COMPARATIVE MEDICINE

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Courses given in Comparative Medicine have the subject code COMPMED. For a complete list of subject codes, see Appendix.

The Department of Comparative Medicine is a clinical department and does not offer degrees, but its faculty offer courses and participate in teaching in other departments at the undergraduate and graduate level. Faculty members, most of whom are specialists in some veterinary medical specialty, also accept students to participate in ongoing research projects within the department and assist students with special research projects.

The discipline of Comparative Medicine utilizes the differences and similarities among species to understand basic biologic and disease mechanisms. Comparative Medicine incorporates the use of spontaneous or induced disease models as one of several approaches to research. The research interests of faculty members are in neuroscience, infectious diseases, neuropathology, and molecular genetics.

COURSES

Course and lab instruction in the Department of Comparative Medicine conforms to the "Policy on the Use of Vertebrate Animals in Teaching Activities," the text of which is available at http://www.stanford.edu/dept/DoR/rph/8-2.html.

COMPMED 81N. Comparative Anatomy and Physiology of Mammals—Stanford Introductory Seminar. Preference to freshmen. Comparative approach to common mammals, laboratory, and domestic species. The unique adaptations of each species in terms of its morphological, anatomical, and behavioral characteristics. How these species interact with humans and the historical relationships between humans and these animal species.
3 units, Win (Bouley)

COMPMED 83Q. Horse Medicine—Stanford Introductory Seminar. Preference to sophomores. The most common equine diseases, ranging from colic to lameness. Equine anatomy and physiology relevant to topics in equine medicine. Equine infectious diseases, respiratory disorders, care of the newborn foal, a what's-your-diagnosis problem series, and emergency first aid strategies.
1-2 units, Spr (Green)

COMPMED 85N. Animal Models in Biomedical Research—Stanford Introductory Seminar. Preference to freshmen. How and why animals are used in biomedical science and how animal models have advanced biomedical research. Documenting the humane care and treatment of laboratory animals in research and the science of animal modeling for the purpose of studying human disease. Animal models as an important tool to study mechanisms of disease and develop new therapies. Examples of animal models in medical disciplines. Genetic engineering and other techniques used to develop animal models, and innovative approaches to develop therapies for disease including gene therapy approach.
3 units, Aut (Green, Tolwani)

COMPMED 106. A Primate Perspective on Brain Evolution—How to distinguish primate subgroups; how to place primates among mammals, and humans among primates, with respect to body structure, brain organization, and function. The unique characteristics of primates; what factors contributed to the evolution of primate groups, hominids, and modern human beings. The role of the hand in primate evolution. What extant primates reveal about language acquisition. How these changes are reflected in the sensorimotor organization of the primate brain. Prerequisite: freshman biology.
3 units, Aut (Darian-Smith)

COMPMED 107/207. Comparative Neuroanatomy—(Graduate students register for 207.) Functional organization and evolution of the vertebrate nervous system. Topics include paleoneurology, cladistic analysis, allometry, mosaic versus concerted evolution, and evolution of brain region structure, connectivity, and neurons. Comparisons between structure and function of vertebrate forebrains including hippocampi. Evolution of the primate visual and sensorimotor central nervous system as related to vocalization, socialization, and intelligence.
4 units, Aut (Buckmaster, Darian-Smith)

COMPMED 108/208. Animals Advancing Biomedical Technology—(Graduate students register for 208.) Open to graduate students and undergraduates in all degree programs, especially computer science, engineering, or the BioX program. Lectures by faculty members in Comparative Medicine and invited speakers from the biomedical industry. The role of animals in biomedical research. Possible topics include: comparative anatomy and physiology of species used in biotechnology and medical device research; selecting an animal model for a research project; the genetically engineered mouse; and preclinical, animal testing of medical devices intended for use in humans. No background in animal biology required.
2 units (Cork) not given 2005-06

COMPMED 215. Synaptic Transmission—(Enroll in MCP 215.)
5 units, Aut (Smith, Madison)

UNDERGRADUATE INDIVIDUAL WORK

COMPMED 198. Directed Reading—May be taken as a prelude to research and may also involve participation in a lab or research group seminar and/or library research.
1-3 units, Aut, Win, Spr, Sum (Staff)

COMPMED 199. Undergraduate Research—By arrangement with department faculty. May be repeated for credit.
1-3 units Aut, Win, Spr, Sum (Staff)

FOR GRADUATE STUDENTS

COMPMED 299. Directed Reading—May be repeated for credit. Prerequisite: consent of instructor.
1-18 units, Aut, Win, Spr, Sum (Staff)

COMPMED 399. Research—Opportunities are available in comparative medicine and pathology, immuno-histochemistry, electron microscopy, molecular genetics, quantitative morphometry, neuroanatomy and neurophysiology of the hippocampus, pathogenesis of intestinal infections, immunopathology, biology of laboratory rodents, anesthesiology of laboratory animals, gene therapy of animal models of neurodegenerative diseases, and development and characterization of transgenic animal models. Enrollment limited to 6 . Prerequisite: consent of instructor.
1-18 units, Aut, Win, Spr, Sum (Staff)