

ENVIRONMENTAL SCIENCE (ENVR)

ENVR 221. Living in the Environment: An Introduction to Environmental Science. (4 Credits)

An introduction to the historical and contemporary problems and dilemmas faces as humans live in and interact with the environment. The scientific basis, cultural causes, social implications, ethical dimensions, and avenues for constructive response are addressed. Three lectures, three hours laboratory. Lab fee and field trip fee.

Tags: SP

ENVR 315. Nature, Environment & Society. (4 Credits)

An exploration of contemporary environmental issues and problems. The understanding of the natural world will support the analysis of the role of society in creating, perpetuating and addressing these challenges. The role of personal and cultural responsibility for stewarding the natural environment will be emphasized. Field and classroom investigations will focus on the Black Hills context. Lab fee \$50.

Tags: SIP

ENVR 319. Environmental Ethics. (4 Credits)

A survey and analysis of major scientific problems and foundational philosophies underlying contemporary environmental ethics and the application of environmental ethics to the scientific and professional practice of conservation and environmental stewardship in scientific research, personal decision making, and professional environmental management. Prerequisite: Lab science course; counts as upper division science requirement under legacy gen ed only.

ENVR 325. The Global Commons: International Issues in Environmental Science. (4 Credits)

An examination of environmental issues and challenges around the globe. The scientific principles needed to understand and characterize the problems will be covered as well as the economic, political, historical and cultural factors that drive the development of the problems. Attention will be given to integrated and holistic approaches to addressing environmental challenges. Prerequisite: SP course.

Tags: GP, SIP

ENVR 341. Quantitative Methods for Environmental Analysis and Problem Solving. (4 Credits)

Mathematical approaches to quantitatively describe, analyze, and understand environmental processes. Descriptive and inferential statistical techniques and numeric modeling are used to address environmental problems. Emphasis is on applications of the methods to practical problems and the use of computer resources. Three lectures, two hours laboratory.

Tags: AAQR

ENVR 381. Environmental Pollution and Toxicology. (4 Credits)

A study of the sources, environmental and human health impacts, and regulatory and engineering control of environmental pollution. Air pollutants, surface and groundwater pollutants, solid waste and hazardous waste will be covered. Human health impacts will be studied from a toxicologic and epidemiology basis. Measurement techniques will be covered in lab sessions. Three lectures, three hours laboratory. Lab fee. Prerequisite: Laboratory science (SP) course.

ENVR 391. Environmental Modeling. (4 Credits)

Increasingly models are used to understand and solve environmental processes and systems and to aid in environmental management. The course will introduce students to a variety of modeling methods (e.g. physical/mathematical, discrete/continuous, finite difference/finite element, stochastic/deterministic) and give environmental examples from the geological, biological, climatological, and socio-politico-economic fields. Students will analyze a problem and determine which type of model is appropriate and then proceed to construct the model. They will evaluate existing models with respect to boundary conditions, input, resolution, numerical stability, and appropriateness of assumptions. Three lectures, three hours laboratory. Prerequisite: ENVR 341. Alternate years.

ENVR 395. Independent Studies in Environmental Science. (2 to 4 Credits)

Field, laboratory and literature research under faculty direction. Application of data gathering and analysis methods. Communication of results in multiple formats. Prerequisite: Instructor approval.

ENVR 421. Basic Applications in Agronomy. (4 Credits)

A survey of concepts and methods in crop science. Subject matter is intended to provide background for domestic, as well as international interests. Topics in lecture and lab include agricultural ecology, forestry, food-crop production, and growth optimization in various environments. Three lectures, three hours laboratory. Prerequisites: introductory biology lab course, ENVR 221, or permission of the instructor.

ENVR 431. Introduction to Environmental and Geotechnical Engineering. (4 Credits)

A survey of concepts and problem solving involving the interaction of people and earth systems. Subject matter is intended to provide background for domestic, as well as international interests. Topics in lecture and lab include basic systems analysis, energy, pollution abatement, water systems, construction criteria, and testing/utilization of earth materials. Three lectures, three hours laboratory. Lab fee \$50. Prerequisites: ENVR 221 and (ENVR 341 or PHYS 221 or PHYS 231) or permission of the instructor. Alternate years.

ENVR 494. Environmental Studies Capstone. (2 Credits)

A culminating experience for environmental science students' college career. Topics from across the breadth of the curriculum are integrated with environmental issues. Students explore the role of their liberal arts education and the practice of environmental stewardship as part of a personal and professional vocation. Prerequisites: ENVR 495 or 496, or permission of instructor.

ENVR 495. Environmental Science Research. (2 to 4 Credits)

Field, laboratory, or library research involving selection of a research problem, review of appropriate professional literature, completion of data collection and analysis, and preparation of one or more professional papers submitted for presentation or publication in an appropriate professional venue. Requires direct supervision and mentoring by the program director of Environmental Science or faculty approved by the director.

ENVR 496. Environmental Science Internship. (2 to 4 Credits)

An extended and concentrated experience in research, management, or education in environmental science under approved professional supervision and college guidelines. Prerequisites: Sophomore standing or higher and approval by the program director of Environmental Science.

**ENVR 497. Environmental and Conservation Science Research Seminar.
(1 Credit)**

A weekly seminar featuring presentations of on-going primary research on problems of environmental and conservation studies in the natural and social sciences. Graded pass/fail. One hour per week. Prerequisites: Sophomore standing or higher.