

SCI: SCIENCE

College of the Sciences and Mathematics

Courses

SCI 100. Climate Change. 3 Credits.

This course provides an introduction to the science of climate change. Core topics include albedo, the greenhouse effect, the carbon cycle, and feedback mechanisms between these phenomena. Students will study past climates, climate models, and the impacts of modern climate change. Near the end of the semester students will discuss efforts to mitigate climate change. They conclude by briefly discussing the most widely adopted climate change policies. No previous experience with these subjects is assumed.

Gen Ed Attribute: Science Distributive Requirement.

Typically offered in Fall & Spring.

SCI 101. The Carbon Cycle. 3 Credits.

An exploration of how the carbon cycle connects earth and life, through photosynthesis, respiration, decay, rock formation and weathering, and plate tectonics. Humans have altered the carbon cycle by burning fossil fuels. Students investigate the carbon cycle on the WCU campus and consider the implications for global warming.

Pre / Co requisites: SCI 101 requires students to be education majors only.

Gen Ed Attribute: Science Distributive Requirement.

Typically offered in Fall & Spring.

SCI 102. Electricity with Physical and Biological Applications. 3 Credits.

An exploration of the physics of electrical circuits, the chemical basis of electricity as the flow of electrons, acid-base and oxidation-reduction reactions in chemical and in living systems, the electrical activity in the human nervous system, and connections between electricity and sensation and locomotion in humans.

Pre / Co requisites: SCI 102 requires that students be Education majors only.

Gen Ed Attribute: Science Distributive Requirement.

Typically offered in Fall & Spring.

SCI 103. Science in the Arts: Color and Music. 3 Credits.

This class will be geared towards how science shows up in art and music. Students will initially study some basic physics principles such as force and motion, electric and magnetic fields, periodic oscillations, and wave properties. They will then introduce some biological and neuropsychological concepts as they begin to focus on light, optics and color, and the human eye. Next, students will focus on sound, sound production, sound perception, and the organization of sound into musical scales such that "music" can be constructed.

Gen Ed Attribute: Science Distributive Requirement.

Distance education offering may be available.

Typically offered in Fall & Spring.

SCI 111. Applications of Math and Reasoning in Nanoscience. 1 Credit.

This 3-week course will expose the students to basic problem-solving skills involving polynomial, rational, exponential, logarithmic, and trigonometric functions, where an emphasis will be placed on understanding function properties, models, and graphs applied to nanoscience situations. Little to no prior knowledge of physics, biology, chemistry, or engineering is assumed. There will be a hands-on component to this course that will utilize inquiry-oriented activities with Arduinos and other experimental interfaces. An example of a hands-on activity will be the synthesis and analysis of gold nanoparticles, focusing on their use in applications such as sensory probes, drug delivery, and catalysis.

Typically offered in Summer.