

# Environmental Science, Environmental Studies

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The College offers a major program of concentration in Environmental Science with an emphasis in either biology, chemistry, or geology and it offers a group minor in Environmental Studies. The Environmental Science major program of concentration is intended for students who plan to pursue a career requiring scientific training in environmental problems and their solutions. The major will prepare students for jobs in a variety of fields and will prepare them for further study in certain graduate programs such as ecology, environmental science, natural resource management, or environmental biology. Students interested in environmental issues, but who wish to pursue graduate study in chemistry or geology, are encouraged to complete a disciplinary major and the environmental studies minor.

Students who major in environmental science must choose one of three emphases. Those interested in careers in environmental biology should complete the biology emphasis, those interested in careers in environmental geology should follow the geology emphasis, and those interested in careers in environmental chemistry should follow the chemistry emphasis.

The Environmental Studies group minor program of concentration is intended for students who are following a disciplinary major and who also have an interest in studying a broad range of environmental problems and issues at the local, national, and global levels. Because the study of such issues is truly interdisciplinary in scope, the environmental studies minor is appropriate for students majoring in the humanities, the social sciences, or the natural sciences. While disciplinary majors with environmental interest are encouraged to complete the entire group minor, the Environmental Studies courses also may be taken singly as electives to enrich a program of study.

The advisor for students who choose the biology emphasis is R. Van Dragt; the advisor for students who choose the chemistry emphasis is K. Piers; and the advisor for students who choose the geology emphasis is R. Stearley. The advisor for the Environmental Studies group minor program is H. Aay.

## **ENVIRONMENTAL SCIENCE MAJOR— BIOLOGY EMPHASIS**

Biology 141  
Biology 242  
Biology 243  
Biology 345  
Two of Biology 336, 341, 344, 346, or approved 300-level courses  
Chemistry 103  
Chemistry 104  
Chemistry 253 or 261  
Chemistry 271-281  
Geology 151  
Geology 311  
Geology 312

## **ENVIRONMENTAL SCIENCE MAJOR— CHEMISTRY EMPHASIS**

Chemistry 103  
Chemistry 104  
Chemistry 201  
Chemistry 253 or 261  
Chemistry 271-281

One of Chemistry 262, 304, or 323  
Biology 141  
Biology 242  
Biology 345  
Geology 151  
Geology 311  
Geology 312  
One of Biology 243 or Geology 212, 304, 314, 322 or approved alternative

## **ENVIRONMENTAL SCIENCE MAJOR— GEOLOGY EMPHASIS**

Geology 151 or 120  
Geology 152  
Geology 215  
Geology 311  
Geology 312  
Biology 141  
Biology 243  
Biology 345  
Chemistry 103  
Chemistry 104  
Chemistry 253 or 261

Chemistry 271  
Chemistry 281  
One of Biology 242, Geology 212, 304, 317,  
322 or approved alternative elective

**Environmental Science Cognates  
(all emphases)**

Mathematics 143-132 or Mathematics 161-  
162 and 243  
Environmental Studies 210  
Environmental Studies 302  
Environmental Studies 395

In order to be admitted as a major in the Environmental Science program, a student must have completed three college-level science courses with a minimum grade of C (2.0) in each course and be approved by the committee, which oversees the Environmental Science program.

Beyond the requirements of the general honors program, the Honors Program in Environmental Science requires: 1) A cumulative grade point average of at least 3.3 in courses contributing to the major; 2) one course taken for honors among Biology 141 or 242, Chemistry 103, or Geology 151; 3) one course taken for honors between Environmental Studies 210 or 302; 4) one course taken for honors among Biology 345, Chemistry 271 or 281, or Geology 312; 5) completion of Environmental Studies 395 with honors; and 6) completion of a practical experience through Environmental Studies 385, an independent study (390 course) in Biology, Chemistry, or Geology, or another approved practicum.

**GROUP MINOR IN  
ENVIRONMENTAL STUDIES**

Environmental Studies 210  
Environmental Studies 302  
Environmental Studies 395  
Two electives from Biology 345, 352; CAS  
395; Chemistry 101; Environmental  
Studies 385; Economics 332; Engineering  
306; Geography 110, 120, 191,  
221/222, 251, 320, 351; Geology 151, 311,  
312 or an approved interim course.  
One additional course approved by the  
program advisor

**ELEMENTARY AND SECONDARY  
INTEGRATED  
SCIENCE STUDIES**

Students in the Elementary or Secondary Education Program wishing to major or minor in science should consult the Science Education section of the catalog.

**COURSES**

**210 Human Modifications of the Global Environment (3).** F and S. As population and affluence have increased and technology's role has grown, human activities have transformed natural environments around the globe. This course surveys and examines how a wide variety of human enterprises such as agriculture, industry, recreation, and urbanization have had and continue to have far-reaching environmental consequences everywhere on earth. These impacts are assessed by standards such as ecological well being and sustainability, human habitability, and quality of life. Not open to first-year students. Also listed as Geography 210.

**302 Environment and Society: Issues and Policies (3).** \* S. The interactions among population, resources, technology, economics, and public policy are studied in order to understand and address the environmental issues and problems of our day. Attention is focused upon energy, material, and food resource issues as well as upon population and resource relationships. Political, economic, and technological policies plus individual lifestyles are considered as part of responsible earth keeping. Not open to first-year students. Prerequisite: Environmental Studies 210 or permission of the instructor.

**385 Internship in Environmental Studies (3).** \* F or S. This course is an internship involving field application of the concepts and principles learned as part of the environmental studies supplementary concentration or the environmental science group concentration. A student is placed in a position in a governmental agency, a not-for-profit organization, or a corporate firm, which builds on previous instruction in the student's program of concentration in an area related to environmental matters. Students are assigned a specific project and work under the direct supervision of an employee of the govern-

mental, non-profit, or business entity, as well as under the supervision of the instructor. Prerequisites: Environmental Studies 210, 302, and permission of the instructor.

**395 History and Philosophy of Environmental Thought (3).** \* S. This course aims to develop a Christian philosophy of the environment and environmental management.

Issues, problems, and controversies in environmental ethics are explored. Environmental thought is explored historically, through the perspectives of contemporary environmental movements, and finally from a Reformed, Christian perspective. Prerequisites: Environmental Studies 210 and 302 or permission of the instructor.

## French

Professors G. Fetzer, O. Selles (chair)

Associate Professor, J. Vos-Camy

Assistant Professors I. Konyndyk, L. Mathews

Adjunct C. DeJong

The department offers courses of study for students interested in continuing work on the graduate level, for those interested in careers in which foreign language plays a key role, and for those interested in teaching French at the secondary or elementary school levels. Programs in the department include major or minor concentrations in French and major or minor concentrations in secondary and elementary education. Approved courses from Calvin's Study in France program may be applied to the program of concentration. The Cross-Cultural Engagement core requirement may be met by the department's W60, W80 interim courses, or by the Study in France program (STFR 230). The core literature requirement may be met by one of the following: French 217, 311, 312, 313, or 314. Major and minor students are encouraged to consult the *French Department Handbook*, available from the departmental office or website.

### **FRENCH MAJOR:**

French 215

French 216

French 217

Two from French 219, 220, 221, 280 or Study in France 230

Three from French 295, 311, 312, 313, 314, 315, 371, 390 (Interim Assistant), the department's Interims abroad (W60, W80), or Study in France 295, 315, and 316

Two approved electives (6 s.h. minimum), beyond French 122 or 201, and excluding IDIS 356, 357, 359.

### **FRENCH MINOR:**

French 215

French 216

French 217

Two from French 219, 220, 221, 280 or Study in France 230

Two approved electives (6 s.h. minimum), beyond French 122 or 201, and excluding IDIS 356, 357, 359.

### **FRENCH ELEMENTARY/SECONDARY EDUCATION MAJOR:**

French 215

French 216

French 217

French 315 or Study in France 315

IDIS 356 (elementary) or IDIS 357 (secondary)

Two courses from French 219, 220, 221, 280 or Study in France 230

Two courses from French 295, 311, 312, 313, 314, 371, the department's Inter-