

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 B.

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, molecular genetics and anesthesiology.

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>.

COMP MED 81Q. Comparative Anatomy and Physiology of Mammals—Stanford Introductory Seminar. Preference to sophomores. 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)

COMP MED 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 to the science of animal modeling for the purpose of studying human disease. Animal models provide an important tool to study mechanisms of disease and develop new therapies. Examples of animal models in several 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, Win (Green, Tolwani)

COMP MED 107/207. Comparative Neuroanatomy—The functional organization of the vertebrate nervous system. Focus is on laboratory animals commonly used in neuroscience research, and comparisons made with the human brain. Advantages and limitations of species chosen for neurobiological and biomedical research. Introduction to neuroanatomical methods and possible mechanisms of brain evolution. Discussion section primarily for graduate students; undergraduates by consent of instructor. Prerequisite: course in anatomy or physiology.

2-4 units, Aut (Buckmaster, Darian-Smith)

COMP MED 108/208. Animals Advancing Biomedical Technology—Open to graduate students and undergraduates in all degree programs.

Students enrolled in computer science and engineering programs or who are affiliated with the BioX program are especially welcome. Lectures by faculty members in Comparative Medicine and invited speakers from the biomedical industry. Goal is to introduce 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, Aut (Cork)

COMP MED 459. Frontiers in Interdisciplinary Biosciences—(Cross-listed in multiple departments in the schools of Humanities and Sciences, Engineering, and Medicine. Students should enroll through their affiliated department; otherwise enroll in CHEMENG 459.) See CHEMENG 459 or http://biox.stanford.edu/chemeng_index.html for description.

1 unit, Aut, Win, Spr (Robertson)

UNDERGRADUATE INDIVIDUAL WORK

COMP MED 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

COMP MED 199. Undergraduate Research—Individual research taken by arrangement with department faculty.

1-3 units (Staff)

FOR GRADUATE STUDENTS

COMP MED 299. Directed Reading—Prerequisite: consent of instructor. See faculty list for section numbers.

1-18 units, Aut, Win, Spr, Sum, by arrangement

COMP MED 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, by arrangement

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