

480. Supervised Study
Fall, Winter, Spring, Summer. 1 to 4 credits. May re-enroll for a maximum of 10 credits. Approval of department.
 Seminars on current problems. Supervised readings. Individual undergraduate research on selected topics.

484. Senior Proseminar
Winter. 1(1-0) Senior majors.
 Seminars on current professional problems and literature.

842. Park and Recreation Policy
Winter. 3(3-0) Interdepartmental with the Resource Development Department.
 Recreation, leisure and work concepts. Determination of needs for recreation facilities. Factors affecting public and private allocation of resources for provision of needed facilities.

880. Special Problems
Fall, Winter, Spring, Summer. 1 to 6 credits. May re-enroll for a maximum of 10 credits. Approval of department.
 Seminars on current problems. Supervised readings. Independent study of selected topics.

899. Research
Fall, Winter, Spring, Summer. Variable credit. Approval of department.

PATHOLOGY PTH
College of Human Medicine
College of Veterinary Medicine

404. General Pathology
Fall. 5(3-6) ANT 421; Junior Medical Technology majors, or approval of department.

407. Clinical Pathology
Winter. 5(3-4) 404 or approval of department.
 Theory and technics in histopathology, hematology, blood banking, clinical microscopy and chemical pathology, including urinalysis, blood chemistry and histochemistry.

408. Clinical Pathology
Spring. 5(3-4) 404 or approval of department.
 Continuation of 407.

501. Pathology of Infancy and Childhood
Winter. 5(5-0) Year V Human Medicine Students.
 An analysis of disease processes in the immature human between birth and puberty.

550. Pathology I
Fall, Spring. 7(3-9) Human Medicine or Veterinary Medicine students, or approval of department.
 Principles of pathology, including causes of disease, disturbances of cell growth and metabolism, necrosis, circulatory changes, inflammation, repair and neoplasms; pathology of the hematopoietic, cardio-vascular and urinary systems; integration of principles of clinical pathology.

560. Pathology II
Winter, Summer. 7(3-9) 550.
 Continuation of 550, with coverage of the digestive, respiratory, genital, nervous, skeletal, muscular, and integumentary systems.

610. Veterinary Clinical Pathology Laboratory
Fall, Spring. 3(0-9) 560.

Laboratory procedures in the diagnosis of disease; examination of body tissues and/or fluids from the living or dead animal; postmortem techniques.

615. Diseases of Poultry
Winter, Summer. 4(4-0) Eighth-term Veterinary Medicine students.

Etiology, signs, lesions, differential diagnosis and control of infectious and noninfectious diseases of birds, with emphasis on domestic poultry.

800. Problems in Pathology
Fall, Winter, Spring, Summer. Variable credit. Approval of department.

Elective work for students in veterinary medicine interested in pathology as a speciality, or in the special pathology of diseases of a particular class or species, and for graduate minors and majors interested in pathological techniques or in non-thesis research.

801. Pathology Seminar
Fall, Winter, Spring, Summer. 1(1-0) May re-enroll for a maximum of 3 credits for M.S. candidates and 6 credits for Ph.D. candidates. Approval of department.
 Seminar required of all majors in Pathology.

802. Advanced Histopathology
Fall. 5(0-15) 560 and approval of department.

A relatively advanced and comprehensive study in the histopathologic aspects of systemic and special pathology; independent study in the field of pathogenesis and microscopic pathology.

803. Advanced Histopathology
Winter. 5(0-15) 802 and approval of department.
 Continuation of 802.

804. Histopathologic Techniques
Fall. 3(1-6) Approval of department.
 Theory and practice in preparation of tissues for examination with the light microscope; special stains and histochemical procedures included.

805. Pathology Proseminar
Fall. 2(2-0) Approval of department.
 Philosophy and methods of research; theses and other research reports; literature review; illustration of research data; practical assignments.

810. Post-Mortem Diagnosis
Winter, Summer. 3(0-9) May re-enroll for a maximum of 6 credits. Approval of department. Required of majors.
 Instruction and practice in diagnosis of animal diseases by means of necropsy and other laboratory techniques. Emphasis will be placed upon correlation and interpretation of gross and microscopic lesions and the results of other tests.

811. Advanced Clinical Pathology
Winter. 3(1-6) Approval of department.
 Application of standard and newer techniques and instrumentations in hematology, biochemistry, parasitology, etc., to the diagnosis of disease.

812. Hematology
Winter. 5(3-4) 408 or 610 or approval of department.
 Pathology of diseases of blood and an analysis of diagnostic laboratory procedures.

820. Oncology
Spring. 3(0-9) 560 and approval of department.
 A study of benign and malignant neoplasms with emphasis on gross and microscopic characteristics and diagnosis.

821. Pathology of Nutritional and Metabolic Diseases
Spring of odd-numbered years. 3(1-6) Approval of department.

The pathogenesis and macroscopic and microscopic lesions of nutritional deficiencies and imbalance and of other disturbances of metabolism.

899. Research
Fall, Winter, Spring, Summer. Variable credit. Approval of department.

910. Biology of Disease
Fall. 3(2-3) Approval of department. Primarily for students in the biological sciences.
 Basic morphologic changes in disease with emphasis on the related physiologic pathology. Laboratory includes relevant problems in post-mortem diagnosis.

980. Histopathologic Diagnosis
Fall, Winter, Spring, Summer. 3(0-9) May re-enroll for a maximum of 6 credits. 803, 820.
 Trimming, histopathologic examination, description, diagnosis and reporting of specimens from biopsy and necropsy.

990. Advanced Correlative Pathology
Fall, Winter, Spring, Summer. 5(0-15) May re-enroll for a maximum of 15 credits. Approval of department.
 Experience in morphologic and clinical pathology and correlation of these with the clinical aspects of disease.

999. Research
Fall, Winter, Spring, Summer. Variable credit. Approval of department.

PHARMACOLOGY PHM
College of Human Medicine
College of Veterinary Medicine

480. Special Problems
Fall, Winter, Spring, Summer. Variable credit. May re-enroll for a maximum of 5 credits. Approval of department.

510. Principles of Pharmacology
Fall, Spring. 9(6-8) Fifth-term Veterinary Medicine students or approval of department.
 Principles of pharmacodynamics and essentials of prescription writing.

511. Applied Pharmacology
Winter, Summer. 4(4-0) 510.
 Chemotherapy and toxicology.

810. Synaptic Transmission
Winter. 4(4-0) Approval of department.
 Chemical and electrical aspects of the transmission of nervous impulses at synaptic and neuroeffector junctions and the influences of drugs upon these processes.

811. Organ System Pharmacology
Winter of even-numbered years. 4(3-3) 510 and approval of department.
 Current concepts and recent advances in the areas of cardiovascular, renal and syncytial smooth muscle pharmacology.

899. Research
Fall, Winter, Spring, Summer. Variable credit. Approval of department.

910. Seminar
Fall, Winter, Spring, Summer. 1(1-0)
May re-enroll for a maximum of 3 credits.

980. Problems
(880.) Fall, Winter, Spring, Summer. Variable credit. May re-enroll for a maximum of 5 credits. Approval of department. Limited amounts of individual work on selected research problems.

999. Research
Fall, Winter, Spring, Summer. Variable credit. Approval of department.

PHILOSOPHY

PHL

College of Arts and Letters

120. Classics of Philosophic Literature
Fall, Winter, Spring. 3(3-0)

An introduction aligned with humanistic programs, involving primary philosophic texts of both literary and historical importance by such authors as Plato, Lucretius, Augustine, Locke, Hume, Nietzsche, James, Santayana, and Whitehead.

130. Introduction to Ethics
Fall, Winter, Spring, Summer. 3(3-0)
Students may not receive credit in both 130 and 230.
Introductory study of moral value, obligation and freedom. Comparative and critical discussion of some important works or views in ethics.

137. Introduction to the Principles of Right Reason
Fall, Winter, Spring, Summer. 3(3-0)
Not open to Seniors.
Study of critical thinking, concerned with analysis of deductive and inductive arguments, criteria of sound definition, and problems of right reason arising from ambiguity, vagueness, and emotive dimension of language.

140. Introduction to Philosophical Problems
(110.) Fall, Winter, Spring. 3(3-0)
Students may not receive credit in both 140 and 240.
Selected philosophical problems in epistemology and metaphysics.

155. Philosophical Problems of Religious Belief
Fall, Winter. 3(3-0)
Introduction to classic questions of evidence and meaning, arising from philosophical defenses and criticisms of religious beliefs concerning God, freedom and immortality.

200H. Honors Work
Fall, Winter, Spring. 1 to 16 credits.
Approval of department.

211. Introduction to the History of Philosophy, Part I
Fall, Winter, Spring. 3(3-0)
Greek and Roman philosophy.

212. Introduction to the History of Philosophy, Part II
Fall, Winter, Spring. 3(3-0)
Middle Ages and Renaissance.

213. Introduction to the History of Philosophy, Part III
Fall, Winter, Spring. 3(3-0)
Eighteenth century (Berkeley and Hume) to twentieth century.

220. Representative Philosophical Systems
Fall, Winter, Spring. 3(3-0) Three credits in philosophy or approval of department.
Philosophic conclusions derive their importance from their positions within tightly reasoned systems. The nature of such systems is explored through detailed comparisons of two opposed major systems—Berkeley's and Descartes'.

231. Classical Ethical Theories
Fall, Winter, Spring, Summer. 3(3-0)
Study of the ethical views of some of the leading ancient philosophers and schools.

237. Traditional Logic
Fall, Winter, Spring. 3(3-0)
An introduction to the traditional or Aristotelian logic, with some consideration of the connections between its techniques and contemporary "symbolic" methods, and of its applicability to practical and scientific problems.

240. Persistent Problems in Philosophy
Fall, Winter, Spring, Summer. 3(3-0)
Students may not receive credit in both 140 and 240.
Introductory examination of problems concerning conditions of human knowledge and nature of reality, practice in methods of dealing with such questions.

311. Indian Philosophy
Fall, Winter. 3(3-0)
Metaphysical, ethical and social theories developed within major Indian philosophical systems; e.g., philosophical Buddhism, Vedantist transcendentalism, Samkya dualism, and the Realist schools.

312. Chinese Philosophy
Spring. 3(3-0)
Major cosmological and ethical doctrines of such Chinese authors and movements as Confucius, Mo Tzu, Lao Tzu, Taoism, Yin-Yang dualism, Buddhism, responses to Western influences, the new China.

315. American Philosophy
Spring, Summer. 3(3-0) Three credits in philosophy or approval of department.
Examination of such thinkers as Royce, Pierce, James, Dewey, Whitehead and Santayana, illustrating classic American contributions to philosophy.

323. Existentialism
Fall, Winter, Spring. 3(3-0) Three credits in philosophy or approval of department.
An examination of a major existentialist author (or authors), so designed as to place existentialist views in significant relation to the tradition of European thought.

330. Elements of Ethics
Fall, Winter, Spring, Summer. 3(3-0)
Three credits in philosophy or approval of department.
An inquiry into the nature of the right and the good, addressed to such fundamental problems as the objectivity of moral judgments, the criterion of right and wrong, and the grounds of moral responsibility.

337. Formal Logic, Part I
Fall, Winter. 3(3-0)
Presents contemporary "mathematical" logic as a unified formal discipline which generates symbolic systems that both permit rigorously exact expression of formal problems and provide powerful inferential techniques for treating them.

338. Formal Logic, Part II
Winter, Spring. 3(3-0) 337 or approval of department.
Continuation of 337, including study of quantification and theory of logical types.

339. Formal Logic, Part III
Spring. 3(3-0) 338 or approval of department.
Continuation of 338.

350. Philosophy of Art
Fall. 3(3-0) Three credits in philosophy or 6 credits in art, music, or literature.
Inquiry into the principles of artistic activity made with a view to determining the conditions under which art is produced, the nature of its product, and the sources of its value.

351. Contemporary Esthetic Theory
Winter. 3(3-0) Three credits in philosophy or 6 credits in art, music, or literature.
Critical examination of contemporary theory in esthetics and the philosophy of art, in which the primary categories of reflection upon the arts have gained their currency. Readings from such authors as Tolstoy, Santayana, Croce, Bullough, Freud, Parker, Prall, Greene.

355. Philosophy of Religion
Winter, Spring. 3(3-0) Five credits in religion.
Alternative philosophical approaches to religion as a personal and/or social phenomenon. Contemporary problems of meaning, evidence and obligation in relation to religious beliefs and practices.

360. Philosophy of Law
Fall, Winter. 3(3-0) Three credits in philosophy or 6 credits in political science or approval of department.
Important theories of law, such as natural law theory, romantic-historical, utilitarian, positivistic, and realistic, related to philosophic bases on which they rest and socioeconomic conditions out of which they grow.

365. Philosophy of the State
Winter, Spring. 3(3-0) Three credits in philosophy or 6 credits in political science or approval of department.
Philosophic principles underlying the state. Attention to basis of authority in various types of state and to nature of individual's obligation to state. Ethical theories on which diverse political theories rest.

370. Philosophy of Language
Fall. 3(3-0) Three credits in philosophy or approval of department.
An elucidation of elementary topics in semantics and philosophy of language, including such topics as meaning, denotation and truth.