Pacific Union College

Major in Environmental Studies, B.S.

BIOL-04

2012-2013

Major Course Requirements

A minimum of 90 hours (30 upper-division hours)

➤ ***Required Core Courses (61 hours):***

BIOL 111+112+113	Biological Foundations	5+5+5
BIOL 222	Introduction to Research Methods	2
BIOL 233	Ecology	4
BIOL 450	Philosophy of Origins	4
CHEM 111+112+113	General Chemistry	5+5+5
ENVR 360	Conservation Biology	3
ENVR 360L	Conservation Biology Lab	1
ENVR 361	Energy & Climate Change	3
ENVR 361L	Energy & Climate Change Lab	1
ENVR 362	Pollution & Environmental Quality	3
ENVR 362L	Pollution & Environmental Quality Lab	1
ENVR 396	Seminar (4 quarters)	.5+.5+.5+.5
ENVR 494	Internship	4
RELT 240	Eco-theology	3

➤ ***Required Core Electives (29 hours):***

At least 29 hours from the following:		29
AGRI 212	Home Greenhouse Gardening (2)	
AGRI 213	Home Vegetable Gardening (2)	
BIOL 227	Natural History of California (4)	
BIOL 323	Vertebrate Biology (4)	
BIOL 325	Flowering Plants (3)	
BIOL 328	Animal Behavior (4)	
BIOL 331	Marine Science (4)	
BIOL 338	Field Biology (3)	
BIOL 366	Medical Microbiology (5)	
CHEM 324+325	Analytical Chemistry (3+3)	
CHEM 324L+325L	Analytical Chemistry Lab (2+2)	
CHEM 371+372+373	Organic Chemistry (4+4+4)	
CHEM 451+452	Physical Chemistry (3+3)	
CHEM 450L	Physical Chemistry Lab (1)	
ENVR 412	Research in Environmental Studies (1+3)	
GEOL 233	Geology (4)	
MATH 131+132	Calculus (4+4)	
PHYS 111+112+113	General Physics (4+4+4)	

Recommended courses for students interested in specific areas:

The following courses are recommended to help students become better prepared for a job or for graduate school in more specialized areas of environmental studies. These courses are not intended to provide students with the specific skills required for a job.

Air Quality: CHEM 324+325, 324L+325L, 371+372+373, 450L, 451+452, MATH 131+132, PHYS 111+112+113

Conservation Biology: BIOL 227, 323, 325, 328

Energy:
CHEM 324+325, 324L+325L, 371+372+373, 450L, 451+452, GEOL 233, MATH 131+132, PHYS 111+112+113

Environmental Economics:
ACCT 121+122+123, ECON 261, 265, MATH 131+132

Environmental Policy:
PLSC 124, 274, SOWK 232

(Continued on other side)

Student Learning Outcomes

Students can:

- Apply the scientific process, including conducting experiments and testing hypotheses.
- Demonstrate the ability to read, understand, and critically review scientific papers and presentations.
- Prepare oral and written reports in a standard scientific format.
- Recognize the importance and limits of natural processes, relationships, and resources that exist in the environment.
- Evaluate the environmental impacts of human activities during the production, consumption and disposal of energy, water, food and other goods.
- Develop a personal ethic of stewardship and sustainable living.
- Develop an awareness of the careers and professions available in environmental studies.
- Recognize and appreciate the Creator as the source of life and sustaining life on Earth.

Occupational Information

What can I do with this major?

The core requirements of the Environmental Studies major provide a solid foundation for various specializations. By selecting the appropriate electives, our B.S. degree allows students to create their own emphases. In order to enhance employability or admission to graduate schools, it is highly recommended that students be clear on their vocational objectives and consult with departmental advisors as needed.

A required Internship includes volunteer service or employment with an environmental organization, thus providing crucial on-the-job experience. Career possibilities include jobs in air quality, conservation biology, energy, environmental economics, environmental policy, marine resources, solid waste management, water management and wildlife management.

Additional Education Required?

A master's degree is required for many intermediate-level environmental jobs and is desirable for teaching science at the secondary level and in community colleges. A Ph.D. degree is normally required to do research in an environmental profession, and is required for many upper-level jobs as well as for teaching at university and four-year colleges.

Public Sector vs. Denominational

Federal, state, and local agencies are the primary employers. Environmental studies graduates may also by employed by private consulting firms. There are denominational job opportunities in the area of public health or teaching.

Job Outlook

Environmental studies is a broad and rapidly growing field of study with ubiquitous opportunities for employment with both private and government organizations.

Salaries of environmental professionals vary greatly, depending on qualifications and experience, and generally range from about $20,000 to $100,000. Beginning salaries for graduates with a bachelor's degree typically range from $30,000 to $35,000.

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General Education Requirements

To view general education requirements for this major, please refer to page A-01, Summary of General Education Requirements: BS degree.

How to Construct Your Own Program

1. Counsel with your advisor.
2. Consider your aptitudes, interests, and available courses.
3. Schedule major courses and cognates first.
4. Fill the rest of your schedule with G.E. requirements.
5. For the freshman year include English, Religion, and PE courses. Also include Basic Algebra I+II unless waived by previous work.

What the Degree Includes

A total of 192 quarter hours including:

1. A minimum of 60 upper division hours.
2. General Education requirements.
3. Major requirements.
4. Minimum 2.0 GPA, overall and major.

For More Information

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Pacific Union College
One Angwin Avenue
Angwin, CA 94508

Major Course Requirements *(continued)*

Recommended courses for students interested in specific areas:
(Continued from other side)

Marine Resources:
BIOL 331

Solid Waste Management:
CHEM 324+325, 324L+325L, 371+372+373, 450L, 451+452, PHYS 111+112+113

Water Management:
BIOL 366, CHEM 324+325, 324L+325L, 371+372+373, 450L, 451+452+453, MATH 131+132, MICR 134, PHYS 111+112+113

Wildlife Management:
BIOL 227, 323, 328, 403

Sample Four-Year Program

This sample curriculum shows you how a program may be constructed, emphasizing the science components. Your program may differ, but be sure to consult your advisor.

First Year	**F**	**W**	**S**
Biological Foundations*	5	5	5
Introductory Chemistry**	[4]	-	-
Eco-theology	-	-	3
General Ed / Electives	11	11	8
	16	16	16

Second Year	**F**	**W**	**S**
General Chemistry*	5	5	5
Ecology	4	-	-
Introduction to Research Methods	-	2	-
Environmental Studies Electives***	-	4	4
General Ed / Electives	7	5	7
	16	16	16

Third Year	**F**	**W**	**S**
Biological Conservation + lab	4	-	-
Energy and Climate Change + lab	-	4	-
Pollution and Environmental Quality + lab	-	-	4
Seminar (2 quarters)	-	.5	.5
Environmental Studies Electives***	4	4	4
General Ed / Electives	8	8	8
	16	16.5	16.5

Fourth Year	**F**	**W**	**S**
Philosophy of Origins	-	4	-
Internship	1	2	1
Seminar (2 quarters)	.5	.5	-
Environmental Studies Electives***	4	4	4
General Ed / Electives	11	5	11
	15.5	15.5	16

* *Biological Foundations or General Chemistry should be taken during the first two years, but only in the same year by students who are well prepared, highly motivated and disciplined. If taking more chemistry than biology electives, General Chemistry should be taken first and Biological Foundations later.*

** *Needed only if High School chemistry is weak.*

*** *Environmental Studies Electives, 30 hours -see the front of this sheet for the list of options.*