

# ENVIRONMENTAL SCIENCES AND SUSTAINABILITY (ESS)

## ESS 0001. Introduction to Environmental Sciences and Sustainability

*Units: 3*

Formerly known as INT 1

Advisory: Eligibility for ENGL 1A

Hours: 54 lecture

A study of the natural world and how it is influenced by human activity. This course will introduce and analyze the scientific basis of major environmental issues and evaluate potential solutions within the context of diverse human cultures and societies. Topics include principles of physical and biological systems, biogeochemical cycles, global climate, natural laws, land, air and water resources, consumption and waste, pollution, toxicology, human population growth, and sustainability on a local, regional and global level. (C-ID ENVS 100) (CSU, UC)

## ESS 0001L. Introduction to Environmental Science Laboratory

*Unit: 1*

Prerequisite: Completion with grade of "C" or better or concurrent enrollment in ESS 1

Hours: 54 laboratory

Hands-on, inquiry-based learning in topics associated with environmental science. Laboratory and field studies including applications of physical science principles, ecological studies, and exposure to sustainability issues related to human society. Promotes critical thinking, problem solving, scientific and environmental literacy. May include field trip(s) during or in lieu of lab time. (CSU, UC)

## ESS 0006. The Sierra Nevada

*Units: 3*

Formerly known as INT 6

Advisory: Eligibility for ENGL 1A

Hours: 54 lecture

Integrated study of the Sierra Nevada including its physical attributes, geological characteristics, origin and development, flora and fauna, water resources, historical and economic significance, and influences on literature, art, and culture. Includes contemporary environmental, economic, and management issues in the Sierra. (CSU, UC)

## ESS 0006F. Sierra Nevada Field Trip

*Units: 0.5-1*

Prerequisite: Completion with grade of "C" or better or concurrent enrollment in ESS 6

Hours: 18 lecture per unit

Field lecture course designed to be taken concurrently with ESS 6. A field study of selected sites in the Sierra Nevada ecoregion, comparing their biological inventory, ecological relationships, physical environments, and sensitivity to human interactions and activities. Moderate hiking and/or camping may be involved. (CSU)

## ESS 0007. Energy, Environment, and Climate

*Units: 3*

Also known as ESCI 7

Advisory: Eligibility for ENGL 1A

Hours: 54 lecture

Analysis of the nature of energy and the environmental impact of its societal use in the context of Earth's record of changing climate. Explores current global climate change due to post-1750 greenhouse gas emissions and strategies for mitigation and adaptation to changing climate predictions, emphasizing future alternative energy sources. Designed for students majoring in areas related to the environmental sciences and/or those interested in developing a substantiated understanding of the role played by citizens in ensuring a healthy environment for future generations. (CSU, UC)

## ESS 0008. California Water

*Units: 4*

Hours: 108 (54 lecture, 54 laboratory)

Interdisciplinary examination of California water ecosystems, infrastructure, uses, and impacts. Students will learn about: hydrology; aquatic ecosystems including rivers, lakes, wetlands, estuaries, and marine environments; water infrastructure including dams, levees, aqueducts, and wastewater treatment facilities; groundwater recharge, withdrawal, use and impacts; the role of water in agricultural, urban, environmental and political systems; water quality; water storage and transfers; water policy; and conflicts arising from water scarcity. May include field trips during or in lieu of lab time. Students may be required to provide their own transportation. (CSU, UC)

## ESS 0010. Conservation of Natural Resources

*Units: 3*

Formerly known as AGRI 190 and NATR 10

Advisory: Eligibility for ENGL 1A

Hours: 54 lecture

Use and protection of natural resources, including soil, water, forest, mineral, plant, and animal life. Ecological principles, history of the conservation movement, modern problems in resource use, and the citizen's role in conservation. (CSU, UC)

## ESS 0013. Environmental Regulations

*Unit: 1*

Formerly known as BIOL 13A

Advisory: Completion of BIOL/ESS 14, ESS 1 or ESS 10 with grade of "C" or better

Hours: 18 lecture

Survey of major California environmental regulations and relevant federal regulations. Designed using case study analyses to explore environmental laws applicable to water, land and air resources. (CSU)

## ESS 0014. Natural History, Ecology and Conservation

*Units: 4*

Also known as BIOL 14

Advisory: Eligibility for ENGL 1A

Hours: 108 (54 lecture, 54 laboratory)

Introduction to the study of biology and ecology of organisms and ecosystems of the world, with an emphasis on California. Special focus on significance of functioning ecosystems and human influence on the environment. May include field trips during or in lieu of lab time. (CSU, UC)

**ESS 0028. Independent Study**

*Units: 1-3*

Designed for students interested in furthering their knowledge at an independent study level in an area where no specific curriculum offering is currently available. Independent study might include, but is not limited to, research papers, special subject area projects, and research projects. See Independent Study page in catalog. (CSU, UC-with unit limitation)

**ESS 0095. Internship in Environmental Sciences and Sustainability**

*Units: 0.5-4*

Designed for advanced students to work in an area related to their educational or occupational goal. Provides new on-the-job technical training under the direction of a worksite supervisor, allowing students to expand knowledge and skills in the chosen field. Mandatory orientation session and faculty approval to determine eligibility. One unit of credit is equal to 54 hours of work. Students may earn up to a total of 16 units in internship courses (any course numbered 95 and PDEV 94). (CSU-with unit limitation)