Natural Science

Requirements for a Bachelor of Arts degree with a Major in Natural Science and concentration in Pre-Engineering are listed under the Engineering section.

Teacher Certification

Students who desire teacher certification in Biology, Chemistry or Physics should complete a BA degree with a major in Biology, Chemistry or Physics along with an Education minor, then enroll in the one-year Master of Arts in Teaching program at Covenant College. See Dr. Jim Drexler in Brock Hall 303 (jdrexler@covenant.edu) for more information.

Natural Science Courses

The courses below with LAB course code will satisfy the core natural science lab distribution requirement. These courses may not be applied to the majors in biology, chemistry or physics.

105. Physical Science
An introduction to elementary principles in both chemistry and physics. Students will be taught to think about science from a Reformed, biblical perspective. Physical Science is recommended for elementary education majors. Prerequisites: MAT 122 or above with a “C” or better, or math placement level 3 or above, or a math placement level of 2 where the student is currently enrolled in a mathematics course higher than MAT 122. Three hours lecture. Two hours laboratory. Laboratory fee: $15. Four hours. LAB

106. Issues in Contemporary Biology
An examination of major topics in contemporary biology that raise issues of particular concern for Christians in the early 21st century. Topics covered may include: the role and status of contemporary science in the modern, postmodern and Christian perspective; the revolution in molecular genetics and its implications for technology and human self understanding; origins issues including evolutionary theories, creation and intelligent design perspectives; and human nature issues including sociobiology and related evolutionary explanations for human behavior, morality and religion. Laboratory sessions will focus on understanding science as a human endeavor, taxonomy topics, exercises in genetic engineering and examination of evolutionary theory. Three hours lecture, Three hours laboratory. Laboratory fee: $30. Four hours. LAB

107. Concepts in Human Heredity
An introduction to key concepts in human genetics, with emphasis on the molecular mechanisms of information flow in cells, the impact of genes on phenotype, human genetic disease and population genetics. A long-term quantitative analysis of inheritance patterns in fruit flies, and molecular analysis of human genes are included as major components of the course laboratory. Three hours lecture. Three hours laboratory. Laboratory fee: $30. Four hours. LAB

108. Concepts of Geology
An examination of the history of uniformitarianism and its impact on modern geology with an analysis of its consistency in relation to the scientific method. Alternative theories of the development of landforms will be considered. Laboratory will include work with geological specimens. Three hours lecture. Two hours laboratory. Laboratory fee: $25. Four hours. LAB

110. Concepts of Physical Geography
This course is a study of factors affecting the environment with special attention to humankind’s responsible stewardship of the natural creation. The course includes a study of the chemistry and physics of the atmosphere, including weather phenomena, and the chemistry and physics of internal and surface characteristics of landforms. Weathering and erosion are discussed in relation to climatology. Special emphasis will be placed on pollution problems of land, water and the atmosphere. Three hours lecture. Two hour laboratory. Laboratory fee: $25. Four hours. LAB

112. Astronomy
A study of our understanding of the solar system from ancient times to the present, including findings of modern observational astronomy. Topics covered may include: the solar system, planets and their moons and rings, satellites, asteroids, comets, the galaxy, stellar theory, quasars, black holes and red shift. Prerequisite: MAT 111 or above, or math placement level 3 or above. Laboratory fee: $15. Four hours. LAB

115. Science in Perspective
A study of natural science in its historical and philosophical context, paying particular attention to the interplay between the practice of science, and religious and philosophical belief. The course will present a foundation for understanding science from a Christian perspective, and from this vantage point will trace the various philosophical traditions surrounding the growth of science from the Early Modern period to the present. A variety of topics in the physical and biological sciences will be used to illustrate the development of science, and in each case students will focus beyond the science itself to related philosophical and theological considerations. Topics to be discussed: forces
and motion, gravity, light, special relativity, quantum theory and atomic structure, properties and molecules of living systems, levels of biological organization, molecular and cellular biology, macro/microevolution and intelligent design theory. Laboratory exercises for this course will attempt to illustrate the human aspects of scientific investigation and provide a foundation for judging the strength of scientific claims. Prerequisite: Sophomore standing or higher; MAT 122 or above, or math placement level 3 or above. Exceptions can be made with permission of the instructors. Laboratory fee: $15. Four hours. LAB

170. Introduction to Engineering
An introduction to the field of engineering. The course will discuss the similarities and differences between the major sub-disciplines of engineering (such as mechanical, electrical, and civil), as well as discuss the needed skills and common tools of engineering. The issues of how Christians view technology will be discussed. One hour.

492. Senior Integration Paper in Natural Science.
See page 27. Two hours.