PHYSICAL SCIENCE (PSC)

PSC Courses

PSC 101. Matter and Energy. 4 units
GE Area B3; GE Area B4
Term Typically Offered: F, W, SP
Introduction to the basic principles of physical science, including observation, description, modeling, and the application of physical phenomena. Emphasis on interactions as described by energy, forces, and fields for mechanical, thermal, electric, and magnetic systems. 3 lectures, 1 laboratory. Fulfills GE B3 & B4.

PSC 102. Atoms and Molecules. 4 units
Term Typically Offered: W
Prerequisite: PHYS 121 or PHYS 131 or PHYS 141 or PSC 101.
Introduction to the basic principles of physical science (observation, description, modeling of physical phenomena) with an emphasis on interactions at the molecular level. Interactions and the behavior of gases, physical change, and chemical change (including chemical reactions, chemical bonding, and solutions). 3 lectures, 1 laboratory.

PSC 103. The Physical Environment: Earth. 4 units
Term Typically Offered: SP
Prerequisite: PSC 101 or PHYS 121 or PHYS 131 or PHYS 141.
Recommended: PSC 102.
Introduction to the basic principles of the earth sciences, and applications of these principles in modern society. Structure and formation of the Earth, earthquakes, weather, and oceanography. 3 lectures, 1 laboratory.

PSC 201. Physical Oceanography. 4 units
GE Area B5
Term Typically Offered: F, W, SP
Introduction to the motions of the ocean. Physical environment and sea floor features; seawater properties; atmosphere and ocean interactions; ocean currents and circulation; waves and tides; El Nino; coastal ocean processes; climate change and ocean stressors; ocean resources and marine life. 4 lectures. Fulfills GE B5.

PSC 300. Nuclear Weapons in the Post-9/11 World. 4 units
GE Area B7; GE Area F
Term Typically Offered: SP
Prerequisite: Junior standing; completion of GE Area A with grades of C- or better; completion of GE Area B1 with a grade of C- or better in at least one of the courses; and completion of GE Areas B2, B3, and B4.
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. Fulfills GE Area B7 or GE Area F.

PSC 301. Nuclear Weapons in the Post-9/11 World. 4 units
GE Area B7; GE Area F
Term Typically Offered: F
Prerequisite: Junior standing; completion of GE Area A with grades of C- or better; completion of GE Area B1 with a grade of C- or better in at least one of the courses; and completion of GE Areas B2, B3, and B4.

Science and technology of current and future energy sources along with associated environmental problems and societal response. Energy production, consumption, efficient usage, fossil fuels, nuclear, solar, other renewables. Risks, benefits, planning, economics. 3 lectures, 1 activity. Fulfills GE Area B7 or GE Area F.

PSC 302. Appropriate Technology for the World’s People: Development. 4 units
GE Area F
Term Typically Offered: F
Prerequisite: Junior standing; completion of GE Area A with grades of C- or better; completion of one course in GE Area B1 with a grade of C- or better; and two lower-division courses in GE Area D.
Addresses the needs of international impoverished communities with technological solutions, which are inexpensive, ecologically sustainable, and socially appropriate. Group study of target communities, and design and construction of an appropriate technology prototype. Not open to students with credit in PSC/UNIV/HNRS 492. 3 lectures, 1 laboratory. Crosslisted as HNRS/PSC/UNIV 392. Fulfills GE Area D5.

PSC 303. Appropriate Technology for the World’s People: Design. 4 units
GE Area B7; GE Area F
Term Typically Offered: SP
Prerequisite: Junior standing; completion of GE Area A with grades of C- or better; completion of GE Area B1 with a grade of C- or better in at least one of the courses; and completion of GE Areas B2, B3, and B4.
Recommended: UNIV 391 and completion of GE Areas D2 and D3.
Addresses the needs of international impoverished communities with technological solutions, which are inexpensive, ecologically sustainable, and socially appropriate. Group study of target communities, and design and construction of an appropriate technology prototype. Not open to students with credit in PSC/UNIV/HNRS 492. 3 lectures, 1 laboratory. Crosslisted as HNRS/PSC/UNIV 392. Fulfills GE Area B7 or GE Area F.

PSC 424. Organizing and Teaching Science. 4 units
Term Typically Offered: F
Prerequisite: Admission to the Single Subject Credential Program.
Techniques, aims and objectives in the teaching of physical and life sciences at the secondary level. Selection and organization of teaching material, including strategies for English language learners (ELL) and special needs students. Evaluation of results. 3 lectures, 1 activity. Crosslisted as BIO/PSC 424.
PSC 425. Clinical Experience in Teaching Science Seminar. 2 units
CR/NC
Term Typically Offered: W, SP
Prerequisite: Acceptance into the Single Subject Credential Program in Science. Concurrent: EDUC 469 or EDUC 479.

Principles and practices in effective teaching of science at the middle and high school level, learning theories, curriculum content and structure, classroom issues, and the teaching profession. Credit/No Credit grading only. Total credit limited to 4 units. 2 seminars. Crosslisted as BIO/PSC 425.

PSC 491. Appropriate Technology for the World's People: Development. 4 units
Term Typically Offered: F
Prerequisite: Consent of instructor, and senior or graduate standing.
Corequisite: GE Area D5.

A broad overview of international development and appropriate design for sustainability. Besides traditional classroom work, students work in teams to address problems with technical solutions. Collaboration with mentors from the university, private sector, and nonprofits serves to provide diverse background and mentorship. Seminar paper required. Not open to students with credit in PSC/UNIV/HNRS 391. 4 lectures. Crosslisted as PSC/UNIV 491.

PSC 492. Appropriate Technology for the World's People: Design. 4 units
Term Typically Offered: SP
Prerequisite: Junior standing and completion of GE Area B, or graduate standing. Recommended: UNIV 391, GE Area D2, and GE Area D3.

Addresses the needs of international impoverished communities with techno-logical solutions, which are inexpensive, ecologically sustainable, and socially appropriate. Group study of target communities, and design and construction of an appropriate technology prototype. Seminar paper required. Not open to students with credit in PSC/UNIV/HNRS 392. 3 lectures, 1 laboratory. Crosslisted as PSC/UNIV 492.