

PHARMACOLOGY PHM

College of Human Medicine
College of Osteopathic Medicine
College of Veterinary Medicine

350. Introductory Human Pharmacology

Spring. 3(3-0) PSL 332 or concurrently; or approval of department.

Survey of pharmacology including general principles, central nervous system drugs, autonomic nervous system drugs, cardiovascular and renal drugs, endocrine drugs, anti-infectives, poisoning therapy, and other basic related topics.

430. Drug Abuse

Fall. 4(4-0) Juniors or approval of department. Biology and chemistry recommended.

Actions, mechanism of action, toxicity and uses of drugs of abuse. Sociological and psychological aspects of drug abuse and the legal aspects of the sale and distribution of drugs are considered.

480. Special Problems

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

520A. Principles of Pharmacology

(520.) Fall. 4(4-0) PSL 500B, 500C. Primarily for students of Veterinary Medicine.

Drug absorption, distribution, biotransformation, antagonism; receptor-theory and pharmacogenetics; adverse drug reactions, chemical toxicity. Chemotherapy (antimicrobial, antihelminthic, anti-neoplastic agents). Pharmacology of the autonomic nervous system.

520B. Principles of Pharmacology

Winter. 4(4-0) PSL 500A, or 801, 802, 803. Primarily for students of Human and Osteopathic Medicine.

Pharmacology principles, including absorption, distribution, biotransformation, drug antagonism, receptor theory and pharmacogenetics; literature data analysis; adverse drug reactions. Chemotherapy including anti-neoplastic, anti-viral and anti-microbial agents; endocrine and emergency therapies.

521A. Pharmacodynamics

(521.) Winter. 5(4-2) 520A. Primarily for students of Veterinary Medicine.

Pharmacology of drugs that affect the heart, kidney, central nervous system and non-vascular smooth muscle. Endocrine and autocoid pharmacology.

521B. Pharmacodynamics

Spring. 4(4-0) 520B. Primarily for students of Human and Osteopathic Medicine.

Pharmacology of the nervous systems (central, peripheral and autonomic); cardiovascular, renal, gastrointestinal drugs.

810. Synaptic Transmission

Winter of odd-numbered years. 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

Fall of odd-numbered years. 4(3-3) 521A or 521B and approval of department.

Current concepts and recent advances in the areas of cardiovascular, renal and syncytial smooth muscle pharmacology.

812. Advanced Principles of Pharmacology and Toxicology

Spring of odd-numbered years. 5(5-0) 521A or 521B.

Kinetics of drug absorption, elimination and metabolism; drug receptor interactions, toxicology of metals, pesticides, industrial and inhalation toxicology; developmental toxicology, teratogenesis, mutagenesis, and carcinogenesis.

813. Cardiac Pharmacology

Winter of even-numbered years. 4(4-0) 520A, 521A or 520B, 521B; PSL 801, 802, 803; or approval of instructor.

Effects of drugs on normal physiological and biochemical processes in cardiac cells are studied. Emphasis is placed on mechanisms of drug action.

870. Problems

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

Limited amounts of individual work on selected research problems.

899. Research

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

910. Seminar

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

980. Problems

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.

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)

The Greek and Roman period with emphasis on Plato and Aristotle.

212. Introduction to the History of Philosophy, Part II

Winter, Spring. 3(3-0)

The Middle Ages and early modern periods, with emphasis on Aquinas, Descartes, Spinoza and Leibniz.

213. Introduction to the History of Philosophy, Part III

Fall, Spring. 3(3-0)

The eighteenth and nineteenth centuries with emphasis on British empiricism, Kant, and post-Kantian philosophy.

294. Special Topics

Fall, Winter, Spring, Summer. 2(2-0) to 6(6-0) Approval of department.

Intensive study of some particular problem or author in philosophy.

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.

PHILOSOPHY PHL

College of Arts and Letters

Each of the courses 101, 102, 103 is an independent gateway to an area of philosophy. Together they provide a comprehensive introduction to philosophical inquiry through contact with philosophical issues.

101. Introduction to Philosophy: Ethics and Value

Fall, Winter, Spring, Summer. 3(3-0) Students may not receive credit for both 101 and 330.

Moral responsibility, praise and blame, good and evil, justice, law and morality, individual liberty and collective authority and contemporary moral issues are typical problems.

102. Introduction to Philosophy: Epistemology and Metaphysics

Fall, Winter, Spring, Summer. 3(3-0)

Skepticism and certainty, existence, matter and mind, God, space and time, knowledge and belief, perception, personal identity, causality, and free-will are typical problems.

103. Introduction to Philosophy: Logic

Fall, Winter, Spring, Summer. 3(3-0)

Deductive and inductive reasoning and such topics as rational argumentation, fallacies, definition, meaning, truth and evidence.

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) Juniors. Students may not receive credit for both 101 and 330.

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. Logic I

Fall, Winter, Spring. 4(4-0)

Modern symbolic methods in deductive reasoning. The logic of connectives and quantifiers.

- 338. Logic II**
Fall, Winter, Spring. 4(4-0) 337 or approval of department.
The logic of identity, functions, and descriptions. Theory-building: axioms, definitions, theorems.
- 340. Moral Problems in Medicine and the Life Sciences**
Winter, Spring. 3(3-0)
Philosophical aspects of euthanasia, allocation of scarce medical resources, experimentation and informed consent, truth-telling and the doctor-patient relationship, genetic counseling, genetic engineering, behavior control, and health care recovery.
- 341. Philosophical Aspects of Feminism**
Fall, Winter, Spring. 3(3-0)
Conceptual issues in feminist theory. Such concepts as oppression, sexism and chauvinism, feminist separatism, rape, respect and self-respect, personhood, power and control and feminism will be analyzed and explored.
- 350. Philosophy of Art**
Fall, Winter, Spring. 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) Three credits in philosophy or six in religious studies or approval of department.
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, Spring. 3(3-0) Three credits in philosophy or six credits in political science or approval of department.
Philosophic examination of such legal concepts as punishment, responsibility, rights and duties, judicial decisions and justice, and such legal theories as natural law, positivism and realism.
- 361. Philosophy of Technology**
Fall, Winter. 4(4-0) Sophomores or approval of college. Interdepartmental with and administered by Lyman Briggs College.
Is our technology desirable? Are its social forms desirable? What alternatives are there? Students will develop and defend their own appraisals of technology.
- 365. Social and Political Philosophy**
Winter, Spring. 3(3-0) Three credits in philosophy or six credits in political science, or approval of department.
Philosophical justifications for political authority and individual liberty. Consideration of such theories as natural law, social contract, utilitarianism and historicism.
- 366. The Philosophy of Karl Marx**
Spring. 3(3-0) Three credits in philosophy or approval of department.
Structural and critical analysis of Karl Marx's philosophical thought. Theory of objectification and alienation; its application to the religious, philosophical, political, social, and economic spheres; reform of the Hegelian dialectic.
- 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.
- 380. The Nature of Science, Part I**
Fall, Winter. 3(3-0) Three credits in philosophy or 6 credits beyond basics in natural science or social science or mathematics or approval of department.
Conflicting views about science. Such topics as: scientific methodology, the objectivity of science, the presuppositions, goals and limits of science.
- 381. The Nature of Science, Part II**
Winter, Spring. 3(3-0)
Issues concerning science and man. Such topics as: the value neutrality of science, science and ideology, science and decision making, the scientific predictability of human actions.
- 390. Philosophy in Literature**
Spring. 3(3-0) Juniors.
Philosophical problems found in such writers as Aeschylus, Goethe, Dostoevsky, Tolstoy, Mann, Hesse, Camus.
- 400H. Honors Work**
Fall, Winter, Spring. Variable credit. Approval of department.
Individually selected program of supervised group or individual study dealing with some phase of philosophy.
- 410. Plato**
Fall. 5(4-0) Three credits in philosophy at 300 level or 9 credits in philosophy or approval of department.
The most important Socratic dialogues, including the *Republic* and the dialogues of the early Academy.
- 411. Aristotle, Part I**
Winter. 4(3-0) Three credits in philosophy at the 300 level or higher or 9 credits in philosophy or approval of department.
Introduction to the philosophy of Aristotle. Readings from the texts of Aristotle and lectures on his philosophy with emphasis on his logical, epistemological and metaphysical inquiries.
- 412. Aristotle, Part II**
Spring. 4(3-0) 411 or approval of department.
Continuation of 411, with emphasis on Aristotle's method in relation to his ethics, politics and rhetoric.
- 413. Continental Rationalism**
Fall. 5(4-0) Three credits in philosophy at 300 level or 9 credits in philosophy or approval of department.
The rationalists of the seventeenth century, with emphasis on Descartes, Spinoza and Leibniz.
- 414. Medieval Philosophy**
Winter. 4(3-0) Three credits in philosophy at 300 level or higher, or 9 credits in philosophy, or approval of department.
Significant philosophers and philosophical problems of the Medieval period.
- 416. British Empiricism**
Winter. 5(4-0) Three credits in philosophy at 300 level or higher or 9 credits in philosophy or approval of department.
The development of the philosophical school of British Empiricism, with emphasis on the writings of Locke, Berkeley, and Hume.
- 419. Nineteenth Century Philosophy**
Fall. 4(3-0) Three credits in philosophy at 300 level or higher or approval of department.
Significant philosophical developments in 19th century thought, with emphasis on post-Kantian idealism.
- 420. Analytic Philosophy, 1900-1945**
Fall. 4(3-0) Three credits in philosophy at the 300 level or higher or 9 credits in philosophy or approval of department.
Issues in the works of such philosophers as Frege, Russell, Morre, Wittgenstein and Carnap. Will provide a background for recent analytic philosophy.
- 421. Formal Linguistic Analysis**
Winter. 4(3-0) 337 and 420 or approval of department.
Issues in the works of such philosophers as Carnap, Quine, Goodman and Bergman.
- 422. Non-Formal Linguistic Analysis**
Spring. 4(3-0) 420.
Issues in the works of such philosophers as Wittgenstein, Ryle, Austin and Strawson.
- 423. Kant**
Spring. 5(4-0) Three credits in philosophy at 300 level or higher or 9 credits in philosophy or approval of department.
Kant's metaphysical and epistemological system as expressed in the *Critique of Pure Reason*.
- 424. Contemporary Continental Philosophy**
Spring. 4(3-0) Three credits of philosophy at the 300 level or higher or approval of department.
Typical areas of study are phenomenology, structuralism, contemporary interpretation of Marx, hermeneutic (Gadamer), critique of instrumental reason (Horkheimer, Adorno, Habermas) ontologies of the person.
- 427. Hegel**
Winter. 4(3-0) Three credits in philosophy at the 300 level or higher or 9 credits in philosophy or approval of department.
Hegel's *Phenomenology of Spirit*, *Science of Logic*, or *Philosophy of Right*. Textual analysis and critical study of epistemological, metaphysical or ethico-political aspects of Hegelian philosophy.
- 428. Special Topics in Existentialism**
Winter, Spring. 4(3-0) 323 or approval of department.
An examination of existentialist thought in terms of a single author or topic.
- 431. Modern Ethical Theories**
Fall. 4(3-0) 3 credits in philosophy at the 300 level or higher or approval of department.
Study of some of the important writers and problems in moral philosophy since the seventeenth century.

**Descriptions — Philosophy
of
Courses**

432. Contemporary Ethical Theories
Winter. 4(3-0) 431 or 9 credits in philosophy or approval of department.

Study of some of the leading contemporary views of the nature of moral language and consciousness.

437. Nonstandard Logics
Winter. 4(4-0) 337 or approval of department.

Such topics as the logic of possibility, of existence, of knowledge and belief, of obligation, of tense; many-valued logics; intuitionist logic.

439. Introduction to Metatheory
Spring. 4(4-0) 337 or approval of department.

Metatheory for quantificational logic and first order theories—including consistency and completeness theorems, independence of axioms. Introduction to model theory and proof theory.

440. Epistemology, Part I
Fall of even-numbered years. 4(3-0) Three credits in philosophy at 300 level or higher or 9 credits in philosophy or approval of department.

Study of evidence, grounds of assent, conviction, belief, and certainty.

441. Epistemology, Part II
Winter of odd-numbered years. 4(3-0) 440 or approval of department.
Continuation of 440.

445. Metaphysics, Part I
Fall of odd-numbered years. 4(3-0) Three credits in philosophy at 300 level or higher or 9 credits in philosophy or approval of department.

Fundamental concepts and categories in metaphysics: substance, process, cause, universal, particular, space, time, endurance, eternity, change, and value.

446. Metaphysics, Part II
Winter of even-numbered years. 4(3-0) 445 or approval of department.
Continuation of 445.

447. Philosophy of Mind
Winter. 4(3-0) Three credits in philosophy at 300 level or higher or 9 credits in philosophy or approval of department.

Examines classical and contemporary treatments of such concepts as "mind", "self", "intentionality", "mental act", and associated problems (the body-mind relation, "thinking" machines, the connection of thought with action, etc.).

450. History of Esthetic Theory
Spring. 4(3-0) Three credits in philosophy at 300 level or higher or 9 credits in philosophy or 9 credits in art, music or literature or approval of department.

Poetics of Aristotle, and the tradition which it has generated in critical reflection on theory of poetry, the drama, and fine arts.

460. Moral and Political Issues
Fall, Winter, Spring. 4(3-0) Three credits in philosophy at 300 level or higher or 9 credits in philosophy, or approval of department.

Philosophical aspects of such issues as freedom of speech and action, civil disobedience, violence, war, justice and equality, human rights and punishment.

471. Philosophy of Mathematics
Spring. 4(3-0) 337 and 338 or approval of department.

An analysis of the nature of mathematical truth. The theses of logicism, formalism, intuitionism, and conventionalism are critically examined.

480. Philosophy of Science, Part I
Winter. 4(3-0) 337 or approval of department.

Topics such as: the logical structure of scientific theories, empirical meaningfulness and testability, deductive and probabilistic explanation, prediction.

481. Philosophy of Science, Part II
Spring. 4(3-0) 337 or approval of department.

Topics such as: discovery vs. validation of theories, probability, induction and confirmation theory.

483. Philosophy of Physical Science
Fall. 4(4-0) Nine credits in physical science or approval of department. Interdepartmental with and administered by Lyman Briggs College.

Philosophical problems of the physical sciences. The topics will be taken from such areas as: quantum mechanics, space-time, classical mechanics, relativity.

484. Philosophy of Biological Sciences
Winter, Spring. 4(4-0) Nine credits in science or approval of department. Interdepartmental with and administered by Lyman Briggs College.

Methodological notions and problems of the biological sciences such as: observation and measurement, classification, teleological and functional explanation, teleological systems, emergentism, vitalism, value neutrality.

485. Philosophy of the Social Sciences
Spring. 4(3-0) Three credits in philosophy at 300 level or higher or 9 credits in philosophy or 9 credits, other than basics, in social science or approval of department.

Selected problems in the methodology of the behavior sciences, including such topics as: concept formation and theory construction, explanation and insight, subjectivity and value judgments, emergence and teleology, historicism, reductionism, measurement, and statistical inference.

490. Individual Reading
Fall, Winter, Spring, Summer. 1 to 4 credits. Approval of department.
Supervised reading on a particular author or topic.

494. Special Topics
Fall, Winter, Spring, Summer. 2(2-0) to 6(6-0) Approval of department.
Intensive study of some particular problem or author in philosophy.

495. Proseminar
Winter, Spring. 1 credit. May re-enroll for a maximum of 4 credits. Juniors. Fifteen credits in philosophy or approval of instructor.

Each section will examine a particular topic or author. Emphasis on discussion of student papers.

825. Seminar in the History of Philosophy
Fall, Winter, Spring. 4(3-0) May re-enroll for a maximum of 12 credits. Approval of department.

830. Seminar in Ethics
Winter, Spring, Summer. 4(3-0) May re-enroll for a maximum of 12 credits. Approval of department.

837. Seminar in Logic
Fall. 4(3-0) May re-enroll for credit. Approval of department.

841. Seminar in Epistemology
Fall, Winter, Spring. 4(3-0) May re-enroll for a maximum of 12 credits. Approval of department.

845. Seminar in Metaphysics
Fall, Winter, Spring. 4(3-0) May re-enroll for a maximum of 12 credits. Approval of department.

850. Seminar in Aesthetics
Fall. 4(3-0) May re-enroll for a maximum of 12 credits. Approval of department.

The nature of aesthetic values, grounds of criticism, function of the arts, etc.

860. Seminar in Social Philosophy
Spring. 4(3-0) May re-enroll for a maximum of 12 credits. Approval of department.
Philosophy of law and of the state.

870. Seminar in the Philosophy of Language
Fall. 4(3-0) May re-enroll for a maximum of 12 credits. Approval of department.

Concrete bases of language and nature of meaning.

880. Seminar in the Philosophy of Science
Fall, Winter. 4(3-0) May re-enroll for a maximum of 12 credits. Approval of department.

890. Graduate Reading Course
Fall, Winter, Spring, Summer. 1 to 10 credits. May re-enroll for credit. Approval of department.

Supervised reading course for advanced graduate students for more thorough investigation of special fields.

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

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

PHYSICAL SCIENCE PHS

College of Natural Science

203. Foundations of Physical Sciences
Fall, Winter, Spring, Summer. 4(3-3) Primarily for elementary school teachers.
Integrated descriptive course in the elements of physical science including the interrelations among chemistry, geology, meteorology, astronomy, and physics.