

- 432. Contemporary Ethical Theories**
Winter. 4(4-0) PHL 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.
- 436. Philosophical Logic**
Winter. 4(4-0) May reenroll for a maximum of 8 credits if different topic is taken. PHL 337 or approval of department.
Such topics as metatheory, model theory, artificial intelligence and deviant logics, e.g., logic of existence, intuitionist logic, many valued logic.
- 440. Epistemology**
Fall of even-numbered years. 4(4-0) 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.
- 445. Metaphysics**
Fall of odd-numbered years. 4(4-0) 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.
- 447. Philosophy of Mind**
Winter, Spring. 4(4-0) 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.).
- 460. Moral and Political Issues**
Fall, Spring. 4(4-0) 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(4-0) PHL 337 or MTH 471 or approval of department.
An analysis of the nature of mathematical truth. The theses of logicism, formalism, intuitionism, and conventionalism are critically examined.
- 480. The Nature of Scientific Theory and Explanation**
Winter. 4(4-0) PHL 337 or approval of department.
Topics such as: the logical structure of scientific theories, empirical meaningfulness and testability, deductive and probabilistic explanation, prediction.
- 481. Foundations of Scientific Inference**
Spring. 4(4-0) PHL 337 or approval of department.
Topics such as: discovery vs. validation of theories, probability, induction and confirmation theory.

- 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 School.
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(4-0) 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 behavioral sciences, including such topics as: concept formation and theory construction, explanation and insight, subjectivity and value judgements, emergence and teleology, historicism, reductionism, measurement, and statistical inference.
- 490. Individual Reading**
Fall, Winter, Spring, Summer. 1 to 4 credits. May reenroll for a maximum of 12 credits. Approval of department.
Supervised reading on a particular author or topic.
- 494. Special Topics**
Fall, Winter, Spring. 2(2-0) to 6(6-0) May reenroll for a maximum of 12 credits if different topics are taken. Approval of department.
Intensive study of some particular problem or author in philosophy.
- 495. Proseminar**
Winter, Spring. 1 credit. May reenroll 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.
- 805. Business Ethics**
Spring. 4(4-0) Graduate student in the College of Business or approval of instructor. Interdepartmental with General Business—Business Law Programs.
Ethical dimensions of such topics as corporate responsibility, preferential hiring, profit and taxation, deception and bribery, self-regulation versus government regulation, 'whistleblowing', and advertising. Readings from philosophical and business sources.
- 825. Seminar in the History of Philosophy**
Fall, Winter, Spring. 2 to 4 credits. May reenroll for a maximum of 12 credits. Approval of department.
- 830. Seminar in Ethics**
Winter, Spring. 2 to 4 credits. May reenroll for a maximum of 12 credits. Approval of department.
- 837. Seminar in Logic**
Fall. 2 to 4 credits. May reenroll for a maximum of 12 credits. Approval of department.
- 841. Seminar in Epistemology**
Fall, Winter, Spring. 2 to 4 credits. May reenroll for a maximum of 12 credits. Approval of department.
- 845. Seminar in Metaphysics**
Fall, Winter, Spring. 2 to 4 credits. May reenroll for a maximum of 12 credits. Approval of department.

- 860. Seminar in Social Philosophy**
Spring. 2 to 4 credits. May reenroll for a maximum of 12 credits. Approval of department.
Philosophy of law and of the state.
- 870. Seminar in the Philosophy of Language**
Fall. 2 to 4 credits. May reenroll for a maximum of 12 credits. Approval of department.
Concrete bases of language and nature of meaning.
- 880. Seminar in Philosophy of Science**
Fall, Winter. 2 to 4 credits. May reenroll for a maximum of 12 credits. Approval of department.
- 890. Graduate Reading Course**
Fall, Winter, Spring, Summer. 1 to 10 credits. May reenroll for credit. Approval of department.
Supervised reading course for advanced graduate students for more thorough investigation of special fields.
- 899. Master's Thesis Research**
Fall, Winter, Spring, Summer. Variable credit. Approval of department.
- 999. Doctoral Dissertation Research**
Fall, Winter, Spring, Summer. Variable credit. Approval of department.

PHYSICAL SCIENCE PHS

College of Natural Science

The content of 405, as well as the problems course, 890, may vary from term to term. Brochures giving detailed information about individual courses are available in the College of Natural Science and the Office of the Assistant Dean for Lifelong Education. These courses are primarily designed for in-service teachers and interested adults and are offered in off-campus locations.

- 203. Foundations of Physical Sciences**
Fall, Winter, Spring, Summer. 4(3-3) 12 credits of Natural Science.
An introduction to physical science for non-science majors. Emphasis on basic concepts relating to human interaction with the physical environment. Topics selected from physics, chemistry, and the earth and space sciences.
- 405. Topics in Physical Science**
Fall, Winter, Spring, Summer. 1 to 3 credits. May reenroll for a maximum of 6 credits if different topic is taken. Approval of department.
Presentation of single topics from the physical sciences by senior faculty and guest lecturers. Topics are selected to facilitate development of strong physical science programs in schools.
- 431. Problems in Planetarium Education**
Fall, Winter, Spring, Summer. 1 to 3 credits. May reenroll for a maximum of 6 credits. Approval of department.
Individual study, training, or project under the direction of a faculty member. Often the training will be in the area of actual delivery of planetarium presentations.
- 890. Problems in Physical Science**
Fall, Winter, Spring, Summer. 1 to 12 credits. May reenroll for a maximum of 15 credits. Bachelor's degree in a physical science.