

**Descriptions – Philosophy
of
Courses**

- 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 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. 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 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.
- 825. Seminar in the History of Philosophy**
Fall, Winter, Spring. 4(3-0) May reenroll for a maximum of 12 credits. Approval of department.
- 830. Seminar in Ethics**
Winter, Spring, Summer. 4(3-0) May reenroll for a maximum of 12 credits. Approval of department.
- 837. Seminar in Logic**
Fall. 4(3-0) May reenroll for credit. Approval of department.
- 841. Seminar in Epistemology**
Fall, Winter, Spring. 4(3-0) May reenroll for a maximum of 12 credits. Approval of department.
- 845. Seminar in Metaphysics**
Fall, Winter, Spring. 4(3-0) May reenroll for a maximum of 12 credits. Approval of department.
- 850. Seminar in Aesthetics**
Fall. 4(3-0) May reenroll 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 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. 4(3-0) 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. 4(3-0) 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. 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

The content of courses 400, 405, 410 and 412, as well as the problems course, 890, may vary from term to term. Brochures giving detailed information about individual courses are available in the Science and Mathematics Teaching Center 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) Primarily for elementary school teachers.
Integrated descriptive course in the elements of physical science including the interrelations among chemistry, geology, meteorology, astronomy, and physics.
- 400. Physical Science for Teachers**
Fall, Winter, Spring, Summer. 3 or 4 credits. May reenroll for a maximum of 12 credits. Teacher certification with science major or minor.
For in-service teachers stressing process, inquiry, meaning and field experience. Topics will be generated from classroom experiences of participants.
- 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.
- 410. Seminar on Recent Advances 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.
A series of lectures by senior faculty of topics on the history, development, the most recent advances and the possible future and limits of the physical sciences.
- 412. Recent Advances in Earth 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.
A series of lectures by senior faculty on the history, development, most recent advances and possible future trends in the earth sciences.

- 430. Planetarium and Classroom Instruction**
Summer. 4(3-2) AST 119 or AST 217 or AST 229.
Practical operation, techniques, and methods of instruction for astronomy and other sciences in the planetarium theater and the classroom.
- 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.

PHYSICAL SYSTEMS IN AGRICULTURE AND NATURAL RESOURCES

See Agricultural Engineering

PHYSICS PHY

College of Natural Science

Introductory physics courses are offered in both the lecture-recitation and the Competency-Based-Instructional (CBI) format. In the latter format the students are carefully guided through each course via written materials with ample consulting time available. Both content and pace of course are flexible to suit student's needs and interests, final grades being based on total amount of material for which student's mastery is certified. The introductory courses may be grouped by the application of two criteria: The interests of the students the courses are designed to serve and the method of instruction employed.

Lecture-Recitation Format

237, 238, 239, three credits each, designed primarily for students with interests in the life and earth sciences. The mathematics prerequisite is credit for or concurrent enrollment in college algebra and trigonometry (MTH 109 or 111).

287, 288, 289, four credits each, designed primarily for students with interest in the physical sciences, mathematics and engineering. The mathematics prerequisite is credit for or concurrent enrollment in calculus III with vectors (MTH 214).

291H, 292H, 293H, four credits each, designed primarily for Physics majors and others with a special interest in Physics. The mathematics prerequisite is credit for or concurrent enrollment in calculus III with vectors (MTH 214), the Honors section recommended.

Competency Based Instructional Format
237B, an alternate way to earn credit in 237. 281, 282, 283, three credits each, designed for students with interest in the natural sciences, including the life and earth sciences. The mathematics prerequisite is calculus I with analytic geometry (MTH 112).