

**INTEGRATIVE STUDIES IN PHYSICAL SCIENCE** **ISP**

**Center for Integrative Studies in General Science**  
**College of Natural Science**

**203A Understanding Earth: Global Change**  
Fall, Spring, Summer. 3(3-0) P: (MTH 103 or MTH 110 or MTH 116 or (LB 118 or concurrently) or (MTH 112 or concurrently) or (MTH 124 or concurrently) or (MTH 132 or concurrently) or (MTH 201 or concurrently) or (STT 200 or concurrently) or (STT 201 or concurrently)) or designated score on Mathematics Placement test  
Science as a way of knowing about natural and anthropogenic global change. Implications for societies.

**203B Understanding Earth: Natural Hazards and the Environment**  
Fall, Spring, Summer. 3(3-0) P: (MTH 103 or MTH 110 or MTH 116 or (LB 118 or concurrently) or (MTH 112 or concurrently) or (MTH 124 or concurrently) or (MTH 132 or concurrently) or (MTH 201 or concurrently) or (STT 200 or concurrently) or (STT 201 or concurrently)) or designated score on Mathematics Placement test  
Science as a way of knowing about natural hazards, as well as natural and anthropogenic environmental change. Implications for societies.

**203L Geology of the Human Environment Laboratory**  
Fall, Spring, Summer. 2(1-2) P: (ISP 203A or concurrently) or (ISP 203B or concurrently)  
Exercises in the scientific method applied to earth materials and their impact on society.

**205 Visions of the Universe**  
Fall, Spring, Summer. 3(3-0) P: (MTH 103 or MTH 110 or MTH 116 or (LB 118 or concurrently) or (MTH 112 or concurrently) or (MTH 124 or concurrently) or (MTH 132 or concurrently) or (MTH 201 or concurrently) or (STT 200 or concurrently) or (STT 201 or concurrently)) or designated score on Mathematics Placement test  
Role of observation, theory, philosophy, and technology in the development of the modern conception of the universe. The Copernican Revolution. Birth and death of stars. Spaceship Earth. Cosmology and time.

**205L Visions of the Universe Laboratory**  
Fall, Spring, Summer. 2(1-2) P: ISP 205 or concurrently  
Observations of the sky, laboratory experiments, and computer simulations exploring the development of the modern conception of the universe.

**207 World of Chemistry**  
Fall, Spring, Summer. 3(3-0) P: (MTH 103 or MTH 110 or MTH 116 or (LB 118 or concurrently) or (MTH 112 or concurrently) or (MTH 124 or concurrently) or (MTH 132 or concurrently) or (MTH 201 or concurrently) or (STT 200 or concurrently) or (STT 201 or concurrently)) or designated score on Mathematics Placement test  
The language, concepts, models and techniques of chemical science, including atomic theory; nuclear energy; acids; chemicals in air, water, food and biological systems.

**207L World of Chemistry Laboratory**  
Fall, Spring, Summer. 2(1-2) P: ISP 207 or concurrently  
Chemical combinations and reactivity with respect to such materials as acids, bases, dyes, foods, and detergents.

**209 The Mystery of the Physical World**  
Fall, Spring, Summer. 3(3-0) P: (MTH 103 or MTH 110 or MTH 116 or (LB 118 or concurrently) or (MTH 112 or concurrently) or (MTH 124 or concurrently) or (MTH 132 or concurrently) or (MTH 201 or concurrently) or (STT 200 or concurrently) or (STT 201 or concurrently) or designated score on Mathematics Placement test  
Laws of physics through demonstrations and analyses of every day phenomena. Optics, mechanical systems and electromagnetic phenomena.

**209L The Mystery of the Physical World Laboratory**  
Fall, Spring, Summer. 2(1-2) P: ISP 209 or concurrently  
Physical phenomena: optics, mechanical systems and electromagnetics.

**213H Navigating the Universe**  
Spring. 3(3-0) Interdepartmental with Physics. Administered by Integrative Studies in Physical Science. P: (MTH 103 or MTH 110 or MTH 116 or (LB 118 or concurrently) or (MTH 112 or concurrently) or (MTH 124 or concurrently) or (MTH 132 or concurrently) or (MTH 201 or concurrently) or (STT 200 or concurrently) or (STT 201 or concurrently)) or designated score on Mathematics Placement test RB: High school physics, high school algebra, and high school trigonometry  
Philosophical and biographical history of physics. Comparing physics of fields, relativity, quantum mechanics, elementary particle physics, and cosmology to art as an alternate way of understanding and representing the world.

**215 The Science of Sound**  
Fall, Spring. 3(3-0) P: (MTH 103 or MTH 110 or MTH 116 or (LB 118 or concurrently) or (MTH 112 or concurrently) or (MTH 124 or concurrently) or (MTH 132 or concurrently) or (MTH 201 or concurrently) or (STT 200 or concurrently) or (STT 201 or concurrently) or designated score on Mathematics Placement test  
The science of speech, communication, musical instruments, room acoustics, and analogue and digital audio. Integrating the physical, physiological, and psychological principles involved.

**217 Water and the Environment**  
Fall, Spring. 3(3-0) P: MTH 103 or MTH 110 or MTH 116 or (LB 118 or concurrently) or (MTH 112 or concurrently) or (MTH 124 or concurrently) or (MTH 132 or concurrently) or (MTH 201 or concurrently) or (STT 200 or concurrently) or (STT 201 or concurrently)  
Application of the scientific method to identification and solution of environmental problems related to water.

**217L Water and the Environment Lab**  
Fall, Spring. 2(1-2) P: ISP 217 or concurrently  
Application of the scientific method to identification and solution of environmental problems related to water.

**220 Quarks, Spacetime, and the Big Bang**  
Spring of odd years. 3(3-0) P: (MTH 103 or MTH 110 or MTH 116 or (LB 118 or concurrently) or (MTH 112 or concurrently) or (MTH 124 or concurrently) or (MTH 132 or concurrently) or (MTH 201 or concurrently) or (STT 200 or concurrently) or (STT 201 or concurrently)) or designated score on Mathematics Placement test  
Elementary particle physics and the Big Bang for non-scientists. A survey of particles and forces in the early universe as it is recreated at high energy particle colliders in laboratories around the world.

**221 Earth Environment and Energy**  
Fall, Spring, Summer. 3(3-0) P: MTH 103 or MTH 110 or MTH 116 or (LB 118 or concurrently) or (MTH 112 or concurrently) or (MTH 124 or concurrently) or (MTH 132 or concurrently) or (MTH 201 or concurrently) or (STT 200 or concurrently) or (STT 201 or concurrently)  
Flow of energy into, through, and out of the earth's lithosphere, hydrosphere, atmosphere, and biosphere. Energy, entropy, and life processes. Global warming, greenhouse effect, and contemporary issues.