Fall 2020 Course Descriptions as of 04/05/2020 08:13 PM

Information in Browse Course Catalog is subject to change. Information is term specific. Please refer to the appropriate term when searching for course content. Key to Course Descriptions may be found at: **http://rcs.registrar.arizona.edu/course_descriptions_key**.

Physiology (PSIO)

PSIO 101: Tackling Physiological Topics in Today's Society (3 units)
Description: Physiology is the study of how the body works. By focusing on current public issues of physiology in health, medicine and society, students will explore the essential concepts of physiology, up-to-date research and resources needed to address these topics, as they learn to 'think like a physiologist'. Starting with an overview of basic anatomy and physiology key to each issue, students will begin to develop critical thinking and problem-solving skills founded in techniques and approaches common to professionals in the field. Students will also gain an appreciation for the diversity of disciplines and careers that are supported by a foundation in physiology.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Course typically offered:
Main Campus: Fall, Spring

Field trip: none
Enrollment requirement: Major PSIOM

PSIO 199: Independent Study (1 - 3 units)
Description: Individual studies programs provide motivated students with an opportunity for education that extends beyond the normal classroom experience.
Grading basis: Alternative Grading: S, P, F
Career: Undergraduate
Course Components: Independent Study Required
Repeatable: Course can be repeated a maximum of 99 times.
Course typically offered:
Main Campus: Fall, Spring, Summer

PSIO 199H: Honors Independent Study (1 - 5 units)
Description: Individual studies programs provide motivated students with an opportunity for education that extends beyond the normal classroom experience.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Independent Study Required
Repeatable: Course can be repeated a maximum of 99 times.
Course typically offered:
Main Campus: Fall, Spring, Summer

Enrollment requirement: Student must be active in the Honors College.
Honors Course: Honors Course
Honors Course: Honors Course

PSIO 201: Human Anatomy and Physiology I (4 units)
Description: Study of structure and function of the human body. Topics include basic anatomical and directional terminology; fundamental concepts and principles of cell physiology; histology; the integumentary, skeletal, muscular and nervous systems; special senses. Primarily for majors in physiology, biology, and health professions.
Grading basis: Regular Grades
Career: Undergraduate
Flat Fee: $98
Other Fee: This course is pending a course fee review from ABOR and the fee is subject to change if approved.
Course Components: Laboratory Required
Lecture Required
Course typically offered:
Main Campus: Fall, Spring, Summer

Shared Unique Number: SUN# BIO 2201

-SA represents a Student Abroad & Student Exchange offering
-CC represents a Correspondence Course offering
May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

PSIO 202: Human Anatomy and Physiology II (4 units)
Description: Study of structure and function of the human body. Topics include cardiovascular, lymphatic, respiratory, urinary, gastrointestinal, endocrine and reproductive systems. Primarily for majors in physiology, biology, and health professions.
Grading basis: Regular Grades
Career: Undergraduate
Flat Fee: $98
Other Fee: This course is pending a course fee review from ABOR and the fee is subject to change if approved.
Course Components: Laboratory Required
Lecture Required
Equivalent to: EXSS 202, EXSS 250B
Course typically offered:
Main Campus: Fall, Spring, Summer

Enrollment requirement: PSIO 201.
Shared Unique Number: SUN# BIO 2202

PSIO 295H: Introduction to Honors in Physiology (2 units)
Description: This colloquium is designed for Physiology students who are considering graduation with Honors. Content and experiences will provide exposure to the research process in general, specific research in Physiology being done across campus, potential options available for undertaking an honor thesis and maximizing the educational experience within the Physiology major.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Colloquium Required
Course typically offered:
Main Campus: Spring

Enrollment requirement: PSIO, PSIOM majors and PSIO and PSIOM minors only. PSIO 201 (C or better in PSIO 201) Honors active.
Honors Course: Honors Course
Honors Course: Honors Course

PSIO 299: Independent Study (1 - 3 units)
Description: Individual studies programs provide motivated students with an opportunity for education that extends beyond the normal classroom experience.
Grading basis: Alternative Grading: S, P, F
Career: Undergraduate
Course Components: Independent Study Required
Repeatable: Course can be repeated a maximum of 99 times.
Course typically offered:
Main Campus: Fall, Spring, Summer

-SA represents a Student Abroad & Student Exchange offering
-CC represents a Correspondence Course offering
May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

PSIO 299H: Honors Independent Study (1 - 5 units)
Description: Individual studies programs provide motivated students with an opportunity for education that extends beyond the normal classroom experience.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Independent Study Required
Repeatable: Course can be repeated a maximum of 99 times.
Course typically offered:
Main Campus: Fall, Spring, Summer

Enrollment requirement: Student must be active in the Honors College.
Honors Course: Honors Course
Honors Course: Honors Course

PSIO 303: Integrative Cellular Physiology (3 - 4 units)
Description: Integrative Cellular Physiology will introduce the student to several fundamental concepts in physiology, including signaling transduction processes, regulation of membrane transport, and the regulation of cell-cell and cell-tissue communication. The course will integrate these fundamental physiological concepts across cell, organ, and systems levels within the context of the three selected systems and will empower the student to be able to critically evaluate the pathophysiological basis of various disease states in the context of cellular and molecular defects in these fundamental processes.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Discussion May Be Offered
Lecture Required
Course typically offered:
Main Campus: Fall

Enrollment requirement: Must be PSIO ADV standing, PSIOM and PSIO majors and PSIOMMINU, PSIOMINU minors only. PSIO 201 (C or better in PSIO 201) C or better in PSIO 201 and PSIO 202) and (CHEM 152 or CHEM 103b or CHEM 105b or CHEM 142 or CHEM 162) and (MATH 122B or MATH 125).

PSIO 305: Integrative Systems Physiology (3 units)
Description: This course is designed to provide students with a systems-focused approach to fundamental physiological processes faced by humans including homeostasis, growth and development, adaptation and response to trauma. Utilizing a case study context, the integrated actions by multiple systems to accomplish these fundamental processes will be explored.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Course typically offered:
Main Campus: Spring

Enrollment requirement: Must be PSIO ADV standing, PSIOM and PSIO majors and PSIOMMINU, PSIOMINU minors only. PSIO 201 (C or better in PSIO 201) C or better in PSIO 201 and PSIO 202) and (CHEM 152 or CHEM 103b or CHEM 105b or CHEM 142 or CHEM 162) and (MATH 122B or MATH 125).

PSIO 380: Fundamentals of Human Physiology (4 units)
Description: Designed to provide upper-division non-physiology majors with a working understanding of the fundamentals of human biological function, elucidating general principles of human physiology, mechanisms of regulation and the normal variations in human biology, while weaving daily-life applications throughout. A combination of lecture, small and large group discussions, and in-class activities will be utilized to provide an understanding of how the body works from the cellular to the organ system level.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Discussion May Be Offered
Lecture Required
Course typically offered:
Main Campus: Fall, Spring
Online Campus: Fall

Enrollment requirement: Enrollment not allowed if you have previously taken PSIO 201 or PSIO 202 or if you are a PSIOM or PSIO major or PSIOMMINU or PSIOMINU.
Honors Course: Honors Contract
Honors Course: Honors Contract

-SA represents a Student Abroad & Student Exchange offering
-CC represents a Correspondence Course offering
May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

PSIO 391: Preceptorship (1 - 6 units)
Description: Specialized work on an individual basis, consisting of instruction and practice in actual service in a department, program, or discipline. Teaching formats may include seminars, in-depth studies, laboratory work and patient study.
Grading basis: Alternative Grading: S, P, F
Career: Undergraduate
Course Components: Independent Study Required
Repeatable: Course can be repeated a maximum of 99 times.
Course typically offered:
Main Campus: Fall, Spring

PSIO 391H: Honors Student Preceptorship in Physiology (1 - 2 units)
Description: This course offers the opportunity for selected students to become more actively engaged in the educational and research goals of the Honors Academy in Physiology. Specific goals for Honors Preceptors are three-fold: 1) To gain a more in-depth view of the on-going research done by Physiology faculty. 2) To develop both presentation and web formats for sharing that information with Physiology majors and pre-majors. 3) To serve as information resources for other students regarding the Honors experience within the Physiology major.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Independent Study Required
Repeatable: Course can be repeated a maximum of 99 times.
Course typically offered:
Main Campus: Fall, Spring

Enrollment requirement: Student must be active in the Honors College.
Honors Course: Honors Course
Honors Course: Honors Course

-SA represents a Student Abroad & Student Exchange offering
-CC represents a Correspondence Course offering
May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

PSIO 395A: PhysioConnects A (2 units)
Description: PhysioConnects A provides Physiology students an initial connection with Engagement Experiences that can enable them to expand their learning outside the classroom. Experiences include research opportunities, clinical shadowing, professional and work experiences, club activities and volunteering. Students in PhysioConnects A will work together to prepare for and maximize the benefit from these experiences. The format will include guest lectures, class and small group discussions, individual and group work, as well as panel discussions. Combined, these will help students gain an understanding of the breadth of involvements available to them, as well as what is expected of them in an engagement experience. After the 2nd week of class, students will be provided access to the PhysioWorks database of engagement experiences where they can explore their options and use feedback from peers to find the best-matched opportunities and subsequently assist in feedback and expansion of the database.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Colloquium Required
Course typically offered:
Main Campus: Fall, Spring

Enrollment requirement: PSIO or PSIOM majors only. PSIO 201(028244) with a C or better or concurrently enrolled in PSIO 201 (028244).

PSIO 395B: PhysioConnects B (2 units)
Description: PhysioConnects B can be taken either as a continuation of PhysioConnects A, or as a means for students who have already sought out engagement experiences to reflect on the benefits and insights gained from their involvements, and incorporate them into career goal planning and preparation. Students will refine their reflections and translate these to verbal, digital and formats, appropriate for interviews and applications as well as for sharing with future Physiology students. The course can be taken for 7.5 weeks for 1 unit of credit, or for the full 15 weeks for 2 units of credit. Students who wish to take the 15 week course will continue to seek out and interview potential experiences to add to the PhysioWorks database.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Colloquium Required
Course typically offered:
Main Campus: Fall, Spring

Enrollment requirement: PSIO and PSIOM majors only. Grade of C or better in PSIO 201 and PSIO 202.
Student Engagement Activity: Professional Development
Student Engagement Competency: Professionalism

PSIO 399: Independent Study (1 - 3 units)
Description: Qualified students working on an individual basis with professors who have agreed to supervise such work.
Grading basis: Alternative Grading: S, P, F
Career: Undergraduate
Course Components: Independent Study Required
Repeatable: Course can be repeated a maximum of 99 times.
Course typically offered:
Main Campus: Fall, Spring, Summer

PSIO 399H: Honors Independent Study (1 - 5 units)
Description: Qualified students working on an individual basis with professors who have agreed to supervise such work.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Independent Study Required
Repeatable: Course can be repeated a maximum of 99 times.
Course typically offered:
Main Campus: Fall, Spring, Summer

Enrollment requirement: Student must be active in the Honors College.
Honors Course: Honors Course
Honors Course: Honors Course

PSIO 401: Ecological Physiology (3 units)
Description: During ontogeny, organisms constantly have to adjust their physiology in response to the environment they encounter. This course will provide an integrative understanding of life history evolution from the perspective of the constraints imposed by their underlying physiology. We will emphasize how physiological tradeoffs at the level of the whole organism ultimately define an organism¿s life history and fitness. The course will provide students with a conceptual approach to the integration of whole-organism physiology underlying life history traits. Relevant physiological, evolutionary and ecological background necessary to understand the concepts discussed will be given in lecture. Course will focus primarily on insects and will also use examples from other animals.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Also offered as: ECOL 401, ENTO 401
Co-convened with: PSIO 501
Course typically offered:
Main Campus: Fall (odd years only)

Recommendations and additional information: MCB 181R, MCB 181L and ECOL 182R, ECOL 182L.
Home department: Entomology

-SA represents a Student Abroad & Student Exchange offering
-CC represents a Correspondence Course offering
May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

PSIO 404: Advanced Topics in Cellular Physiology (3 units)
Description: This course combines lectures on several topics in cellular physiology with an emphasis on key experiments that have contributed to the knowledge base and full discussion among students and faculty of current studies that are being conducted on those topics. Within this course there will be an emphasis on the link between how studies in cellular physiology contribute to the understanding of human health and disease.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Course typically offered:
Main Campus: Spring

Enrollment requirement: Must be PSIO Advanced standing, PSIOM major or PSIOMMINU and PSIOMINU minors only. (PSIO 303A or PSIO 303B or PSIO 303 or PSIO 305) and a C or better in (PSIO 201 and PSIO 202).
Honors Course: Honors Contract
Honors Course: Honors Contract

PSIO 411: Scientific Methods and Professional Ethics (3 units)
Description: This course will introduce students to the historical development of scientific scholarship and current controversies within the scientific community; various approaches to scientific methods and the application of these approaches to the natural sciences; elementary background knowledge of experimental design and the statistical procedures commonly used in physiological research; and important procedural, practical, and ethical issues pertaining to physiological research at a modern research university. The course will also provide practical personal experience in selected areas of professional analysis and communication.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Course typically offered:
Main Campus: Fall, Spring

Enrollment requirement: Must be PSIO Advanced standing and PSIOM major or PSIO minors only and a C or better in (PSIO 201 and PSIO 202).

PSIO 415: Physiology of Mind-Body Interactions (2 units)
Description: The Physiology of Mind-Body Interactions will introduce students to the anatomy and function of the nervous system, focusing on the autonomic nervous and limbic systems, so that they understand how thoughts and emotions affect the body's physiology. The course will be divided between lectures, laboratories, and discussion of primary research articles. During laboratory sessions students will monitor the effects of various mindfulness practices on the ANS using tools of biofeedback to illustrate the connections between mental processes and physiology. Students, working in pairs, will gather data during selected laboratory sessions as part of a practical project for presentation. This course is limited to 20 students.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Course typically offered:
Main Campus: Fall, Spring

Enrollment requirement: PSIO majors and minors only. (PSIO 303A or PSIO 303B or PSIO 303 or PSIO 305) and a C or better in (PSIO 201 and PSIO 202).

PSIO 420: Exercise and Environmental Physiology (3 units)
Description: Regulation and adjustment of physiological systems during acute exercise and adaptations with chronic exercise in various populations and environments; emphasizes physiological mechanisms.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Equivalent to: EXSS 420
Co-convened with:
Course typically offered:
Main Campus: Fall, Spring

Field trip: none
Enrollment requirement: Must be PSIO Advanced standing and PSIOM major or PSIO minors only and a C or better in (PSIO 201 and PSIO 202).

PSIO 425: Measurement and Evaluation of Physiological Function (3 units)
Description: Responses of physiological systems to work and environmental stresses. Emphasis on the principles and techniques of assessing physiological function by appropriate methods of data acquisition, analysis, and interpretation. Course includes both lecture and structured laboratory components.
Grading basis: Regular Grades
Career: Undergraduate
Flat Fee: $48
Other Fee: This course is pending a course fee review from ABOR and the fee is subject to change if approved.

Course Components:	Laboratory	May Be Offered
	Lecture	Required

Course typically offered:
Main Campus: Fall, Spring

Enrollment requirement: Must be PSIO Advanced standing and PSIOM major or PSIO minors only and a C or better in (PSIO 201 and PSIO 202) Prerequisite or concurrently enrolled in PSIO 420.

PSIO 426: Extreme Physiology (3 units)
Description: This course will examine the role of the hypothalamus in regulating homeostasis of a variety of parameters. In particular the response of the body to different environmental stressors such as temperature or altitude that perturb homeostasis will be examined. In addition a variety of environmental insults to the normal physiology of the body such as the effects of ground water pollution or second hand smoke will be considered.
Grading basis: Regular Grades
Career: Undergraduate

Course Components:	Lecture	Required

Course typically offered:
Main Campus: Summer

Enrollment requirement: Must be PSIO Advanced standing and PSIOM major or PSIO minors only and a C or better in (PSIO 201 and PSIO 202).

PSIO 427: Metabolism and Disease (3 units)
Description: In PSIO 427, students will study the biochemical principles that govern metabolism in physiological and pathophysiological states. We will discuss the underlying biochemistry and cell biology of specific diseases that disrupt normal cellular physiology including metabolic diseases, cancer, diabetes, cardiovascular and neurodegenerative diseases. Course activities include lectures, classroom discussions and oral presentations and assessments include exams, presentations and discussions.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Course typically offered:
Main Campus: Fall

Enrollment requirement: Must be PSIO Advanced standing and PSIOM major or PSIO minors only and a C or better in (PSIO 201 and PSIO 202, BIOC 385).

PSIO 431: Physiology of the Immune System (3 units)
Description: Focuses on physiology of the immune system, how it functions correctly, and some problems that occur when the immune system does not function properly (immunopathology).
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Co-convened with: PSIO 531
Course typically offered:
Main Campus: Fall, Spring, Summer

Enrollment requirement: Must be PSIO Advanced standing and PSIOM major or PSIO minors only and a C or better in (PSIO 201 and PSIO 202).
Honors Course: Honors Contract
Honors Course: Honors Contract

PSIO 450: Respiratory Physiology (3 units)
Description: This course will introduce students to the structure and function of the respiratory system, including lung structure and development, physiology of the pulmonary airways, lung fluid balance, pulmonary circulation, pulmonary mechanics, gas exchange, regulation of breathing, respiration in the neonate and cardiopulmonary interactions. Each topic will be addressed from the molecular to the systems level of organization, and respiratory system disease will be used as a framework for understanding basic physiology.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Course typically offered:
Main Campus: Spring

Enrollment requirement: Must be PSIO Advanced standing and PSIOM major or PSIO minors only and a C or better in (PSIO 201 and PSIO 202).
Honors Course: Honors Contract
Honors Course: Honors Contract

PSIO 452: Digestive Physiology (3 units)
Description: This course uses an integrative approach to introduce students to the structure and function of the digestive system, and will survey how the digestive system functions correctly, how it is regulated, and some problems that occur when it does not function properly.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Course typically offered:
Main Campus: Fall, Spring, Summer

Enrollment requirement: Must be PSIO Advanced standing and PSIOM major or PSIO minors only and a C or better in (PSIO 201 and PSIO 202).

PSIO 465: Neurophysiology (3 units)
Description: This course is concerned with how systems of neurons operate together to perform a wide array of functions including the processing of sensory information and generation of motor behaviors. Relevant aspects of neuroanatomy will be covered and some neural diseases will be discussed. A brief review of cellular neurophysiology will be provided at the outset of the course.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Course typically offered:
Main Campus: Spring

Enrollment requirement: Must be PSIO Advanced standing and PSIOM major or PSIO minors only and a C or better in (PSIO 201 and PSIO 202).

PSIO 467: Endocrine Physiology (3 units)
Description: Mammalian endocrine regulation from an integrative physiology perspective. Primary focus is on calcium and fuel metabolism, stress, fluid balance, reproduction, and growth and development.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Equivalent to: ANAT 467R, CBA 467, CBA 467R, MCB 467, MCB 467R
Co-convened with: PSIO 567
Course typically offered:
Main Campus: Fall

Enrollment requirement: Must be PSIO Advanced standing and PSIOM major or PSIO minors only and a C or better in (PSIO 201 and PSIO 202).

PSIO 469: Human Reproductive Physiology (3 units)
Description: We will examine contemporary issues in the field of reproductive physiology with particular emphasis on clinical applications and societal concerns. The class structure is designed to encourage application of primary scientific literature and text-book hypotheses to real-world practice and exploration of new issues. Students are encouraged to bring recent articles, newspaper clippings, opinions, ideas and questions to class to promote active learning.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Co-convened with: PSIO 569
Course typically offered:
Main Campus: Spring

Enrollment requirement: Must be PSIO Advanced standing and PSIOM major or PSIO minors only and a C or better in (PSIO 201 and PSIO 202).
Honors Course: Honors Contract
Honors Course: Honors Contract

PSIO 472: Quantitative Modeling of Biological Systems (3 units)
Description: Techniques for development of mathematical models. Examples of molecular, cellular, and tissue level processes are considered. Underlying mathematical and biological concepts are introduced as needed.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Co-convened with: PSIO 572
Course typically offered:
Main Campus: Fall

Enrollment requirement: Must be PSIO Advanced standing and PSIOM major or PSIO minors only and a C or better in (PSIO 201 and PSIO 202) and MATH 129. Non-PSIO majors: MATH 129.
Honors Course: Honors Contract
Honors Course: Honors Contract

PSIO 484: Cardiovascular Muscle Biology and Disease (3 units)
Description: This course is geared towards obtaining knowledge and quantitative insights in the molecular and integrative biology of muscle with an emphasis on cardiac muscle and the heart. It will focus on the molecular mechanisms that underlie the function and plasticity of muscle, including mechanisms of disease. In addition to lectures, the course will promote critical thinking and analysis skills by reading and analyzing primary research articles.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Also offered as: BME 484, CMM 484, MCB 484
Co-convened with: PSIO 584
Course typically offered:
Main Campus: Spring

Enrollment requirement: PSIO 201, PSIO 202 (C or better in these two courses required for PRP and PSIO majors and minors) and PSIO 303A or PSIO 303B. MCB 410 or MCB 305 can substitute all course requisites for non-majors/minors PSIO/PRP.
Honors Course: Honors Contract
Honors Course: Honors Contract

PSIO 485: Cardiovascular Physiology (3 units)
Description: Physiology principles of the heart and peripheral vasculature, viewed in an integrative manner, from the cellular to the systems level.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Co-convened with: PSIO 585
Course typically offered:
Main Campus: Fall, Spring

Enrollment requirement: Must be PSIO Advanced standing and PSIOM major or PSIO minors only and a C or better in (PSIO 201 and PSIO 202).

PSIO 487: Physiology of Aging (3 units)
Description: In this course we will examine the processes of lifecycle development, normal and pathological aging, senescence, and death from an eco-physiological perspective. Course objectives include understanding the impact of aging on major physiological systems; evaluation of relevant research papers form genetics, ecology, gerontology and geriatrics; understanding the role of the elderly in modern society; and analysis of selected eldercare controversies in the scientific, medical, and political communities.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Course typically offered:
Main Campus: Fall

Enrollment requirement: Must be PSIO Advanced standing and PSIOM major or PSIO minors only and a C or better in (PSIO 201 and PSIO 202).

PSIO 489: Current Topics in Physiology (3 - 4 units)
Description: Physiology seniors will explore selected physiological topics of current interest to today's society, providing students the opportunity to integrate and apply knowledge gained throughout their major courses. Guest lectures by experts, weekly readings and discussions will enable students to address the issues and challenges relevant to each of the topics. Working in teams, each issue will be critically analyzed from basic science, application and societal perspectives, and subsequently shared for full class discussion and final integration
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Course typically offered:
Main Campus: Spring

Enrollment requirement: Must be PSIO Advanced standing and PSIOM major or PSIO minors only and a C or better in (PSIO 201 and PSIO 202).
Student Engagement Activity: Discovery
Student Engagement Competency: Innovation and Creativity

PSIO 492: Directed Research (1 - 3 units)
Description: Individual or small group research under the guidance of faculty.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Independent Study Required
Repeatable: Course can be repeated for a maximum of 12 units.
Course typically offered:
Main Campus: Fall, Spring, Summer

Student Engagement Activity: Discovery
Student Engagement Competency: Innovation and Creativity

PSIO 495H: Senior Honors Thesis Preparation (2 units)
Description: This colloquium is designed for senior Physiology Honors students who are in the process of undertaking their Honors Thesis project & concurrently enrolled in PSIO 498H. This course is designed to optimize your honors research experience and facilitate successful completion of your honors thesis. Through a combination of lectures, panel discussions, class activities and practice presentations, we¿ll tackle the key elements needed to organize and share (in both oral and written form) the outcome of your honors project. Assorted relevant issues such as authorship, effective abstracts, referencing and writing for the non-science public as well as ethical issues in research will also be covered.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Colloquium Required
Course typically offered:
Main Campus: Fall

Enrollment requirement: Must be PSIO Advanced standing and PSIOM major only and a C or better in (PSIO 201 and PSIO 202).Senior status, Honors Active, and concurrent enrollment in PSIO 498H.
Honors Course: Honors Course
Honors Course: Honors Course

PSIO 495M: Musculoskeletal Physiology Colloquium (2 units)
Description: Discussion-format class covering musculoskeletal topics related to injury and disease, considering relevant basic science, research and clinical applications.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Colloquium Required
Course typically offered:
Main Campus: Spring

Field trip: none
Enrollment requirement: Must be PSIO ADV standing, PSIOM and PSIO majors or PSIOMMINU, PSIOMINU minors only. C or better in PSIO 201 and PSIO 202

-SA represents a Student Abroad & Student Exchange offering
-CC represents a Correspondence Course offering
May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

PSIO 495S: Sex Matters in Medicine (2 units)
Description: Major Goals: To gain an understanding of difference between sex and gender and how both sex and gender affect specific aspects of physiology, medicine and access to healthcare; to understand the role of sex hormones vs sex chromosomes in the presentation of some diseases.Minor Goals: To be able to describe (verbally and in writing) how gender based inequities effect access to education, economic resources relate to health; to be able to recognize gender bias in research design, implementation and analysis.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Colloquium Required
Co-convened with: PSIO 595S
Course typically offered:
Main Campus: Fall, Spring

Enrollment requirement: Must be PSIO Advanced standing and PSIOM major or PSIO minors only and a C or better in (PSIO 201 and PSIO 202).

PSIO 495T: Topics in Physiology (2 units)
Description: Discussion-format class covering topics in physiological topics of current public interest, considering relevant basic science, research and daily life applications.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Colloquium Required
Co-convened with:
Enrollment requirement: Must be PSIO Advanced standing and PSIOM major or PSIO minors only and a C or better in (PSIO 201 and PSIO 202).
Honors Course: Honors Contract
Honors Course: Honors Contract

PSIO 497A: Physiology of Mind-Body Interactions (3 units)
Description: Students will explore the connections between their own mental/emotional processes and their physiological responses. As a result they will learn how to regulate their autonomic nervous system to reduce stress and improve performance.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Workshop Required
Course typically offered:
Main Campus: Fall, Spring

Field trip: One workshop session will involve practicing breathing and meditation at the Equine Center with horses.
Enrollment requirement: Must be PSIO Advanced standing, PSIOM major or PSIOMMINU and PSIOMINU minors only. (PSIO 303A or PSIO 303B or PSIO 303 or PSIO 305) and a C or better in (PSIO 201 and PSIO 202).
Student Engagement Activity: Discovery
Student Engagement Competency: Innovation and Creativity

PSIO 498H: Honors Thesis (3 units)
Description: An honors thesis is required of all the students graduating with honors. Students ordinarily sign up for this course as a two-semester sequence. The first semester the student performs research under the supervision of a faculty member; the second semester the student writes an honors thesis.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Independent Study Required
Repeatable: Course can be repeated for a maximum of 9 units.
Course typically offered:
Main Campus: Fall, Spring, Summer

Enrollment requirement: PSIO majors only. C or better in (PSIO 201 and PSIO 202). Student must be active in Honors College.
Honors Course: Honors Course
Honors Course: Honors Course
Student Engagement Activity: Discovery
Student Engagement Competency: Innovation and Creativity
Writing Emphasis: Writing Emphasis Course

PSIO 499: Independent Study (1 - 6 units)
Description: Qualified students working on an individual basis with professors who have agreed to supervise such work.
Grading basis: Alternative Grading: S, P, F
Career: Undergraduate
Course Components: Independent Study Required
Repeatable: Course can be repeated a maximum of 99 times.
Course typically offered:
Main Campus: Fall, Spring, Summer

PSIO 499H: Honors Independent Study (1 - 6 units)
Description: Qualified students working on an individual basis with professors who have agreed to supervise such work.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Independent Study Required
Repeatable: Course can be repeated a maximum of 99 times.
Course typically offered:
Main Campus: Fall, Spring, Summer

Enrollment requirement: Student must be active in the Honors College.
Honors Course: Honors Course
Honors Course: Honors Course

PSIO 501: Ecological Physiology (3 units)
Description: During ontogeny, organisms constantly have to adjust their physiology in response to the environment they encounter. This course will provide an integrative understanding of life history evolution from the perspective of the constraints imposed by their underlying physiology. We will emphasize how physiological tradeoffs at the level of the whole organism ultimately define an organism¿s life history and fitness. The course will provide students with a conceptual approach to the integration of whole-organism physiology underlying life history traits. Relevant physiological, evolutionary and ecological background necessary to understand the concepts discussed will be given in lecture. Course will focus primarily on insects and will also use examples from other animals. Graduate-level requirements include a 5 page essay requiring independent reading and development of a conceptual framework of how the topics discussed in the course tie into the natural life history of their organism. Grades are based on sophistication and logical structure of thinking.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture Required
Also offered as: ECOL 501, EIS 501
Co-convened with: PSIO 401
Course typically offered:
Main Campus: Fall (odd years only)

Home department: Committee on Entomology and Insect Science

PSIO 502: Principles of Neuroanatomy (4 units)
Description: Cellular elements and recognized subsystems of the mammalian nervous system, with emphasis on general principles of neuroanatomical organization and their functional significance.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture Required
Also offered as: CMM 502, NRSC 502, PSY 502, SLHS 502
Course typically offered:
Main Campus: Spring

Home department: Psychology
Interdisciplinary Interest Area: NRSC - Neuroscience Grad Prog
Interdisciplinary Interest Area: SLHS - Speech Lang & Hearing

PSIO 503: Cellular and Molecular Physiology (6 units)
Description: Through examination of fundamental cellular processes, the integrated function of diverse cell types is discussed. Topics include: mechanisms involved in protein expression, intracellular protein targeting, and regulation of protein function; membrane transport phenomena; cell signaling mechanisms-excitability, ion channels, synaptic function; muscle and vascular function.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture Required
Equivalent to: PS 503
Also offered as: PS 503
Course typically offered:
Main Campus: Fall

Recommendations and additional information: CHEM 103B, CHEM 104B, CHEM 241B, CHEM 243B, PHYS 103, MATH 125, MATH 129, BIOC 460.

PSIO 511: Physiology for Biomedical Engineering (3 units)
Description: Fundamental concepts and principles in physiology relevant to the field of bioengineering and including a survey of materials necessary for an understanding of physiological principles.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture Required
Equivalent to: PSIO 511
Also offered as: BME 511
Course typically offered:
Main Campus: Spring

Home department: Biomedical Engineering

PSIO 512A: Biological Electron Microscopy (5 units)
Description: Provides theoretical background and practical experience in transmission and scanning electron microscopy that are necessary for the efficient and effective application of ultra-structural and cytochemical techniques as research tools.
Grading basis: Regular Grades
Career: Graduate
Course Components: Laboratory — May Be Offered
Lecture — Required
Equivalent to: ANS 512, ANS 512A, BIOC 512, BIOC 512A, CBA 512, CBA 512A, EIS 512A, ENTO 512, ENTO 512A, MBIM 512, MCB 512, PATH 512, PATH 512A, PLP 512, PLP 512A, PSIO 512, PSIO 512A, VSC 512, VSC 512A
Also offered as: ACBS 512A, CMM 512A, EIS 512A, MCB 512A, PATH 512A, PLP 512A
Recommendations and additional information: One college-level course in each of physics, chemistry, and biology.
Home department: Molecular & Cellular Biology
Interdisciplinary Interest Area: BIOC - Biochemistry

PSIO 520: Exercise and Environmental Physiology (3 units)
Description: Regulation and adjustment of physiological systems during acute exercise and adaptations with chronic exercise in various populations and environments; emphasizes physiological mechanisms. Graduate-level requirements include a research-review paper on an approved topic.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture — Required
Co-convened with: PSIO 420
Course typically offered:
Main Campus: Fall, Spring

Recommendations and additional information: CHEM 103A, CHEM 103B, CHEM 104A, CHEM 104B, PSIO 201, PSIO 202; MATH 111.

PSIO 531: Physiology of the Immune System (3 units)
Description: Focuses on physiology of the immune system, how it functions correctly, and some problems that occur when the immune system does not function properly (immunopathology). Graduate-level requirements include submitting a paper on a research topic approved by the instructor and related to the course content.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture — Required
Co-convened with: PSIO 431
Course typically offered:
Main Campus: Fall, Spring

PSIO 539: Methods in Cell Biology and Genomics (3 units)
Description: In-depth, practical and theoretical analysis of novel, experimental methods that advance our understanding of modern biology.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture Required
Also offered as: GENE 539, MCB 539, PCOL 539, PLS 539
Course typically offered:
Main Campus: Fall (even years only)

Home department: School of Plant Science

PSIO 567: Endocrine Physiology (3 units)
Description: This course is designed to provide intermediate and advanced undergraduates with a basic understanding of the function of the endocrine system. The course will progress from a consideration of basic concepts and mechanisms to the physiology (function) of specific endocrine systems. Interactions between organ systems will also be emphasized. Specific sections of the course will focus on function of the endocrine system during: stress, and fluid balance, metabolism (including calcium, glucose, lipid, and proteins), reproduction, growth, and development, and aging.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture Required
Co-convened with: PSIO 467
Course typically offered:
Main Campus: Fall

Field trip: none
Enrollment requirement: C or better in PSIO 201 and PSIO 202.

PSIO 569: Human Reproductive Physiology (3 units)
Description: We will examine contemporary issues in the field of reproductive physiology with particular emphasis on clinical applications and societal concerns. The class structure is designed to encourage application of primary scientific literature and text-book hypotheses to real-world practice and exploration of new issues. Students are encouraged to bring recent articles, newspaper clippings, opinions, ideas and questions to class to promote active learning. Graduate-level requirements include a 30 minute class presentation to the class or a 10-page paper may be substituted.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture Required
Co-convened with: PSIO 469
Course typically offered:
Main Campus: Spring

PSIO 572: Quantitative Modeling of Biological Systems (3 units)
Description: Techniques for development of mathematical models. Examples of molecular, cellular, and tissue level processes are considered. Underlying mathematical and biological concepts are introduced as needed. Graduate-level requirements include in addition to the homework and examination requirements, development of a mathematical model on a topic chosen in consultation with the instruction, to write a written report, and to make a short oral presentation on their work in class. The performance on this project will form part of the grade.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture Required
Also offered as: APPL 572
Co-convened with: PSIO 472
Course typically offered:
Main Campus: Fall

PSIO 584: Cardiovascular Muscle Biology and Disease (3 units)
Description: This course is geared towards obtaining knowledge and quantitative insights in the molecular and integrative biology of muscle with an emphasis on cardiac muscle and the heart. It will focus on the molecular mechanisms that underlie the function and plasticity of muscle, including mechanisms of disease. In addition to lectures, the course will promote critical thinking and analysis skills by reading and analyzing primary research articles. Graduate-level requirements include writing a research proposal that addresses an unresolved area in muscle biology (to be selected from a list of research articles provided at the beginning of the semester).
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture Required
Equivalent to: ANAT 584, CBA 584, NRSC 584
Also offered as: BME 584, CMM 584, MCB 584
Co-convened with: PSIO 484
Course typically offered:
Main Campus: Spring

PSIO 585: Cardiovascular Physiology (3 units)
Description: Physiology principles of the heart and peripheral vasculature, viewed in an integrative manner, from the cellular to the systems level. Graduate-level requirements include one extra assignment consisting of questions about a clinical scenario in cardiovascular physiology plus 3 meetings with the instructor to discuss primary journal articles in the field.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture Required
Equivalent to: NRSC 585
Co-convened with: PSIO 485
Course typically offered:
Main Campus: Fall, Spring

PSIO 588: Principles of Cellular and Molecular Neurobiology (4 units)
Description: Detailed introduction to the biology of nerve cells, emphasizing cellular neurophysiology, synaptic mechanisms, and analysis of neural development.
Grading basis: Regular Grades
Career: Graduate
Course Components: Laboratory May Be Offered
Lecture Required
Equivalent to: ANAT 588, BIOC 588, CBA 588, EIS 588, INSC 588, MCB 588, PSIO 588
Also offered as: BIOC 588, CMM 588, EIS 588, MCB 588, NRSC 588
Course typically offered:
Main Campus: Fall

Recommendations and additional information: Consult program office before enrolling.
Home department: Committee on Neuroscience

PSIO 591: Preceptorship (1 - 6 units)
Description: Specialized work on an individual basis, consisting of instruction and practice in actual service in a department, program, or discipline. Teaching formats may include seminars, in-depth studies, laboratory work and patient study.
Grading basis: Alternative Grading: S, P, F
Career: Graduate
Course Components: Independent Study Required

PSIO 595S: Sex Matters in Medicine (2 units)
Description: Major Goals: To gain an understanding of difference between sex and gender and how both sex and gender affect specific aspects of physiology, medicine and access to healthcare; to understand the role of sex hormones vs sex chromosomes in the presentation of some diseases.Minor Goals: To be able to describe (verbally and in writing) how gender based inequities effect access to education, economic resources relate to health; To be able to recognize gender bias in research design, implementation and analysis.
Grading basis: Regular Grades
Career: Graduate
Course Components: Colloquium Required
Co-convened with: PSIO 495S
Course typically offered:
Main Campus: Spring

PSIO 597H: Human Neuroanatomy (1 unit)
Description: This course provides an overview of the gross and sectional anatomy of the human brain and is designed to compliment PSY 502, Principles of Neuroanatomy.
Grading basis: Regular Grades
Career: Graduate
Course Components: Workshop Required
Also offered as: CMM 597H, PSY 597H
Course typically offered:
Main Campus: Fall, Spring

Recommendations and additional information: Prerequisite or concurrent registration, PSY 502.
Home department: Psychology
Interdisciplinary Interest Area: NRSC - Neuroscience Grad Prog
Interdisciplinary Interest Area: SLHS - Speech Lang & Hearing

PSIO 599: Independent Study (1 - 6 units)
Description: Qualified students working on an individual basis with professors who have agreed to supervise such work. Graduate students doing independent work which cannot be classified as actual research will register for credit under course number 599, 699, or 799.
Grading basis: Alternative Grading: S, P, F
Career: Graduate
Course Components: Independent Study Required

PSIO 603A: Human Physiology (6 units)
Description: This course in human physiology contains an extended discussion of Cardiovascular, Renal, Respiratory, Endocrine and Gastrointestinal Physiology presented at the systems level but building on cell and molecular physiology and leading to an integrated view of the function of the human organism. The lectures are designed to introduce individual elements and concepts that constitute physiology, and to integrate these basic principles into a picture of the complete system. Occasional labs and weekly discussion sections complement the lecture series. The discussion sections focus on primary research articles and problem sets that augment lecture topics.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture Required
Course typically offered:
Main Campus: Spring

Recommendations and additional information: PSIO 503.

PSIO 610: Research Methods in Physiology (1 - 3 units)
Description: Laboratory course providing students with an understanding of the types of research available in the department. (Maximum length is 8 weeks).
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture Required
Repeatable: Course can be repeated for a maximum of 10 units.
Course typically offered:
Main Campus: Fall, Spring

Recommendations and additional information: Consult department before enrolling.

PSIO 695B: Systems and Integrated Physiology Colloquium (1 unit)
Description: A colloquium that meets weekly to provide basic science principles and literature review on a number of selected topics with emphasis on specific areas of physiology at the systems level.
Grading basis: Regular Grades
Career: Graduate
Course Components: Colloquium Required
Repeatable: Course can be repeated for a maximum of 4 units.

PSIO 695D: Human Genetic Disease Colloquium (3 units)
Description: The course will cover a few medical genetic disorders in depth, with different topics each year. Clinical presentation, pathophysiology, genetic mechanisms and biochemical features will be considered. Readings will come mainly from the primary biomedical literature.
Grading basis: Regular Grades
Career: Graduate
Course Components: Colloquium Required
Repeatable: Course can be repeated a maximum of 4 times.
Equivalent to: BIOC 695D, GENE 695D, MCB 695D, NRSC 695D, PSIO 695D
Also offered as: BIOC 695D, CMM 695D, GENE 695D, MCB 695D, NRSC 695D
Course typically offered:
Main Campus: Spring

Home department: Cellular & Molecular Medicine

PSIO 695L: Advanced Topics: Modulation of the Biology of Aging by Inflammation, Infection and Immunity (1 unit)
Description: An interactive graduate-level course focused on how inflammation and immune function/dysfunction contributes to key biological and medical aspects of aging. This course will evaluate the basic biology of aging with a focus on how the aging immune system impacts geriatric principles of care, common geriatric syndromes and aging-associated disease, the biologic basis of health disparities (where known), and other unique issues related to aging research. The course is open to both graduate students and medical students/residents. Graduate students funded through the Training Grant will be required to attend in their 3rd and 4th year in place of Journal Club. The course is comprised of three aspects: literature review, topic discussion, and attendance in the Advances in Aging Lecture Series (Grand Rounds). Students will be assigned relevant literature to review in advance of in-class discussion on topics in aging research. Each discussion will be led by an expert in the field. The Advances in Aging Lecture Series are 1-hour Grand Rounds that meet once per month and will add clinical perspective to the field of aging research. More information on Advances in Aging Lecture Series topics and archived lectures is available at http://aging.arizona.edu/program/advances-aging-lecture-series. Topics that will be covered in the course include: Introduction to Aging Research, Aging Theories, and Model Organisms; Replicative Senescence as a Driver of Age-Associated Inflammation; DNA Damage, Repair, and Oncogenesis; Mitochondrial Aging and Metabolism; Musculoskeletal Changes in Aging and Frailty; Infection and Immunosenescence; Aging with HIV in the age of ART; Microbiota in Aging; Neural Changes, Neurodegeneration, and Alzheimer's Disease; Cardiovascular Aging and Stroke; Stem Cell Aging and Longevity Extension/Rejuvenation Research.
Grading basis: Regular Grades
Career: Graduate
Course Components: Colloquium Required
Repeatable: Course can be repeated a maximum of 2 times.
Also offered as: BIOC 695L, CHEM 695L, CMM 695L, CPH 695L, IMB 695L, NURS 695L, PHCL 695L
Home department: Immunobiology

PSIO 696A: Physiology Series (1 unit)
Description: The development and exchange of scholarly information, usually in a small group setting. The scope of work shall consist of research by course registrants, with the exchange of the results of such research through discussion, reports, and/or papers.
Grading basis: Regular Grades
Career: Graduate
Course Components: Seminar Required
Repeatable: Course can be repeated a maximum of 4 times.
Course typically offered:
Main Campus: Fall, Spring

Recommendations and additional information: Open to majors only.

PSIO 696C: Physiology Student Forum (1 unit)
Description: The development and exchange of scholarly information, usually in a small group setting. The scope of work shall consist of research by course registrants, with the exchange of the results of such research through discussion, reports, and/or papers.
Grading basis: Regular Grades
Career: Graduate
Course Components: Seminar Required
Repeatable: Course can be repeated a maximum of 3 times.
Equivalent to: PSIO 696C
Also offered as: PS 696C
Course typically offered:
Main Campus: Fall, Spring

Home department: Physiological Sciences, Cmt

PSIO 696E: Current Research in Vision and Neurodegeneration (1 unit)
Description: The goal of this elective is to allow students working with an Ophthalmology faculty to gain experience presenting research to an academic audience.
Grading basis: Regular Grades
Career: Graduate
Course Components: Seminar Required
Repeatable: Course can be repeated for a maximum of 6 units.
Equivalent to: PHCL 696E, PSIO 696E
Also offered as: IMB 696E, OPH 696E, PHCL 696E
Course typically offered:
Main Campus: Fall, Spring

Home department: Ophthalmology & Vision Science

PSIO 697A: Physiology Tutorial (3 units)
Description: The practical application of theoretical learning within a group setting and involving an exchange of ideas and practical methods, skills, and principles.
Grading basis: Regular Grades
Career: Graduate
Course Components: Workshop Required
Repeatable: Course can be repeated a maximum of 5 times.
Recommendations and additional information: PSIO 503 or PSIO 580 or equivalent. Consult department before enrolling.

PSIO 699: Independent Study (1 - 5 units)
Description: Qualified students working on an individual basis with professors who have agreed to supervise such work. Graduate students doing independent work which cannot be classified as actual research will register for credit under course number 599, 699, or 799.
Grading basis: Alternative Grading: S, P, F
Career: Graduate
Course Components: Independent Study Required
Repeatable: Course can be repeated a maximum of 99 times.

PSIO 800: Research (1 - 16 units)
Description: Involvement in a special research project of special interest to the student.
Grading basis: Clerkship S,HP,P,F
Career: Medical School
Course Components: Independent Study Required
Recommendations and additional information: Consent of instructor.

PSIO 899: Independent Study (1 - 16 units)
Description: The goal of this elective is to allow the student to work with a particular faculty member in pursuit of a particular field of study in physiology.
Grading basis: Clerkship S,HP,P,F
Career: Medical School
Course Components: Independent Study Required
Repeatable: Course can be repeated a maximum of 99 times.

PSIO 900: Research (1 - 9 units)
Description: Individual research not related to a thesis or dissertation for advanced degree.
Grading basis: Alternative Grading: S, P, F
Career: Graduate
Course Components: Independent Study Required
Repeatable: Course can be repeated a maximum of 99 times.
Course typically offered:
Main Campus: Fall, Spring, Summer

PSIO 910: Thesis (1 - 6 units)
Description: Research for the master's thesis (whether library research, laboratory or field observation or research, artistic creation, or thesis writing). Maximum total credit permitted varies with the major department.
Grading basis: Alternative Grading: S, P, F
Career: Graduate
Course Components: Independent Study Required
Repeatable: Course can be repeated a maximum of 99 times.
Course typically offered:
Main Campus: Fall, Spring

PSIO 920: Dissertation (1 - 9 units)
Description: Research for the doctoral dissertation (whether library research, laboratory or field observation or research, artistic creation, or dissertation writing).
Grading basis: Alternative Grading: S, P, F
Career: Graduate
Course Components: Independent Study Required
Repeatable: Course can be repeated a maximum of 99 times.
Course typically offered:
Main Campus: Fall, Spring

-SA represents a Student Abroad & Student Exchange offering
-CC represents a Correspondence Course offering
May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.