PHYSIOLOGY

Department of Physiology
College of Human Medicine
College of Natural Science
College of Osteopathic Medicine
College of Veterinary Medicine

101 Current Issues in Physiology
Fall. 2(2-0) Not open to students with credit in PSL 250 or PSL 431 or PSL 432. Physiological bases of health issues of broad social significance, and new approaches for the treatment of specific disorders.

250 Introductory Physiology
Fall, Spring. 4(4-0) R: Not open to students in Physiology.
Function, regulation and integration of organs and organ systems of higher animals emphasizing human physiology.

322 Physiology and Hygiene of the Eye
Fall of odd years. Summer of even years. 3(3-0) R: Not open to Physiology majors. Basic anatomy, physiology, and hygiene of the visual system: normal and abnormal visual function, methods of correction, and educational implications.

331 Cell Physiology: Function of Specialized Cells
Fall. 3(3-0) P:MB: (BS 111 or LBS 145) Functions of differentiated cells, including mechanisms of cell communication, excitable membranes, contraction, motility, transport, secretion, and extra cellular matrix.

410 Computational Problem Solving in Physiology
Fall, Spring. 3(3-0) P:NM: (PSL 432) R: Approval of department. Quantitative analysis of physiological data: mathematical models, curve fitting, data analysis and interpretation. Problem solving involving exponential and logistic growth. Cerebral blood flow, convective cooling, oxygen consumption, thermoregulation, other applications.

420 Membrane Biophysics: An Introduction
Fall, Spring. 2(2-0) RB: One year of college physics or chemistry, and one year of college mathematics. Biophysical and chemical aspects of biomembranes. Experimental model membrane systems including planar lipid bilayers and liposomes. Biotechnological applications of lipid bilayer sensors.

431 Human Physiology I
Fall. 3(3-0) P:NM: (BS 111 and CEM 142) Neural function including autonomic nervous system, physiological control systems, endocrinology, reproduction and digestive function.

432 Human Physiology II
Spring. 3(3-0) P:NM: (PSL 431) Continuation of PSL 431. Function and regulation of the cardiovascular, respiratory, and renal systems. Control of tissue blood flow, blood pressure, blood gases, body fluid volume and electrolytes.

440 Topics in Cell Physiology
Fall, Spring. 2(2-0) P:NM: (PSL 432) R: Open only to Physiology majors. Completion of Tier I writing requirement. Critical discussion and evaluation of a selected problem of mammalian cell physiology including cell biophysics, molecular biology of the cell.

441 Topics in Endocrinology
Fall, Spring. 2(2-0) P:NM: (PSL 432) R: Open only to Physiology majors. Completion of Tier I writing requirement. Selected topic on the role of hormones in the regulation of growth, metabolism, differentiation.

442 Topics in Cardiovascular Physiology
Fall. 2(2-0) P:NM: (PSL 432) R: Open only to Physiology majors. Completion of Tier I writing requirement. Selected topic in blood flow physiology.

443 Topics in Respiratory Physiology
Fall of odd years. 2(2-0) P:NM: (PSL 432) R: Open only to Physiology majors. Completion of Tier I writing requirement. Selected topic in the physiology of gas exchange and lung mechanics.

445 Topics in Environmental Physiology
Spring of odd years. 2(2-0) P:NM: (PSL 432) R: Open only to Physiology majors. Completion of Tier I writing requirement. Selected topic in environmental physiology with an emphasis on thermoregulation.

446 Topics in Visual Physiology
Fall of even years. 2(2-0) P:NM: (PSL 432) R: Open only to Physiology majors. Completion of Tier I writing requirement. Selected topic in the functioning of the visual system in health and disease.

447 Topics of Brain Function
Fall. 2(2-0) P:NM: (PSL 432) R: Open only to Physiology majors. Completion of Tier I writing requirement. Selected topic on the functioning of the mammalian brain.

448 Topics in Gastrointestinal Physiology
Fall. 2(2-0) P:NM: (PSL 432) R: Open only to Physiology majors. Completion of Tier I writing requirement. Selected topic in the physiology of the digestive system.

449 Developmental Neurophysiology
Fall. 2(2-0) P:NM: (PSL 432) R: Open only to Physiology majors. Completion of Tier I writing requirement. Development of the nervous system in invertebrate and vertebrate animals.

473 Environmental Fish Physiology
Fall of even years. 3(3-0) Interdepartmental with Fisheries and Wildlife. Administered by Department of Fisheries and Wildlife. P:MB: (BS 111) R: Not open to freshmen or sophomores. Survey of physiological adaptations of fish to environmental factors: bioenergetics, homeostasis, senses adaptations to diverse and extreme aquatic environments.

475 Capstone Laboratory in Physiology
Spring. 2(1-3) P:NM: (PSL 432) R: Open only to Physiology majors. Labatory exercises in animal physiology including osmoregulation, receptor mediated regulation, nervous and hormonal control of function.

480 Special Problems
Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 5 credits in all enrollments for this course. P:NM: (PSL 432) R: Open only to Physiology majors. Independent study under the auspices of a faculty member.

483 Environmental Physiology
Spring. 4(4-0) Interdepartmental with Zoology. Administered by Department of Zoology. P:MB: (BS 110 or LBS 144 or LBS 148H) and (BS 111 or LBS 145 or LBS 149H) and (CEM 141 or CEM 151 or CEM 181H or LBS 171) and completion of Tier I writing requirement. Aspects of physiology important to the environmental relations of vertebrates and invertebrates: energetics, thermal relations, osmotic-ionic relations, and exercise physiology.

501 Introductory Medical Physiology
Fall. 3(3-0) R: Graduate-professional students in colleges of Human and Osteopathic Medicine. Physiological basis of medical practice.

511 Veterinary Physiology
Spring. 5(5-0) R: Completion of Semester 1 of the graduate professional program in the College of Veterinary Medicine. Physiology of the nervous, cardiovascular, renal, respiratory, digestive, endocrine, and reproductive systems. Homeostasis.

534 Cell Biology and Physiology I
Fall. 3 credits. Interdepartmental with Human Anatomy; Biochemistry and Molecular Biology. R: Open only to graduate-professional students in the College of Human Medicine or College of Osteopathic Medicine. Modern concepts of cell biology as a basis for understanding the physiology of human tissues and organ systems in health and disease.

535 Cell Biology and Physiology II
Spring. 4 credits. Interdepartmental with Human Anatomy; Biochemistry and Molecular Biology. R: Open only to graduate-professional students in the College of Human Medicine or the College of Osteopathic Medicine. Modern concepts of cell biology as a basis for understanding the physiology of human tissues and organ systems in health and disease. Continuation of PSL 534.

552 Medical Neuroscience
Spring. 4(3-2) Interdepartmental with Neurology and Ophthalmology; Radiology; Human Anatomy. Administered by Department of Neurology and Ophthalmology. R: Graduate-professional students in colleges of Human Medicine and Osteopathic Medicine. SA: ANT 552 Correlation of normal structure and function of the human nervous system with clinical testing, classical lesions, and common diseases.

611 Research Problems in Physiology Clerkship
Fall, Spring, Summer. 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. P:NM: (PSL 432) R: Completion of Semester 5 in the graduate professional program in the College of Veterinary Medicine. Individual work on a research problem.
and function in fish, amphibians, reptiles, birds and
Comparative analysis of major component systems
Molecular basis of structure and function. Cell pro p-
transmission, sensory nervous system function.
Reading in cell physiology and physiological as-
Nervous system specific gene transcription and
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Nervous system specific gene transcription and
Nervous system specific gene transcription and
Translation. Maturation, degeneration, plasticity and
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Translation. Maturation, degeneration, plasticity and
Nervous system specific gene transcription and
Translational approaches for studying world politics.
foreign policy decision making. Major international
civil rights and civil liberties.
with emphasis on political participation, the pres i-
justice.
the environmental movement. The politics of air and water pollution, toxic wastes,
public lands, risk assessment, and environmental
consequences of government decision making.
 Role of public bureaucracy in the U.S. Theories of
Structure and processes of American urban politics.
Relationship of cities to U.S. federal system. Inter-
state variations. Policy focus on public education, crime, social welfare, and economic development.
Minority groups and the political process in the
United States. Civil rights movements, political
organizations, legal decisions, political participation,
and legislative politics.
Environmental Politics
Fall. 3(3-0)
The impact of political and legal institutions on U.S.
environmental policy. Public opinion, environmental
interest groups, and the environmental movement.
The politics of air and water pollution, toxic wastes,
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