ENVIRONMENTAL SCIENCE (ENVR)

ENVR 212. The Dynamic Earth and Environment. (4 Credits)
Introduction to the processes, cycles and systems of earth and environment. Special emphasis on human dependence upon earth's physical properties and processes and the environmental impacts of human activity. Plate tectonics and environmental systems provide frameworks for understanding earth materials and structures, global change, natural hazards (volcanoes, earthquakes, floods), water resources (surface and ground water, glaciers), biological/agricultural resources, energy and mineral resources, and associated environmental hazards. Explorations of biblical creation accounts and environmental stewardship relevant to course topics. Three and a half hours lecture and two hours laboratory per week. Field trip fee.
Tags: SP

ENVR 231. Environmental Law, Justice, and Development. (2 Credits)
Exploration of the effects of development on patterns of material use and waste release. Analysis of unsustainable practices and the resulting resource depletion and pollution production. Approaches to regulating environmental impacts. The disproportionate burden of resource loss and toxic emission on vulnerable populations is emphasized.

ENVR 305. Environmental Ethics. (4 Credits)
An interdisciplinary consideration of environmental issues, exploring scientific understanding of these issues and the philosophical foundations and application of ethics to result in environmental stewardship in terms of personal and corporate responsibility. Completing a Scientific Practice (SP) course is strongly recommended.
Tags: PI, SIP

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.
Tags: SIP

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 332. Principles of Environmental Sustainability. (4 Credits)
An introduction to principles of environmental sustainability. This includes natural scientific, cultural and economic foundations. Practical applications as embedded in social, legal, historical and political contexts will be emphasized. Black Hills campus. Runs concurrently with ENVR 333.

ENVR 333. Environmental Sustainability Practicum. (4 Credits)
A practicum based experience focuses around the implementation of sustainability practice technology, on the Science Station campus. Students will research, plan, and implement one project over the course of the summer. Black Hills campus. Runs concurrently with ENVR 332.

ENVR 341. Environmental Statistics and Modeling. (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 and a half hours lecture, two hours laboratory per week.
Tags: AAQR

ENVR 371. Introduction to Geographic Information Systems. (2 Credits)
The hardware and software technology of GIS programs. Basic concepts of spatial data collection, storage, processing, and interpretation, combined with remote sensing. Uses the popular GIS software ArcGIS. Three and a half hours lecture and two hours laboratory per week. Lab fee.

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 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 422. Sustainable Agriculture. (2 Credits)
This course provides an overview of the intersections among food production, environmental capacity, culture, economics, and governance. We will examine biophysical and human systems. Global and majority world applications and issues will play a prominent role in the course. Prerequisite: SP course

ENVR 432. Introduction to Environmental Engineering. (4 Credits)
Environmental engineering applies science and mathematics to identify problems and develop solutions that protect people from pollution in various forms, safeguards public health, and improves environmental quality. This course will take an algebra-based approach to introduce students to engineering principles and practices used in water resources management, water supply and treatment, wastewater treatment, air pollution management and solid waste management. A sustainability theme will run throughout the course, as will considerations for both domestic and international applications. Prerequisite: SP course.

ENVR 494. Environmental Science 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.
General Education: SHAR

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.

ENVR 499. Environmental Science Honors Research. (1 to 4 Credits)
An independent project providing original environmental science research developed in a written honors thesis and culminating in an oral examination. Partially fulfills requirements for an honors degree in environmental science. Additional requirements are available in the Geology and Environmental Science office or on the department web page. Prerequisite: Acceptance to the Environmental Science Honors program.