

Lower Division Natural Science Learning Outcomes

The goal of lower division general education in the natural sciences is to gain basic knowledge and learn key principles in the life and physical sciences as essential for an informed citizenry. In addition, students should recognize the experimental and empirical methodologies characteristic of science and understand the modern methods and tools used in scientific inquiry. At least one of the courses must have a laboratory.

Physical Science (B1)

1. Students should be able to demonstrate broad science content knowledge in the physical sciences such as the nature and structure of matter, Earth's place in the Universe, or the conservation of energy and matter.
2. Students should be able to demonstrate the application of quantitative skills (such as statistics, mathematics and the interpretation of numerical graphical data) to physical science problems.
3. Students should be able to demonstrate a general understanding of the nature of science, the methods applied in scientific investigations, and the value of those methods in developing a rigorous understanding of the physical world. Students should be able to identify the difference between science and other fields of knowledge. Students should be able to distinguish science from pseudoscience.

Life Science (B2)

1. Students should be able to demonstrate broad science content knowledge in the life sciences (such as cellular structure, the diversity and classification of life, or biological evolution) and be able to describe fundamental concepts in the life sciences that distinguish them from the physical sciences.
2. Students should be able to demonstrate the application of quantitative skills (such as statistics, mathematics, the interpretation of graphical data, etc.) to life science problems.
3. Students should be able to demonstrate a general understanding of the nature of science, the methods applied in scientific investigations, and the value of those methods in developing a rigorous understanding of the physical world. Students should be able to identify the difference between science and other fields of knowledge. Students should be able to distinguish science from pseudoscience.

Science Elective (B3)

1. Students should be able to demonstrate a broad science content knowledge in the physical, life, or interdisciplinary sciences.
2. Students should be able to demonstrate the application of quantitative skills (such as statistics, mathematics, the interpretation of graphical data, etc.) to scientific problems.
3. Students should be able to demonstrate a general understanding of the nature of science, the methods applied in scientific investigations, and the value of those methods in developing a rigorous understanding of the physical world. Students should be able to identify the difference between science and other fields of knowledge. Students should be able to distinguish science from pseudoscience.

Science Laboratory

Students should be able to demonstrate hands-on skills applying the specialized methods and tools of scientific inquiry (such as collecting, analyzing, and interpreting the data, presenting the findings, and using the information to answer questions).