

2007-09 Cal Poly Catalog

Physics Department

PSC–PHYSICAL SCIENCE

PSC 101 The Physical Environment: Matter and Energy (4) **GE B3 & B4**

Introduction to the basic principles of physical science and application of these principles in modern society. Objects at rest and in motion, energy and power, fluids, heat, light, and sound. 3 lectures, 1 laboratory.

PSC 102 The Physical Environment: Atoms and Molecules (4)

Introduction to the basic principles of the atomic, molecular, and sub-atomic behavior of matter, and applications of these principles in modern society. Electricity and magnetism, electrical nature of matter, organic and inorganic chemistry, modern physics, the nucleus. 3 lectures, 1 laboratory. Prerequisite: PSC 101.

PSC 103 The Physical Environment: Earth and the Universe (4) **GE B3**

Introduction to the basic principles of the Earth sciences and astronomy, and applications of these principles in modern society. Structure and formation of the Earth, earthquakes, weather, oceanography, Solar System, stars, and cosmology. 3 lectures, 1 activity. Prerequisite: PSC 101

PSC 200 Special Problems for Undergraduates (1-2)

Individual investigation, research, studies, or surveys of selected problems. Total credit limited to 4 units, with a maximum of 2 units per quarter. Prerequisite: Consent of department chair.

PSC 201 Introduction to Physical Oceanography (4) **GE B5**

Ocean origin, evolution, and sea floor features. Sediments; sea water; the ocean and our climate. Ocean surface and deep currents; waves and tides; coastal ocean. Marine life, food production, organisms, environments and lifestyles. Coastal development, pollution and food. Ocean resources and law. 4 lectures.

PSC 304 Applications of Physical Science (4)

Serious problems faced by technological societies worldwide, such as the destruction of ozone, runaway greenhouse effect, smog, acid rain, water pollution, nuclear radiation hazards, and the depletion of fossil fuels. 3 lectures, 1 activity. Prerequisite: PSC 101, PSC 102, PSC 103 or equivalent.

PSC 305 Patterns of Change (4)

Patterns of change in the formation and evolution of the Universe, the Earth, and life. Topics include the Big Bang, radiometric dating, plate tectonics, the fossil record, biogeography, and the biochemical evidence that supports evolution. 3 lectures, 1 activity. Prerequisite: PSC 101 or PSC 103 or consent of instructor.

PSC 307 Nuclear Weapons in the Post-9/11 World (4) **GE Area F**

Technology and basic science of fission/fusion weapons, uranium/plutonium, nuclear reactors, offensive/defensive missile systems, command/control, verification, weapon effects, nuclear testing. Historical context of Cold War and proliferation, recent events, global norms, arms control treaties. 3 lectures, 1 seminar. Prerequisite: Completion of GE Area B, and junior standing.

PSC 320 Energy and the Environment (4) **GE Area F**

Science and technology of current and future energy sources along with associated environmental problems. Energy production, consumption, efficient usage, fossil fuels, nuclear, solar, other renewables. Risks, benefits, planning, economics. 3 lectures, 1 activity. Prerequisite: Completion of GE Area B, and junior standing.

PSC 400 Special Problems for Advanced Undergraduates (1-2)

Individual investigation, research, studies, or surveys of selected problems. Total credit limited to 4 units, with a maximum of 2 units per quarter. Prerequisite: Consent of department chair.

PSC 424 Organizing and Teaching of Physical Sciences (4)

Techniques, aims and objectives in the teaching of physical sciences and general sciences at the secondary level. Selection and organization of teaching material, including strategies for ELL and special needs students. Evaluation of results. 4 lectures. Prerequisite: Evidence of satisfactory preparation in physics and chemistry.

PSC 461 Senior Project (2)

Selection and completion of a project under faculty supervision. Project results are presented in a formal report. Minimum of 60 hours total time.