

SCIN - General Science | Undergrad

| Global Citizenship Program Knowledge Areas (....) | |
|--|---------------------------------|
| ARTS | Arts Appreciation |
| GLBL | Global Understanding |
| PNW | Physical & Natural World |
| QL | Quantitative Literacy |
| ROC | Roots of Cultures |
| SSHB | Social Systems & Human Behavior |

| Global Citizenship Program Skill Areas (....) | |
|--|--------------------------|
| CRI | Critical Thinking |
| ETH | Ethical Reasoning |
| INTC | Intercultural Competence |
| OCOM | Oral Communication |
| WCOM | Written Communication |
| ** Course fulfills two skill areas | |

SCIN 1030 Science in the News (3)

This course helps students develop, as responsible global citizens in the 21st century, the knowledge and skills necessary for making informed ethical judgments about issues related to the physical and natural world as presented through science news and media. Students will draw on a rich variety of sources in science journalism and make use of a dialogical ethical reasoning methodology to analyze social, political, and ethical policies; weigh values; and make informed judgments about issues such as human evolution, genomic medicine, climate change, and clean energy. **GCP Coding: (PNW) (ETH).**

SCIN 1010 Topics in Physical Science (3)

SCIN 1011 Topics in Physical Science: Lab (1)

Explores physical science topics of general interest. May be repeated if content differs.

SCIN 1100 Earth Science and the Environment (3)

SCIN 1101 Earth Science and the Environment: Lab (1)

An introduction to planet Earth in space, the study of the structure of Earth, the geological processes that control the development of Earth's surface, and weather and climate. The student will be exposed to the following scientific disciplines: geology, oceanography, meteorology, climatology, and astronomy. The student will become familiar with the scientific basis for many day-to-day physical phenomena. Open to non-majors. Laboratory required. **Co-requisites:** SCIN 1100 and SCIN 1101 must be taken concurrently.

SCIN 1120 Natural Disasters (3)

This course discusses how and when natural disasters occur, how to identify and recognize them, and what Earth processes lead to natural disasters and global change. Natural disasters such as earthquakes, volcanic eruptions, landslides, severe weather,

hurricanes, floods, meteorite impacts, forest fires, and climate change will be studied in detail. The goal is to help students develop both an understanding of natural hazards and disasters and enhance their understanding of scientific approaches to problem solving. Recent events and historic catastrophes will be studied through lecture, internet, and video. Emphasis will be placed on the scientific principles responsible for particular disaster types, along with risk assessment and disaster planning related to future natural disasters. **GCP Coding: (PNW) (WCOM).**

SCIN 1140 Science Units for the Elementary School (2)

Familiarizes students with science units available for use in the grade level where they intend to teach. Each student selects a particular unit and, through individual work, explores the content of that particular unit and how it relates to the conceptual organization of the discipline from which it comes. The structured part of the course treats the content from one particular area (e.g., seeds or heat) and how this content can be treated in different frameworks.

SCIN 1150 Astronomy (3)

Presents information about the universe, along with the methods used to obtain the information. Observations of the sky and activities to be completed outside the class are used to acquaint students with phenomena visible to the naked eye. These observations are then used to find patterns in the sky. Includes laboratory.

SCIN 1210 Water: The World's Most Valuable Resource (4)

Water concerns are one of the most important and controversial global issues of the 21st century. As evidence, recent years have witnessed: critical shortages of, and limited access to, water used for drinking and agricultural production; increasing incidents of local communities struggling with corporate control over water resources; difficulties for poorer human populations related to water-borne diseases; and significant increases in the cost of water through utilities. Many factors have contributed to this global water crisis, including: environmental conditions; governmental policies; political conflict; corporate and community interests; market forces and international trade; conventional agricultural practices; and socio-cultural beliefs, values, and behaviors. In a seminar format, this course will explore the role that these factors have played in contributing to our current water challenges. In addition, policy measures will be considered and evaluated for their potential to effectively address these challenges and promote more sustainable and socially just practices. While course materials will be drawn from multiple disciplines, anthropological, environmental, and public health contributions and perspectives will be emphasized. The course will include laboratory experiences that will supplement and strengthen the theoretical content of the course. **GCP Coding: (PNW) (WCOM).**

SCIN 1400 Physics for Poets (3)

SCIN 1401 Physics for Poets: Lab (1)

This is an introductory course of physics for non-biology majors. It does not require calculus or college algebra, and is intended for those wanting to explore laws of the physical world that include laws of motion, Newton's laws, kinetic and potential energy, friction, and sound. There is an accompanying lab that directly applies theory concepts studied in lecture. **Co-requisites:** SCIN 1400 and SCIN 1401 must be taken concurrently. **GCP Coding for SCIN 1400: (PNW) (CRI).**

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SCIN 1410 Light, Sound, and Electricity (3)

This is an intensive study into the science of sound and light, along with a basic introduction to electricity. Topics covered include octave distribution, dynamic range, light control by lenses and mirrors, color imaging, and the physiology of color. Students will also be able to examine the construction of electric circuits and study the laws of parallel and series circuits. This is an ideal course for all theatre and music majors, as well as photography, film/video, business, language, and education majors. This is all within your reach. **GCP Coding: (PNW) (CRI).**

SCIN 1450 Introduction to Nanotechnology (3)

This course is designed for students to study the basic principles of nanotechnology. There will be a focus on nanoparticles, their unique properties and tools, and nanofabrication. Nanotechnology applications to medicine, information technologies, energy production, and consumer products will be covered. **GCP Coding: (PNW) (CRI).**

SCIN 1470 Earth and Universe (3)

SCIN 1471 Earth and Universe: Lab (1)

This is an introduction to basic principles of physics, astronomy and geology. During the first part of the course, fundamental laws of the physical world, including laws of mechanics, dynamics, energy, thermodynamics, electricity, and magnetism, will be discussed. The second part of the course covers basic concepts of astronomy, including a brief history of astronomy, solar system, celestial objects, and processes of modern astronomy. During the third part of the course, the fundamentals of geology, including composition of the earth, plate tectonics, oceans, and weather, will be discussed. The labs in this class are designed to introduce concepts and hands-on experiences related to the laws of mechanics, dynamics, energy, thermodynamics, electricity, magnetism, the solar system, and modern astronomy. Composition of the earth, oceans, and weather will also be covered. **Co-requisites:** SCIN 1470 and SCIN 1471 must be taken concurrently, and together they constitute a Global Citizenship Program course. **GCP Coding: (QL).**

SCIN 1510 Global Climate Change (3)

This course will be an in-depth investigation into the science of global climate change, its symptoms as determined by scientific observations and data throughout the world, and what the proposed solutions are. The course is not meant to follow a politically charged agenda or ideology. The course will use the internet, published data, films, media, guest speakers, field trips, and inquiry to investigate the science and measure the examples, effects, outcomes, and proposals that define global climate change. Intended for non-majors. Offered in spring semester. **GCP Coding: (PNW) (CRI).**

SCIN 1520 Environment (3)

SCIN 1521 Environment: Lab (1)

Concerns problems of the world's ecosystems. Includes the nature of ecosystems, pesticides, water pollution, air pollution, solid waste, nonrenewable natural resources, energy, nuclear power, radioactivity, agriculture, human food supply, and environmental health. Laboratory required. Intended for non-majors. Counts as an environmental studies course and an American Studies course. **Co-requisites:** SCIN 1520 and SCIN 1521 must be taken concurrently.

SCIN 1600 Physical Geology (3)

SCIN 1601 Physical Geology: Lab (1)

Examines the development of landforms, the types and characteristics of rocks in the earth's crust, and the use of topographic and geologic maps. Laboratory required. **Co-requisites:** SCIN 1600 and SCIN 1601 must be taken concurrently. **GCP Coding for SCIN 1600: (PNW) (WCOM).**

SCIN 1610 When Rivers Run Wild: Watersheds, Floods, and Risk (3)

This course focuses on rivers and watersheds, covering the ecological and human dimensions of issues such as water pollution and flooding. Students will analyze local rivers both as natural systems and as resources for human activity, drawing on science as well as public policy and political systems to analyze the challenges and possibilities for sustainable water management on the local level and beyond. **GCP Coding: (PNW) (CRI).**

SCIN 1800 Living On vs. Off the Grid (3)

This hybrid travel course investigates on-grid vs. off-grid living toward complete sustainability. We will examine how on-grid systems within traditional homes supply water, process waste, generate power, and maintain thermal comfort, and compare these to alternative sustainable systems (black water, grey water, solar power, thermal mass, catch water, etc.) in off-grid homes. Students will complete the majority of their course work in Taos, New Mexico over spring or fall break where they will receive instruction, participate in discussions, execute hands-on experiments, and learn alternative building methods in an off-the-grid home independent of public utilities. Throughout the week, students will travel to various sites around Taos to see exemplifications of concepts discussed in class. This course will have lectures, assignments, discussions, and an exam online prior to the travel portion. Upon their return, students will take another exam and complete an assignment based on their travel experience. **GCP Coding: (PNW) (INTC).**

SCIN 2530 Global Ecologies and Sustainable Living (3)

The course focuses on how different societies around the planet interact with their local and global ecosystems: how those natural systems enable and constrain specific cultures and their ways of life; how various cultures impact their natural environments; how humans meet basic needs such as food, energy, water, shelter, and transportation in different locales; and to what degree the ways they meet them are sustainable. Examples of zones for focused study include temperate, arid, tropical, mountainous, and Mediterranean rural and urban regions of the world. **GCP Coding: (PNW) (CRI).**

SCIN 4060 Methods in Science Teaching (3)

Introduces methods of science teaching. The student is assigned to a teacher in the discipline of his or her interest for individual study. **Prerequisites:** Science major and acceptance to the Teacher Certification Program or permission of the director of teacher certification and field experiences.

SCIN 4610 Reading Course (1-4)

May be repeated for credit if content differs. **Prerequisites:** Permission of the department chair and filing of the official form.