, painting and finishing techniques in model making.

THET 230. Text Analysis. 3 Hours.

For the student theatre practitioner in acting, design, directing, and stage management. Explorations include: anchoring techniques, concept of pressures, and the parameters of a dramatic event.

THET 231. Advanced Text Analysis. 3 Hours.

PR: THET 230. For the student practitioner in the studio acting program only exploring, in more depth, and with new challenging texts, analysis techniques of THET 230 but with total focus on performing the text.

THET 240. Fundamental Vocal Techniques. 2 Hours.

PR: Majors only. Developing the expressive voice. Understanding the anatomy and physiology of the voice, breath and resonance. Release of physical blocks.

THET 242. Fundamentals of Movement. 2 Hours.

PR: Consent. An investigation into the fundamentals of human movement, and issues of movement in performance. Exercises concentrate on the development of spatial and self-awareness, ensemble skills, and character development.

THET 244. Intermediate Acting. 3 Hours.

PR: THET 144. Continued exploration of acting techniques including exercise work in objectives, beats, actions, personalization, environment improvisation, monologue, and scene study work.

THET 245. Intermediate Acting. 3 Hours.

PR: THET 244. Continuation of THET 244.

THET 246. Auditioning and Career Development. 3 Hours.

PR: THET 102 or THET 144 or permission of the instructor. Preparatory and laboratory class in auditioning for theatre, film and television. Examination of the entertainment industry including headshots, resumes, unions, casting, representation, self-branding and promotion, and personal career development.

THET 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

THET 300. Practicum. 1 Hour.

PR: THET 104 or THET 106 or consent. (May be repeated for a maximum of 4 credit hours.) Assigned independent production projects supervised by a faculty mentor.

THET 301. History of Western Theatre. 3 Hours.

A survey of important movements, people, innovations, styles, and traditions in European and American theatre from the Greeks to the present.

THET 302. Directing. 3 Hours.

Fundamental theory and practice of directing for live theatre with emphasis on script analysis, director-actor communication, ground plan, and composition.

THET 310. Stagecraft 2. 3 Hours.

PR: THET 103. Study of advanced technical procedures including welding, materials, wood joinery, and practical construction problem solving. Emphasis on the practices and development of skills through projects.

THET 312. Theatrical Rigging. 3 Hours.

PR: THET 222. An examination of the tools, equipment, hardware, and safety practices commonly used in theatrical rigging.

THET 315. Portfolio Development. 3 Hours.

A 3 hour lab course on techniques of portfolio development focusing on both digital and traditional portfolio formats and related general techniques of graphic design and image preparation.

THET 321. Stage Properties. 3 Hours.

PR: THET 103. Techniques and methods for designing and fabricating stage properties for theatrical production. Practical experience in the construction of properties for class projects and for the School's productions.

THET 322. Scene Design. 3 Hours.

PR: THET 222 and THET 225. Introduction to the fundamentals of scenic design including conceptualization, development, drafting, rendering, model building and techniques of design presentation.

THET 323. Advanced Scene Design. 3 Hours.

PR: THET 322. (May be repeated for a maximum of 9 credit hours.) Advanced study of scenic design with an emphasis on conceptualization, rendering, model building, and alternative forms of design presentation for the performing arts.

THET 324. Costume Design 1. 3 Hours.

PR: THET 226. Study of basic design elements as applied to costume design. Script analysis leading to conceptualization and communication through visual language. Experience in practical organization skills, paperwork and budgeting.

THET 325. Lighting Design. 3 Hours.

PR: THET 220. Experience in the design of stage lighting including conceptualization, drafting and rendering techniques related to the development and presentation of lighting design.

THET 326. Advanced Costume Design. 3 Hours.

PR: THET 324. Experience applying the basic principles of costume design to text, movement text, opera, dance, and puppetry. Emphasis on rendering techniques, presentation, composition, and fabric selections. (May be repeated for a max of 6 credit hours.).

THET 327. History of Costume and Decoration 1. 3 Hours.

PR: THET 225 and THET 226. A historical survey of clothing, artistic style and decoration from ancient Egypt to 1750. Emphasis on how stage designers employ style in the design of costumes, scenery, and properties. (Field trip required.).

THET 328. History of Costume and Decoration 2. 3 Hours.

PR: THET 225 and THET 226. A historical survey of clothing, artistic style, and decoration from 1750 to the present. Emphasis on how stage designers employ style in the design of costumes, scenery and properties. (Field trip required.).

THET 329. Computer Assisted Design for the Stage. 3 Hours.

3 Hr. PR: THET 222. Study of the graphic applications of computer assisted design and drafting for stage design through project work and exercises in a studio format.

THET 330. Rendering Techniques. 3 Hours.

This course allows the students to explore and develop different techniques of rendering scenic, costume, and lighting designs. Students will work in watercolor, acrylic, marker, pencil and other media.

THET 340. Intermediate Vocal Techniques 1. 2 Hours.

PR: THET 240 and consent. Extending vocal range, power, and flexibility. Achieving personal connection between words and self. Formation of speech sounds.

THET 341. Intermediate Vocal Techniques 2. 2 Hours.

PR: THET 340 and consent. Developing of flexibility and muscularity of the voice. Phonetics.

THET 342. Stage Movement 1. 2 Hours.

PR: THET 242 and consent. Continuation of THET 242. Workshop in movement skills related to the actor's craft, including the analysis, description and execution of a broad range of movement qualities.

THET 343. Stage Movement 2. 2 Hours.

PR: THET 342 or consent. May be repeated for a maximum of 6 credit hours. An exploration of compositional techniques through the development of original performance material using movement as a basis. Will include a study of the history of theatrical performance art works and artists.

THET 344. Acting Studio. 3 Hours.

PR: THET 244 or consent. The purpose of studio is to reexamine basic acting principles and introduce advanced techniques in characterization, personalization, and given circumstances through exercises, monologue work, and intensive scene study coordinated with rehearsal and performance in THET 345.

THET 345. Acting Studio. 3 Hours.

PR: Consent. Continuation of THET 344. Applied application of intermediate work in personalization, given circumstances, action, and objectives. Includes rehearsal and performance of play from the Modern Contemporary Theatre.

THET 346. Actor's Craft. 3 Hours.

PR: THET 244. Gives the general theatre student a studio style acting class experience, emphasizing exercises and monologue and scene work in a variety of styles.

THET 348. Studio Scene Study 1. 1 Hour.

PR: THET 244. The presentation of scenes chosen from modern and contemporary theatre, before a panel of acting, voice, and movement faculty for critique.

THET 352. Acting the Song. 3 Hours.

PR: THET 144. Exploration of lyric, rhyme, imagery, storytelling, phrasing, musical composition and overall theme of a song for clues the actor can use in performance.

THET 355. Musical Theatre Studio. 3 Hours.

PR: THET 244 and MUSC 226. (May be repeated for a maximum of 6 credit hours.) Examine, explore and execute acting techniques and styles applicable to the musical through scene and musical performance study as well as classroom exercises.

THET 365. Traditions of Dramatic Literature. 3 Hours.

PR: THET 260 or THET 301. An overview of dramatic literature from the Greeks to Pinter. The class will study one play per week in a seminar-style format with written assignments appropriate to a Writing course.

THET 370. Production Dramaturgy. 3 Hours.

PR: THET 112. A process-oriented course dealing with the demands and possibilities for dramaturges in the contemporary theatre. Casebooks and work with other sources contribute to the skill set for dramaturges assisting productions.

THET 375. Puppet Construction. 3 Hours.

PR: THET 105. This studio class focuses on puppetry through the study of basic mechanical systems, printing, sculpting, sewing and finishing techniques.

THET 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

THET 400. Advanced Production Practicum. 1 Hour.

PR: THET 200 or consent. (May be repeated for a maximum of 6 hours.) Assigned advanced production projects that are supervised by a faculty mentor.

THET 401. Capstone Experience. 3 Hours.

This course provides a culminating senior project for students in the areas of BFA acting, design, puppetry, and children's theatre, as well as for the BA in theatre.

THET 402. Repertory Theatre. 1-6 Hours.

PR: Consent. Rehearsal and performance techniques for producing plays in rotating repertory. Emphasis is on the creation of synthesized company of performers, designers, and technicians. (May be repeated for maximum of 12 credit hours.).

THET 403. Advanced Directing. 3 Hours.

PR: THET 302. Emphasis on the work of the director as an integrating artist. High level of proficiency in the direction of a one-act play is required of all students enrolled.

THET 404. Playwriting. 3 Hours.

PR: Consent. Development of basic playwriting techniques. Specific assignments explore characterization, dramatic event, dialogue, tension, compression. Emphasis on the student finding one's own voice, style, and courage to dramatize one's view of the world.

THET 405. Advanced Playwriting. 3 Hours.

PR: THET 404. Further exploration of dramatic technique, with emphasis on orchestrating the longer play. Also touches on script analysis of known dramatic texts and on practical problems of a playwriting career.

THET 421. Lighting Design 2. 3 Hours.

PR: THET 325 and THET 200. An advanced study of lighting design with emphasis on design development, cueing, and design refinement during technical rehearsals.

THET 422. Advanced Stage Makeup. 3 Hours.

PR: THET 221. An Advanced study of stage makeup materials and techniques. Intensive focus on facial anatomy, casting, sculpting, and design.

THET 423. Costume Crafts. 3 Hours.

PR: THET 111 and THET 425. Identification and application of the materials and techniques used in the fabrication of costume crafts. Emphasis on research and practical experience through hands on project work.

THET 424. Advanced Technical Production. 3 Hours.

PR: THET 103 and THET 222. Detailed study of the fundamentals and principles of technical production. Emphasis on budgeting theatrical productions and developing leadership skills.

THET 425. Advanced Costume Construction. 3 Hours.

PR: THET 111. Study and practical application of costume construction techniques through development of flat-pattern drafting skills. Emphasis on use of research to interpret the costume rendering. Extensive hands-on experience with construction projects for Division productions. (May be repeated for a maximum of 6 credit hours.).

THET 426. Automation. 3 Hours.

PR: THET 329. Automation is the exploration of motorized equipment used in the arts and how it can be utilized for production purposes. Topics from electricity to mechanical design will be discussed.

THET 427. Lighting Technology. 3 Hours.

PR: THET 220. An advanced study of the tools and technology available to lighting designers with an emphasis on contemporary lighting systems. Including electrical calculations, power distribution, networking and advanced industry specific software.

THET 428. Scene Painting. 3 Hours.

PR: THET 322 and THET 622 or consent. An introduction to the basic tools, materials, and techniques of scene painting for the stage.

THET 429. Sound Seminar. 3 Hours.

PR: THET 103 and THET 104. An exploration of sound design and equipment for the theatre with practical emphasis on producing and recording sound effects using computer software.

THET 433. Model Building. 3 Hours.

PR: THET 225 and THET 226. Design and construction methods of the scenographic model are examined. Mastery is attained through the construction of three or four projects in the design studio.

THET 435. Theatre Health and Safety. 3 Hours.

Course investigates common health and safety issues encountered in Theatrical Production. Examines the laws and governing agencies in the theatrical industry. Certifies students in CPR and First Aid.

THET 440. Advanced Vocal Techniques. 2 Hours.

PR: Consent. Meeting the demands of heightened texts requiring greater emotional and physical commitments. Tutorials.

THET 441. Advanced Vocal Techniques 2. 2 Hours.

PR: THET 440 and consent. Integrating vocal techniques in the context of rehearsal and performance in plays of heightened text and issues of period and style.

THET 442. Advanced Stage Movement 1. 2 Hours.

PR: THET 343 or consent. Practical application of issues of performance theory and composition. Studies in the relationship of text and movement in performance, and in the development of original performance material that uses movement as a point of departure.

THET 443. Advanced Stage Movement 2. 2 Hours.

PR: THET 442 or consent. Intensive study of issues related to physicality i performance; special topics, which may include, but are not limited to stage combat, mask, and large group composition.

THET 444. Advanced Acting Studio. 3 Hours.

PR: Consent. Continuation of advanced exercises focusing on the works of Shakespeare. Includes verse scansion, text analysis, dynamics, scene study, exercise work and characterization.

THET 445. Advanced Acting Studio. 3 Hours.

PR: Consent. Continuation of THET 444. Rehearsal and presentation of style project, (Shakespeare, Comedy of Manners, Shaw, etc.). Also includes seminars in special topics in performance.

THET 447. Studio Scene Study 2. 1 Hour.

PR: THET 444. The presentation of scenes chosen from Shakespeare and other plays of heightened text, before a panel of acting, voice and movement faculty for critique.

THET 450. The Complete Performer. 3 Hours.

PR: THET 447 and THET 455. This lab-based course employs the best pedagogical approaches to strengthen the abilities of the actor who sings, acts, and dances. Students will work with musicians, lyricists, and book writers toward creating an original musical short, presented at the end of the semester. It is designed to cultivate student ability to compete in the musical theatre community as a triple threat.

THET 455. Advanced Musical Theatre Studio. 3 Hours.

PR: THET 344 and THET 355. (May be repeated for a maximum of 6 credit hours.) Presentation of scenes and musical performances from the American Musical Theatre genre (1960-Present) with instruction and critique from a panel of acting, music, and dance faculty. Students will examine, explore and execute acting techniques and styles applicable to the musical through scene and musical performance study and classroom exercises.

THET 460. Contemporary Drama. 3 Hours.

PR: ENGL 102 or ENGL 103. Contemporary drama provides an analysis and exploration of a set of representative living playwrights with research and context. Also, writing and discussion will follow current issues of the periodical American Theatre.

THET 461. Creative Dramatics. 3 Hours.

PR: THET 144. Study and practice of creative drama for theatre education or classroom/curriculum use. Instructional methods for drama techniques and practical activities are stressed.

THET 462. Puppetry. 3 Hours.

Comprehensive study of puppetry as a theatrical form. Construction, manipulation, and production methods for adult and youth audiences are highlighted.

THET 463. Puppetry for Educators. 3 Hours.

PR: Consent. Study of the use of puppetry in the classroom and other educational settings; Construction, manipulation, scripting, story-telling ideas to use with children. Curricular issues will be covered.

THET 464. Children's Theatre. 3 Hours.

PR: Consent. Study of theatre for child audiences. Writing, acting, designing, directing and producing plays with detailed analysis of scripts and children as audience members. (Field trip required.).

THET 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

THET 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

THET 492. Directed Study. 1-3 Hours.

PR: Consent. (May be repeated for a maximum of 12 credit hours.) Directed study, reading, and/or research.

THET 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

THET 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

THET 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

THET 496. Senior Thesis. 1-3 Hours.

PR: Consent.

THET 497. Research. 1-6 Hours.

Independent research projects.

THET 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

UGST 270. Introduction To Health Careers. 1 Hour.

A study of careers in the health professions. Readings, lectures, and discussions by professionals in many health fields will include the educational requirements for and functions of their respective health professions. (Pass/fail grading only.).

UGST 300. RBA Degree Foundations. 1 Hour.

This course introduces students to the Regents Bachelor of Arts (RBA) program at West Virginia University. We will discuss the degree in detail, understand the benefits and academic requirements of the program, and learn to take advantage of the many unique features exclusive to the RBA program. During this course, the students will define individual plans of study.

UGST 402. Portfolio Development Process. 1 Hour.

(May be repeated for a maximum of 2 hours.) Provides the necessary guidance to identify and reflect on vast and varied work experiences for prior learning credit. Through discovery, learning, and reflection, the expectation is that the student would be equipped with a sound understanding to begin the process of developing a prior learning assessment tool that meets satisfactory standards.

ULIB 101. Introduction to Library Research. 2 Hours.

Focuses on the concepts and logic of information access including using the libraries' online catalog, various databases and the Internet to find quality information. Incorporates hands-on practice with electronic resources for research and synthesis of information.

ULIB 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ULIB 300. Film and Media Literacy. 3 Hours.

Introduction to media literacy, film vocabulary, criticism, research databases, conventions, cliches, and characteristics of genre films to guide evaluating and critiquing films. Online course; films on electronic media library reserve.

ULIB 301. Gender and the Research Process. 3 Hours.

This course teaches the research process through the lens of gender. Students decide on a subject, write a research question, develop a working knowledge, search for information, select appropriate sources, and present results.

ULIB 302. Research for Non-Profits. 3 Hours.

The course will develop research skills including precise, effective use of discipline specific databases and grant-seeking resources. Students will apply these skills working in teams to produce a research portfolio for a local non-profit organization.

ULIB 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

USAF 100. Leadership Laboratory. 1 Hour.

Dynamic and integrated grouping of leadership developmental activities designed to meet the needs and expectations of prospective Air Force junior officers and complement the AFROTC academic program. 'Leadership Laboratory' enrollment is restricted to AFROTC cadets.

USAF 131. Foundations of United States Air Force 1. 1 Hour.

Coreq: USAF 100. Survey course designed to introduce students to the United States Air Force. Provides an overview of the basic characteristics, missions, and organization of the Air Force. Includes an overview of AFROTC and AFROTC special programs.

USAF 132. Foundations of United States Air Force 2. 1 Hour.

USAF 132. Foundations of United States Air Force 2. 1 HR. Coreq: USAF 100. Continuation of USAF 131.

USAF 251. Air and Space Power 1. 1 Hour.

Coreq: USAF 100. Student of USAF heritage and leaders with respect to the evolution and employment of air and space power. Analysis of operational examples will emphasize development and application of competencies, functions, and doctrine.

USAF 252. Air and Space Power 2. 1 Hour.

Continuation of USAF 251.

USAF 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

USAF 371. Leadership Studies 1. 3 Hours.

Coreq: USAF 100. Student of leadership, management, professional knowledge, leadership ethics, and communication skills required of an air force junior officer. Case studies are used as a means of exercising practical application of concepts.

USAF 372. Leadership Studies 2. 3 Hours.

Coreq: USAF 100. Continuation of USAF 371.

USAF 481. National Security/Active Duty 1. 3 Hours.

PR: USAF 100-level classes and USAF 200-level classes or special permission from Aerospace Studies Department. Examines the national security process, regional studies, leadership ethics, and USAF doctrine. Topics include the military as a profession, officership, military justice, civilian control of the military, active duty preparation, and issues affecting military professionalism.

USAF 482. National Security/Active Duty 2. 3 Hours.

PR: USAF 100-level courses and USAF 200-level courses or special permission from Aerospace Studies Department. USAF 131, 132, 251, 252, 371, 372, 481, and 482 may be taken out of sequence if unusual circumstances warrant and the student received approval from the professor of Aerospace Studies.

USAF 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

USAF 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

USAF 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

USAF 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

USAF 496. Senior Thesis. 1-3 Hours.

PR: Consent.

USAF 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

VETS 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

VETS 302. Animal Pathology. 3 Hours.

PR: ANPH 301 or consent. Diseases of farm animals with special emphasis on their cause, prevention, and control.

VETS 401. Veterinary Anatomy. 3 Hours.

PR: Junior standing or consent. Functional study of domestic and farm animal anatomy.

VETS 403. Veterinary Anatomy Laboratory. 1 Hour.

PR: Junior standing and PR or CONC: VETS 401. Gross dissection techniques used for the study of functional anatomy in domestic animals.

VETS 405. Parasitology. 3 Hours.

PR: (BIOL 101 and BIOL 102 and BIOL 103 and BIOL 104) or (BIOL 115 and BIOL 116). Common parasites of farm animals, their life cycles, effects on the host, diagnosis, control, and public health importance. (3 hr. lec., 1 hr. lab.).

VETS 411. Principles of Laboratory Animal Science. 3 Hours.

PR: Consent for undergraduates. The production, genetics, physiology, nutrition, disease and regulations of laboratory animals used in research and teaching. This course meets minimal requirements for laboratory animal technical certification programs of the American Association of Laboratory Animal Science (AALAS).

VETS 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

VETS 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

VETS 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

VETS 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

VETS 496. Senior Thesis. 1-3 Hours.

PR: Consent.

VETS 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

WDSC 100. Forest Resources in United States History. 3 Hours.

Examines human use of forest resources in America from pre-Colombian times to present. Exploration of factors that impact the use of wood products.

WDSC 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

WDSC 223. Wood Anatomy and Structure. 3 Hours.

PR: FOR 205. Anatomy and structure of commercial wood species of the U.S. Survey of basic properties of wood.

WDSC 225. Finished Wood Products. 3 Hours.

Exploration of the different materials used in low-rise residential and commercial construction applications for finishing and design aspects. Emphasis will be placed on wood products.

WDSC 232. Wood Grading and Procurement. 3 Hours.

PR: Forestry major or consent. Conversion and grading of raw materials in log form to primary wood products. Introduction to timber procurement systems.

WDSC 245. Residential Building Materials. 3 Hours.

Exploration of the different building materials used in residential and commercial construction. Emphasis will be placed on solid and engineered wood products as well as their manufacturing processes.

WDSC 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

WDSC 320. Sustainable Construction. 3 Hours.

Introduction to common building practices used in residential construction with emphasis on sustainable, green construction.

WDSC 330. Wood Machining. 3 Hours.

Introduction to basic concepts of wood machining with emphasis on production equipment and furniture manufacturing. Special topics of wood joining techniques and methods. Analysis of operational safety, health hazards and accident prevention. (Fall of even years.).

WDSC 337. Wood Adhesion and Finishing. 3 Hours.

PR: Wood Industry major or consent; WDSC 223. Fundamentals of the bonding and finishing of wood including preparation, processing, and evaluation of adhesive and finishing systems.

WDSC 340. Physical Properties of Wood. 3 Hours.

PR: WDSC 223. Specific gravity and density of wood; relationships between wood and liquids and applications in wood seasoning; thermal electrical and acoustical properties.

WDSC 341. Wood Mechanics. 3 Hours.

PR: Wood science major or consent; and WDSC 223, and MATH 155, and PHYS 101. Introduction to static properties of selections, elementary mechanics of deformable bodies, axial loading, column and beam analysis, and design considerations. (2 hr. lec., 1 hr. lab.).

WDSC 351. Forest Products Protection. 3 Hours.

PR: WDSC 223. Biological organisms responsible for deterioration of wood products, their control by preservative methods, and study of fire retarding methods.

WDSC 362. Forest Product Decision-Making. 4 Hours.

PR: Junior standing in forestry and MATH 155 and STAT 211. Use of decision making tools and techniques by forest products industry professionals, including examples of control chart techniques and acceptance sampling techniques, simulation modeling, linear programming, forecasting and network analysis. (4 hr. lec.).

WDSC 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

WDSC 400. Forest Measurement Field Practice. 3 Hours.

PR: Wood industry major and FOR 205 and FMAN 322 and CE 200. Application of surveying and mensurational practices with emphasis on field problems.

WDSC 401. Wood Industries Field Trip. 1 Hour.

A one-week trip to observe manufacturing methods and techniques of commercial wood industry plants. Plants visited include furniture, plywood, veneer, hardboard, pulp and paper, sawmilling, and preservation.

WDSC 413. Wood Chemistry. 3 Hours.

PR: Wood science major or consent, and CHEM 231 or CHEM 233. Chemical composition of wood including cellulose, hemicellulose, and extractives. Chemical processing of wood.

WDSC 422. Harvesting Forest Products. 3 Hours.

PR: MATH 128 or equivalent and WDSC 232. Analysis of ground-based and cable harvesting systems, including time and motion studies, productivity and cost analysis, occupational safety and health, environmental issues, equipment evaluation and selection, and trucking of forest products. (2 hr. lec., 1 hr. lab.).

WDSC 423. Forest Roads. 4 Hours.

PR: CE 200 and CS 101. A study of techniques and methods of design, layout and construction details of various standards of forest roads.

WDSC 444. Bio-based Energy Systems. 3 Hours.

Introduction to biomass feedstock production for bioenergy application, preprocessing and characterization, biofuel conversion technologies, economic and environmental impacts, and greenhouse gas emissions.

WDSC 460. Plant Layout for Wood Industries. 3 Hours.

PR: Senior standing. Relates knowledge of wood product processes to optimize production. Study of proper arrangement of machines, and work and storage areas.

WDSC 465. Wood-based Composite Materials. 3 Hours.

PR: WDSC 232 and WDSC 340 and WDSC 341. Fundamentals of manufacturing wood-based composite materials, including processing, products, evaluation, and applications in the marketplace. (2 hr. lec., 1 hr. lab.).

WDSC 470. Marketing Forest Products. 3 Hours.

This course will examine techniques used by the forest products industry to market commodity, value-added specialty, and sustainable (i.e., green) products.

WDSC 480. Senior Projects 1. 2 Hours.

Senior project requires students to identify manwood science related problem, perform a literature review, and develop a plan for research to be completed in WDSC 481.

WDSC 481. Senior Projects 2. 2 Hours.

PR: WDSC 480. Senior project requires students to use knowledge from other courses to conduct research proposed in WDSC 480 and analyze results and prepare a technical report.

WDSC 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

WDSC 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

WDSC 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

WDSC 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

WDSC 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

WDSC 496. Senior Thesis. 1-3 Hours.

PR: Consent.

WDSC 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

WGST 150. Women in Movies. 3 Hours.

Through viewing popular Hollywood films, we will analyze femininity across the life span. Critical thinking and cultural analysis will be practiced as we study heroines, working girls, motherhood, brides, cheerleaders, and old women on screen.

WGST 170. Introduction to Women's and Gender Studies. 3 Hours.

The major contexts in which gender identities have been and are defined and of the relationships between these definitions and the roles and history of women and men in society and culture.

WGST 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

WGST 215. African Women Writers. 3 Hours.

Selected works by African women writers. (Also listed as FLIT 215.).

WGST 220. Medieval Women Mystics. 3 Hours.

History, writings, and impact of mystics, including but not limited to, Hildegard of Bingen, Saint Clare of Assisi, Julian of Norwich, Saint Catherine of Siena, Saint Catherine of Genoa, and Saint Teresa of Avila.

WGST 225. Women in Appalachia. 3 Hours.

Use variety of sources to explore how race, class, ethnicity, sex and gender impact lives of diverse Appalachian women, including portrayal of women, stereotypes, impact of stereotypes, and how women construct their own identities.

WGST 242. Women's Health and Fitness. 3 Hours.

In this applied class, students will be actively learning about college-age women's health and participating in fitness activities, as well as creating a personal plan to improve one's health.

WGST 250. Women in Science. 3 Hours.

History of women in science and methods of gender analysis applied to issues facing women in science in the United States.

WGST 260. Perspectives on Lesbian, Gay, Bisexual, Transgender, and Queer Studies. 3 Hours.

Overview of lesbian, gay, bisexual, transgender, and queer studies. Examines the construction of gender, biological sex, sexual orientation, and gender identity, expression and performance related to lesbian, gay, bisexual, transgender, queer, questioning, intersex, asexual, pansexual, and two-spirit identities. Also examines intersections with race, ethnicity, class, nation, culture, ability, and religion.

WGST 281. American Indian Women Writers. 3 Hours.

Studies tribal oral tradition and its continuing existence in prose, myths, poetry, and stories. The works of contemporary Native American women writers will be studied and discussed as an outgrowth of this tradition.

WGST 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

WGST 310. The Aging Woman. 3 Hours.

Does gender make a difference in the aging process? This course examines the female experience of growing older. Lecture, discussion, review of literature, with focus on selected works of literature and the creative arts.

WGST 320. Women, Religion and Spirituality. 3 Hours.

Explores the exclusion of women from leadership in institutions of religion, the nature of the development of theology and spirituality that has disavowed the contributions of women, diversity of religious experience, and writings of feminist theologians.

WGST 330. Feminist Theory. 3 Hours.

Explores current feminist theory through works by diverse scholars, focusing on questions of essentialism, difference, sexuality, bodies, language, power, economic and ecological justice, intersections of race, class and gender, and global social justice struggles.

WGST 340. Gender and Violence. 3 Hours.

Gender violence has implications for all members of society. This course will examine violence in the lives of women across the lifespan. Etiology, theories, effects, and prevention modalities will be evaluated.

WGST 345. Women in International Development. 3 Hours.

Examines cultural diversities in the definition of women's roles and status; investigates women's access to education, health, income, credit and technology; and studies women's contributions in third world development.

WGST 360. Queer Theories. 3 Hours.

Provides a framework for understanding the history and contemporary applications of queer theories and interdisciplinary LGBTQ studies. Explores the relationship of queer theories to feminist theories through examining works by diverse scholars, focusing on questions of identities, bodies, policies, institutions, and popular and visual cultures.

WGST 393. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

WGST 448. Sexuality in American Culture. 3 Hours.

Explores changes in sexuality in the United States from the seventeenth century to the present, examining social and cultural struggles and debates over the meaning of sexuality and sexual orientation in American society.

WGST 449. Women's Movements Since 1960. 3 Hours.

Comparison of U.S. Second wave and Third Wave feminisms; validity of the concepts of waves of feminism; and impact of race, class, sexual orientation, on perspectives on women's status.

WGST 450. Sex and Science at the Movies. 3 Hours.

Explores how bodies, sexuality, and other gendered traits are used in films to demonstrate techno-science's societal impacts. Examines the relationship between media representations and techno-scientific practice.

WGST 460. Men and Masculinities. 3 Hours.

PR: WGST 170 or WGST 260. An advanced seminar in women's and gender studies that critically examines the concept of masculinity and its impact on men's and women's lives. Analyzes masculinities from cultural, historical, biological, philosophical, sociological, psychological, economic, and political perspectives.

WGST 484. Seminar:Capstone. 3 Hours.

PR: Consent. Required of all women's studies students. Students will broaden their theoretical definitions of feminism and women's studies to include non-western models and solutions, pairing this study with a local service project informed by global activists.

WGST 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

WGST 491. Independent Study. 1-18 Hours.

Faculty supervised study of topics not available through regular course offerings.

WGST 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

WGST 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

WGST 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

WGST 496. Senior Thesis. 1-3 Hours.

PR: Consent.

WGST 498. Honors. 1-3 Hours.

PR: Students in Honors Program and consent by the honors director. Independent reading, study or research.

WMAN 100. The Tradition of Hunting. 3 Hours.

Introduction to the cultural and spiritual role of hunting; use of hunting as a wildlife management tool; and its economic value in wildlife conservation programs. Includes discussions on gun control, anti-hunting, and animal rights.

WMAN 150. Principles of Conservation Ecology. 3 Hours.

Overview of the science of conservation ecology with emphasis on the concepts of biological diversity, extension, habitat loss and fragmentation, establishment of protected areas, endangered species, and establishment and preservation of new populations.

WMAN 160. Ecology of Invading Species. 3 Hours.

Survey of invasive/exotic plant and animal species and their effects on native ecosystems, including the breakdown of natural barriers to invasion by the increase of world commerce which unifies widely dispersed resources.

WMAN 175. Introduction to Wildlife and Fisheries. 3 Hours.

Introduction to the study and management of wildlife and fisheries resources of the Appalachians. Includes an overview of resource management history, career opportunities, natural resources policy, and the basic life of birds, mammals, and fishes.

WMAN 191. First-Year Seminar. 1-3 Hours.

Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

WMAN 200. Restoration Ecology. 3 Hours.

Principles and practice of restoring natural ecosystem function, structure, and integrity.

WMAN 205. Wildlife-Fisheries Camp. 3 Hours.

A course in field ecology and wildlife/fisheries sampling techniques. Designed to introduce the beginning wildlife conservation professional to the science of collecting data on wildlife and fish populations in their natural habitats.

WMAN 221. Interpretive Bird Study. 3 Hours.

PR: BIOL 117 or consent. Intensive field studies in recognition through sight, song, and behavioral patterns of birds, and their ecology in the Central Appalachians. (2 hr. lec, 2 hr. lab.).

WMAN 224. Vertebrate Natural History. 3 Hours.

PR: BIOL 117 or consent. Relationships of fish, amphibians, and reptiles to the forest, with emphasis on the ecology, taxonomy, evolution, natural history, and field identification of these groups. Laboratory emphasizes natural history and anatomy of fish, amphibians, and reptiles.

WMAN 234. Forest Wildlife Management. 3 Hours.

Principles and problems of forest wildlife management with emphasis on habitat management at the stand and landscape levels. Habitat manipulations through use of appropriate silvicultural practices, wildlife enhancement techniques, and regulations are evaluated.

WMAN 250. Big Game Ecology and Management. 3 Hours.

Intensive field trip and online material emphasizing white tailed deer and black bear ecology with additional material on western game species and exotics.

WMAN 260. Waterfowl Ecology. 3 Hours.

Intensive field-trip and on-line material emphasizing the ecology of waterfowl and management of wetland habitats.

WMAN 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

WMAN 300. Wildlife and Fisheries Techniques. 4 Hours.

PR: STAT 211 and (FOR 240 or CS 101) and PR or CONC: RESM 440 with a minimum grade of C- in each. Field and laboratory techniques for the scientific management and evaluation of wildlife and fisheries resources.

WMAN 313. Wildlife Ecosystem Ecology. 4 Hours.

PR: ((BIOL 101 and BIOL 102 and BIOL 103 and BIOL 104) or (BIOL 115 and BIOL 117)) and (MATH 124 or MATH 126 or MATH 128 or MATH 129 or MATH 150 or MATH 153 or MATH 154 or MATH 155). Basic principles of ecosystem, community, and population ecology. Emphasizing structure, function, succession, physiological ecology, population growth and regulation, and systems modeling.

WMAN 314. Marine Ecology. 3 Hours.

Study of key coastal species and their interactions. Self-paced lectures and exercises culminating with one-week capstone trip to Atlantic coast for hands-on study of invertebrates, coastal fishes and birds, and marine ecology.

WMAN 330. Conservation Genetics. 3 Hours.

PR: BIOL 101 and BIOL 102 or equivalent or higher and MATH 124 or higher. Introduction to the principles of modern genetics needed to understand and manage important challenges in conservation of biodiversity including game, non-game, and endangered/threatened species. Also listed as GEN 330.

WMAN 421. Renewable Resources Policy and Governance. 3 Hours.

PR: Consent. Forest, wildlife, fisheries, and recreation resource policies of the world, with an emphasis on the U.S. important federal and state laws; governance of public and private lands and renewable natural resources. (Crosslisted with FOR 421.).

WMAN 425. Mammalogy. 3 Hours.

PR: BIOL 117 or consent. Mammals and their biological properties with emphasis on life history, ecology, and distribution of regional forms.

WMAN 426. Ornithology. 3 Hours.

PR: BIOL 115 and BIOL 117 or consent. Identification, distribution, and ecology of birds (particularly of forest lands.) (2 hr. lec, 1 hr. lab.).

WMAN 431. Wildlife Habitat Techniques. 3 Hours.

PR: Wildlife major or consent; WMAN 313 and FOR 205. Field and laboratory techniques necessary in management and study of wildlife; collection of field data, mapping, censusing, habitat evaluation, wetland delineation, use of literature and scientific writing.

WMAN 445. Introduction to Fisheries Management. 3 Hours.

PR: WMAN 224 or consent. Basic principles of management of fishery resources, with an emphasis on freshwater stocks. Includes current environmental and management issues, concepts, and methods used in management of commercial and recreational fisheries.

WMAN 446. Freshwater Ecology. 4 Hours.

PR: (BIOL 101 and BIOL 102 and BIOL 103 and BIOL 104) or BIOL 115 or WMAN 224 or consent. Physical, chemical, and biological characteristics of inland waters with emphasis on the structure and function of stream ecosystems.

WMAN 449. Stream Ecosystem Assessment. 3 Hours.

Self-paced lectures and exercises culminating in a one-week trip to the mountains of West Virginia for hands-on study of stream fishes, invertebrates, water and habitat quality, geomorphology, and ecology.

WMAN 450. Advanced Wildlife and Fisheries Management. 4 Hours.

PR: WMAN 300. Principles and practices of wildlife and fisheries habitat and species management.

WMAN 490. Teaching Practicum. 1-3 Hours.

PR: Consent. Teaching practice as a tutor or assistant.

WMAN 491. Professional Field Experience. 1-18 Hours.

PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

WMAN 492. Directed Study. 1-3 Hours.

Directed study, reading and/or research.

WMAN 493. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.

WMAN 494. Seminar. 1-3 Hours.

PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

WMAN 495. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

WMAN 496. Senior Thesis. 1-3 Hours.

PR: Consent.

WMAN 498. Honors. 1-3 Hours.

PR: Students in the Honors Program and consent by the honors director. Independent reading, study or research.

WVUE 188. Adventure West Virginia. 1 Hour.

This course is for incoming WVU students who completed and Adventure WV First Year Trip during the summer prior to their first semester at WVU. The course serves as a complement to the student's first year experience at WVU; it encourages reflection, goal setting, and involvement in the WVU community.

WVUE 189. Academic Mindset. 1 Hour.

The course will introduce students to a mindset that will assist them in acquiring knowledge and developing skills associated with achieving academic and personal success.

WVUE 191. First Year Seminar. 1-3 Hours.

Exploration of academic experiences through meaningful contexts. The course will envelope a range of academic components needed to achieve student success and successfully transition to West Virginia University.

WVUE 192. First Year Experience: Athletes. 1 Hour.

Exploring academic experiences through meaningful contexts for Student Athletes. The course will cover a range of academic components needed to achieve academic success and provide the opportunities necessary for a successful transition to West Virginia University.

WVUE 293. Special Topics. 1-6 Hours.

PR: Consent. Investigation of topics not covered in regularly scheduled courses.