

- 151 Intercollegiate Football (0-1) (Pass/Fail)
- 152 Intercollegiate Track and Field (0-1) (Pass/Fail)
- 153 Intercollegiate Basketball (0-1) (Pass/Fail)
- 154 Intercollegiate Baseball (0-1) (Pass/Fail)
- 155 Intercollegiate Cross Country (0-1) (Pass/Fail)
- 158 Intercollegiate Golf (0-1) (Pass/Fail)
- 159 Intercollegiate Volleyball (0-1) (Pass/Fail)
- 162 Intercollegiate Tennis (0-1) (Pass/Fail)
- 163 Intercollegiate Softball (0-1) (Pass/Fail)
- 165 Intercollegiate Soccer (0-1) (Pass/Fail)

Physical Science (PHS)

Professor Wentworth

Requirements for the Physical Science Major:

Complete 1, 2 or 3.

1. General Physical Science:
 - a. Chemistry 125, 126, Physics 107, 108 (or 201, 202), Mathematics 105, 125 (or equivalent), 235.
 - b. Geology 103, Mathematics 236.
 - c. One additional four-credit course in chemistry, one additional three- or four-credit course in physics.
 - d. An additional three courses at the 300-400 level chosen from the above fields.
2. Physical Science major with a Health Science emphasis:
 - a. Complete physical science courses in 1-A listed under the General Physical Science major.
 - b. Biology 101, 106, 215 (or 216 or 252), Chemistry 205, 206.
 - c. Three additional three- or four-credit courses from chemistry and/or physics, two of which must be at the 300-400 level.
3. Students seeking certification for public school teaching of physical science must complete the following:
 - a. Eighteen credits of physics and 15 credits of earth science or chemistry, OR 18 credits of chemistry and 15 credits of earth science or physics (The chemistry courses include 125, 126, 203, 205. The physics courses include 107, 108, 314. Other chemistry and physics courses will be taken to meet the required number of credits.) The earth science courses include Astronomy 103, Geology 103, 107. Either Astronomy 103L or Geology 107L will be taken concurrently with the corresponding three-credit course (Astronomy 103 or Geology 107).
 - b. Twelve credits of earth science, chemistry, or physics (excluding the two areas selected in item a). The physics courses will include 107, 108, and 314. The geology courses will include Geology 103.
 - c. A minimum of six credits in biology, including Biology 101.

- d. Natural Science 322, 324, 326, 327.
- e. All requirements listed under the catalog section Secondary Education.

105 Principles of Physical Science (4)

A survey of topics selected from physics and chemistry designed for the non-science major. Some of the physics topics to be studied include the nature of light and color, electrical phenomena, heat and energy, as well as other topics necessary for understanding much of the phenomena associated with everyday life. Chemistry topics include describing the nature of matter at a macroscopic level and at an atomic level. Social issues with a scientific or technological component are discussed. All topics are developed through laboratory exercises. **Does not apply to any science major.**

421 Physical Science Internship (0-12)

On-the-job experience in physical science. *Prerequisite: Cooperative Education 205 or permission. (Pass/Fail)*

Physics (PHY)

Professor Wentworth

Associate Professor Plano Clark

Physics is concerned with basic questions about the structure and behavior of the physical universe: the description and causes of motion, the nature of energy and energy changes in systems, the interactions between particles, the relationship between the macroscopic behavior of a system and its microscopic parts. It is both a foundation for understanding other sciences, such as astronomy, chemistry and biology, and a source of practical knowledge used by the engineering disciplines which promote technological advances.

Physics is often divided into subfields according to the type of system being studied: elementary particle physics, nuclear physics, atomic and molecular physics, and condensed matter physics. However, all of these subfields share common principles understood by all physicists.

Three groups of students are served by the Physics program: students needing a science course for the Doane Plan, science and preprofessional students in disciplines other than physics, and students majoring in physics. There are common goals for all of these students, although the level of achievement will differ between the groups. The common goals are to:

- Develop a student's ability to make observations about the physical world.
- Develop a student's ability to construct and test hypotheses about these observations.
- Give students experience in quantitative problem solving in a physical context.