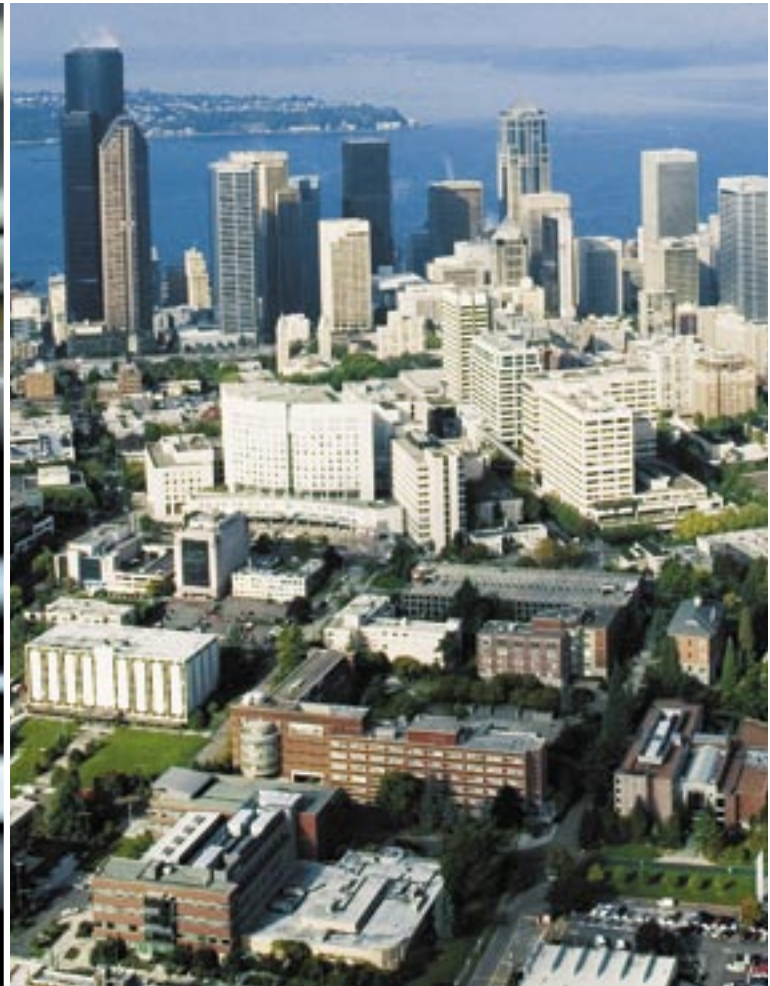
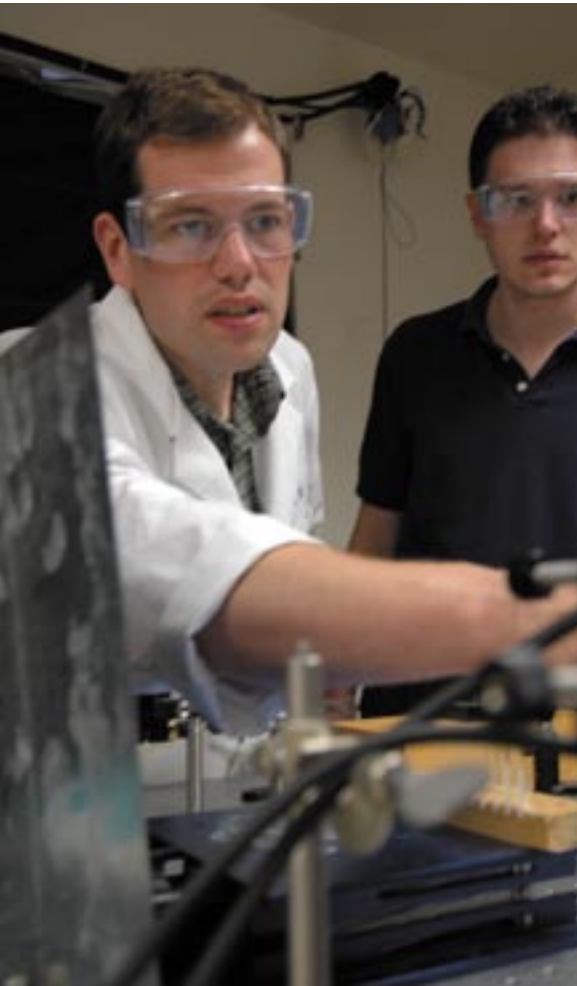


# ENVIRONMENTAL PROGRAMS



SEATTLE UNIVERSITY





## WELCOME TO SEATTLE UNIVERSITY

Seattle University, the largest and most diverse independent university in the Pacific Northwest, is at the forefront of environmental education in the West. SU offers four distinguished environmental degree programs, two within the College of Arts and Sciences, and two within the College of Science and Engineering.

SU is committed to academic excellence through teaching, strengthened by active scholarship; small class sizes; and personal attention. This commitment by SU professors and administrators helps students rise to the rigorous challenges of the curriculum.

Consistently listed among the top 10 best comprehensive universities in the western United States by *U.S. News and World Report*, SU has more than 7,000 undergraduate and graduate students enrolled within its eight schools and colleges.

Founded in 1891, SU is one of 28 Jesuit Catholic universities in the United States, and draws upon the Jesuit educational philosophy to develop critical thinkers and compassionate leaders able to promote a more just and humane world.

From global warming and the energy crisis to ecological stewardship and public policy, environmental issues are in the news. Professionals with the right education and training are leading the way in tackling these daunting problems. *Fortune Magazine* (March 21, 2005) crowns its list of "Hot Careers for the Next Ten Years" with jobs in environmental engineering and sciences, predicting a likely 54% increase in demand. *Fortune's* statistics indicate a strong increase in demand for allied fields as well.

SU's location in the heart of a great city and dynamic region provides unique learning, service, cultural and career opportunities for environmentally focused students. Distinctive to SU's educational approach is the practice of engaging student teams to develop projects that address complex problems faced by real Northwest companies and public agencies.

With its solid environmental institutional philosophy and culture, SU models what is taught in classrooms and labs. A regional and national leader in pollution prevention and sustainability practices, SU has received over twelve sustainability awards since 2000, capped by the prestigious 2004 Governor's Award for Pollution Prevention and Sustainability.

When you complete an environmental degree at SU, you will gain the competitive edge for launching your career or continuing your studies at the graduate level.

"The hands-on education I received from Seattle University allowed me to clearly understand the needs of this great profession. Diverse experiences such as the senior design project to holding a laboratory experiment in a stream were instrumental in providing the building blocks that have allowed me to excel in my professional career since I graduated."

**Thomas Keown, P.E., '94**  
**Construction & Operations Manager**  
**Highline Water District**



## ENVIRONMENTAL OFFERINGS

### COLLEGE OF ARTS AND SCIENCES

A&S

- BA in Environmental Studies
- BA in Environmental Studies with Public Policy and Urban Affairs specialization

### COLLEGE OF SCIENCE AND ENGINEERING

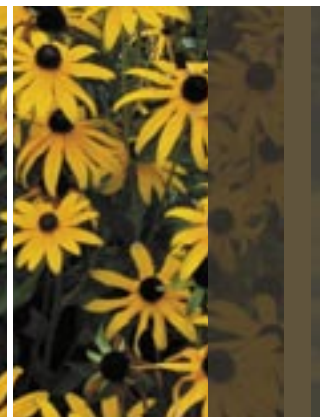
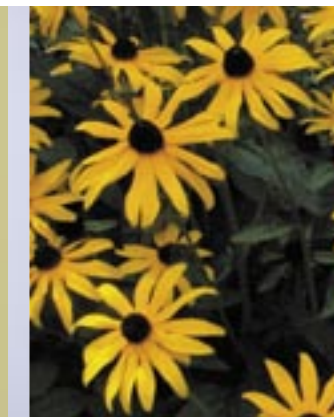
S&E

- BS in Environmental Science
- BS in Civil Engineering with Environmental Engineering specialization



| Species   | log K <sub>a</sub>     | log K <sub>a</sub> |
|---|------------------------|--------------------|
| H <sup>+</sup> = I <sup>-</sup>                                 |                        |                    |
| H <sup>+</sup> = Br <sup>-</sup>                                |                        |                    |
| H <sup>+</sup> = Cl <sup>-</sup>                                |                        |                    |
| H <sup>+</sup> = NO <sub>3</sub> <sup>-</sup>                   |                        |                    |
| H <sup>+</sup> = HSO <sub>4</sub> <sup>-</sup>                  |                        |                    |
| H <sup>+</sup> = H <sub>2</sub> O                               | 1.0                    |                    |
| H <sup>+</sup> = HOOCOO <sup>-</sup>                            | 5.4 x 10 <sup>-1</sup> |                    |
| H <sup>+</sup> = HSO <sub>3</sub> <sup>-</sup>                  | 1.7 x 10 <sup>-1</sup> |                    |
| H <sup>+</sup> = SO <sub>3</sub> <sup>-</sup>                   | 1.3 x 10 <sup>-1</sup> |                    |
| H <sup>+</sup> = H <sub>2</sub> PO <sub>4</sub> <sup>-</sup>    | 7.1 x 10 <sup>-2</sup> |                    |
| H <sup>+</sup> = FeH <sub>2</sub> O <sub>4</sub> <sup>-</sup>   | 6.0 x 10 <sup>-2</sup> |                    |
| H <sup>+</sup> = F <sup>-</sup>                                 | 6.7 x 10 <sup>-2</sup> |                    |
| H <sup>+</sup> = NO <sub>2</sub> <sup>-</sup>                   | 5.1 x 10 <sup>-2</sup> |                    |
| H <sup>+</sup> = CrH <sub>2</sub> O <sub>4</sub> <sup>-</sup>   | 1.5 x 10 <sup>-2</sup> |                    |
| H <sup>+</sup> = C <sub>2</sub> H <sub>3</sub> COO <sup>-</sup> | 6.6 x 10 <sup>-2</sup> |                    |

|   |                         |
|---|-------------------------|
| CH <sub>3</sub> COOH = H <sup>+</sup> + CH <sub>3</sub> COO <sup>-</sup>  | 1.8 x 10 <sup>-5</sup>  |
| AlH <sub>2</sub> O <sub>4</sub> <sup>+</sup> = H <sup>+</sup> + AlH <sub>3</sub> O <sub>4</sub> <sup>+</sup>        | 1.4 x 10 <sup>-5</sup>  |
| H <sub>2</sub> CO <sub>3</sub> /CO <sub>2</sub> + H <sub>2</sub> O = H <sup>+</sup> + HCO <sub>3</sub> <sup>-</sup> | 4.2 x 10 <sup>-7</sup>  |
| H <sub>2</sub> S = H <sup>+</sup> + HS <sup>-</sup>   | 1.0 x 10 <sup>-7</sup>  |
| H <sub>2</sub> PO <sub>4</sub> <sup>-</sup> = H <sup>+</sup> + HPO <sub>4</sub> <sup>-2</sup>                       | 6.3 x 10 <sup>-8</sup>  |
| HSO <sub>3</sub> <sup>-</sup> = H <sup>+</sup> + SO <sub>3</sub> <sup>-2</sup>                                      | 6.2 x 10 <sup>-8</sup>  |
| H <sub>2</sub> BO <sub>3</sub> <sup>-</sup> = H <sup>+</sup> + H <sub>2</sub> BO <sub>3</sub> <sup>-</sup>          | 6.3 x 10 <sup>-9</sup>  |
| NH <sub>4</sub> <sup>+</sup> = H <sup>+</sup> + NH <sub>3</sub>   | 5.7 x 10 <sup>-10</sup> |
| HCO <sub>3</sub> <sup>-</sup> = H <sup>+</sup> + CO <sub>3</sub> <sup>-2</sup>                                      | 4.7 x 10 <sup>-10</sup> |
| H <sub>2</sub> O = H <sup>+</sup> + HO <sup>-</sup>   | 1.4 x 10 <sup>-14</sup> |
| HPO <sub>4</sub> <sup>-2</sup> = H <sup>+</sup> + PO <sub>4</sub> <sup>-3</sup>                                     | 4.4 x 10 <sup>-13</sup> |
| HS <sup>-</sup> = H <sup>+</sup> + S <sup>-2</sup>  | 1.3 x 10 <sup>-13</sup> |
| H <sub>2</sub> O = H <sup>+</sup> + OH <sup>-</sup>   | 1.0 x 10 <sup>-14</sup> |
| OH <sup>-</sup> = H <sup>+</sup> + O <sup>-2</sup>  | 1.0 x 10 <sup>-14</sup> |
| NH <sub>3</sub> = H <sup>+</sup> + NH <sub>2</sub> <sup>-</sup>   | 1.0 x 10 <sup>-14</sup> |

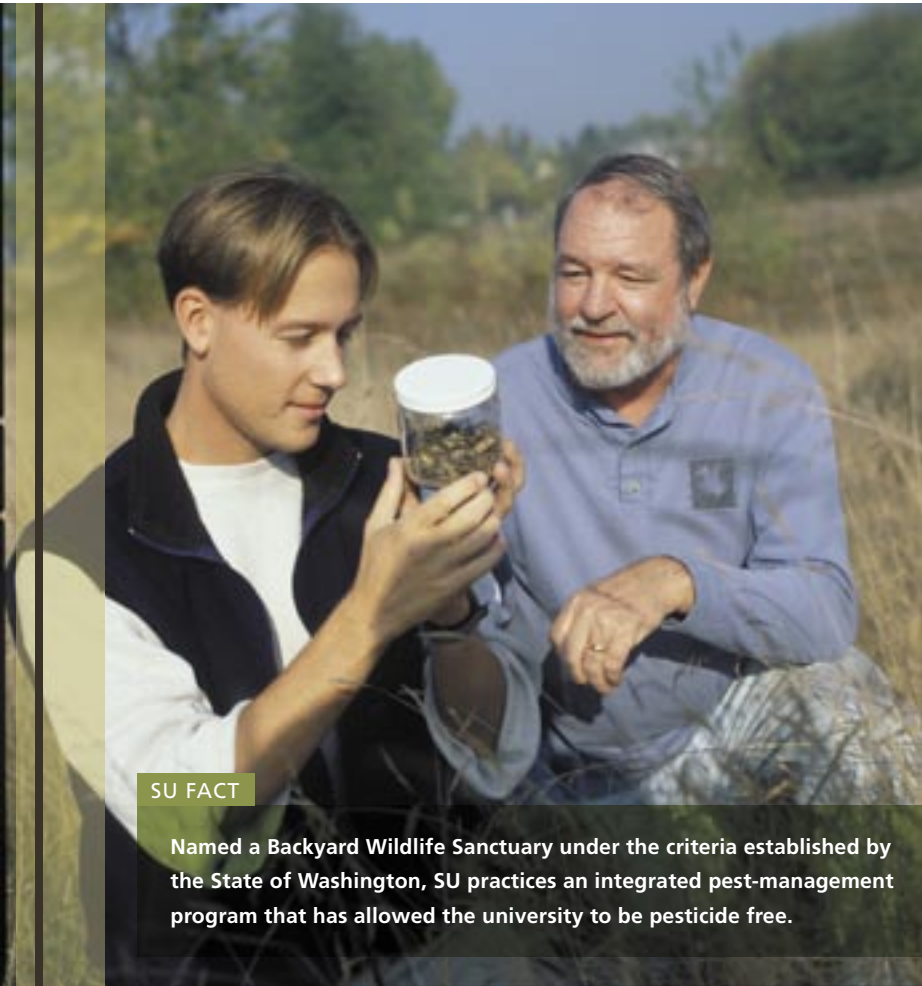


## ENVIRONMENTAL STUDIES DEGREE PROGRAMS

- BA IN ENVIRONMENTAL STUDIES
- BA IN ENVIRONMENTAL STUDIES WITH SPECIALIZATION IN PUBLIC POLICY AND URBAN AFFAIRS

### EXPLORE THE ENVIRONMENT FROM MANY PERSPECTIVES

Environmental Studies links the natural sciences with the social sciences and humanities in an integrative sequence that moves from the earth, to life, to human beings and spirit. Ecology provides the framework for seeing the whole web of natural systems, and for discovering humans' role within them. This major is a multi-disciplinary approach to understanding environmental crises and developing strategies for their solutions. Course work includes Introduction to Geo-systems and Ecological Systems, Geology, Environmental History, Environmental Politics, Environmental Philosophy, Environmental Law, Human Geography and Ecology, Religion and Ecology, and Foundations of Public Administration.



#### SU FACT

Named a **Backyard Wildlife Sanctuary** under the criteria established by the State of Washington, SU practices an integrated pest-management program that has allowed the university to be pesticide free.



#### CONNECT WITH THE COMMUNITY

In addition to a solid academic grounding, students will develop skills and knowledge through field studies, service-learning, and internships within the community. These experiences offer students opportunities to learn about problems first-hand, to test ideas in the field, and to understand whole systems in nature directly through study of various local and regional landscapes. Internships give students an opportunity to work with groups and leaders in the community while they provide concrete experience with issues and dynamics of environmental policies, organizations and agencies, advocacy, planning, and consulting.


## BROADEN YOUR FUTURE CHOICES

Majoring in environmental studies will prepare you to pursue further graduate studies in a variety of areas such as environmental studies, environmental law, forestry, sociology and history, geography, the political sciences, masters in teaching, public administration, or urban planning. You will find a rewarding career in a federal, state, or local environmental regulatory agency, a consulting firm, environmental business or environmental education, or a position in one of many local and regional land-use planning, non-profit environmental, or conservation organizations.



"I have been able to address urban as well as rural issues without any difficulties because of the way the program offers students opportunities to do work in either place. I do not think this broadness can be offered by many other universities. Seattle University's Environmental Studies Program truly does offer well-roundedness in the study of issues from rural to urban, as well as approaching it in a philosophical and a scientific manner."

**Kevin Uhl, '05**  
**Project Coordinator**  
**Rising Times Homeless Newspaper**

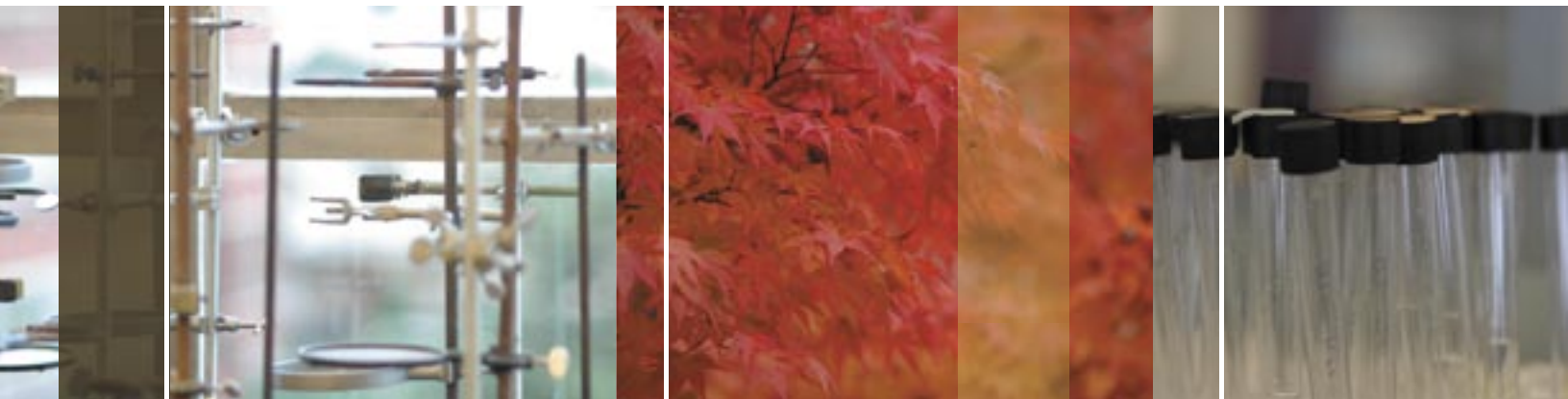


"The multi-disciplinary approach to looking at environmental issues that the Environmental Studies Program at Seattle University takes gave me a distinct advantage when I went to pursue graduate studies and eventually, work. Viewing natural/western science as but one piece of a much larger picture is all too often what is missing in discussions surrounding various environmental issues. Consideration of human interactions with our "natural" environment, evaluation of policies regarding natural resource management, and knowledge and contemplation of the views and approaches taken by various cultures/religions/communities toward the environment are key components to understanding the "bigger picture."

**Kristin Kopra, '98**

**Contract Note Writer, Editing/Printing Coordinator  
Knowledge Exchange and Technology Transfer Program  
Sustainable Forest Management Network**





## ENVIRONMENTAL SCIENCE DEGREE

### INTEGRATE YOUR INTERESTS

The environmental science degree offers a broad background in the basic and applied sciences, with foundation courses in general biology, general and organic chemistry, and environmental engineering. The major is partially self-designed, allowing you to take additional upper division courses in the areas that suit your interests, such as water resources, waste treatment, or chemical analysis of environmental samples. You will delve further into your interests by taking major elective courses such as Quantitative Analysis, Hazardous Waste Engineering, Marine Biology, or Biochemistry.

Seattle University's commitment to an integrated education allows the opportunity to examine environmental issues from multiple perspectives within the core curriculum, including philosophy, literature, economics, and law. The Bachelor of Science in Environmental Science is also compatible with obtaining a minor in biology, chemistry, or environmental engineering. You will work closely with an academic adviser to determine the most suitable courses and co-curricular research, internships, and volunteer activities.



#### SU FACTS

**Won the prestigious 2004 Governor's Award for Pollution Prevention and Sustainability, recycles over 62% of its solid waste and is one of the first urban universities to have a food composting facility**

#### PREPARE FOR DIVERSE CAREERS

Environmental science is inherently multidisciplinary, and Seattle University's environmental science program capitalizes upon that. The balance of scientific/technical training in the major and liberal arts in the core provides sound preparation for work, law school, and graduate school in a variety of disciplines. Whether or not you want to be a professional scientist, a solid understanding of the physical principles that underlie our complex natural systems is vital to engaging in environmental discourse.

The laboratory and research skills that you develop are applicable to careers in fieldwork and at the lab bench. You can work on a wide number of subjects including air, water, soil, resource conservation and management, and the energy industry. Your focus could be on environmental protection, new technology development, basic research, public policy, or resource management. Your employer might be the government, an academic lab, private company, or consulting firm. Because the environmental field is both vast and multi-faceted, you can choose the job setting that best suits you.

## ENJOY RESEARCH AND INTERNSHIP OPPORTUNITIES

Every student who majors in Environmental Science will undertake a research project or internship. You have the option to work with a faculty mentor's existing research project, to develop your own campus-based project in collaboration with the university's Sustainability Manager, or to work with an external agency such as the EPA.



"I was excited to have an environmental science major here at SU, and the coursework has given me many opportunities to expand my experience and skills. I've been able to focus my study on water-quality issues while gaining a broad education in environmental sciences. The skills and knowledge from my classes helped me take every advantage of my internship with Snohomish County Surface Water Management. My professors have been a great support, and I have confidence in my skills and experience thanks to the opportunities here."

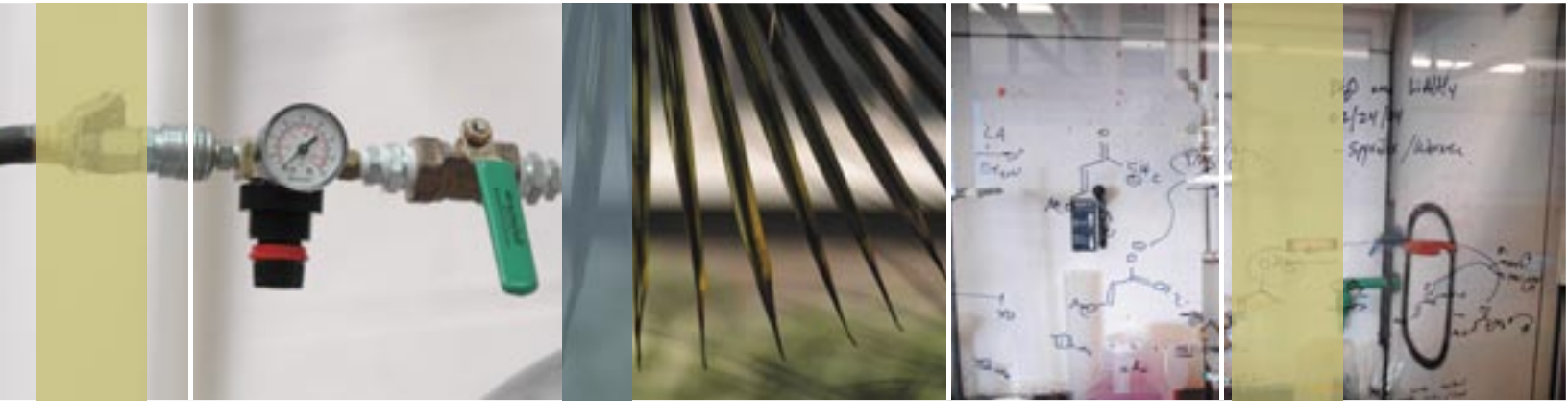
**Erin Thatcher, '06**  
**B.S. Environmental Science**



“My education in the environmental sciences at Seattle University expanded and encouraged my passion to positively affect our natural world through science. It gave me a great foundation to pursue employment and further education.”

**Jake Dixon, '03**  
**Graduate Student - Restoration Ecology**  
**College of Forest Resources**  
**University of Washington**





## ENVIRONMENTAL ENGINEERING SPECIALIZATION WITHIN CIVIL ENGINEERING

### ENGINEER A CHANGING WORLD

Environmental engineering is the design of systems or approaches to protect, manage, and improve the quality of our water, soil, and air through the control of wastes, pollution prevention, and environmental restoration.

Environmental engineers apply concepts from biology, chemistry, and mathematics to work in a variety of environmental areas including water and wastewater treatment, solid and hazardous waste management, air pollution control, and water quality assessment. If you are committed to preservation of the natural environment, have a desire to work both in the field and in the laboratory, and are curious about the impact of technology on our changing world, you are an ideal candidate for this growing field of study.



SU FACT

Supports a broad range of “green building” practices. The Student Center, dedicated in 2002, has been certified a “green building” under the LEED standards (Leadership in Energy and Environmental Design). As other buildings are renovated, they too are held to high “green renovation” standards.

#### BUILD ON A SOLID FOUNDATION

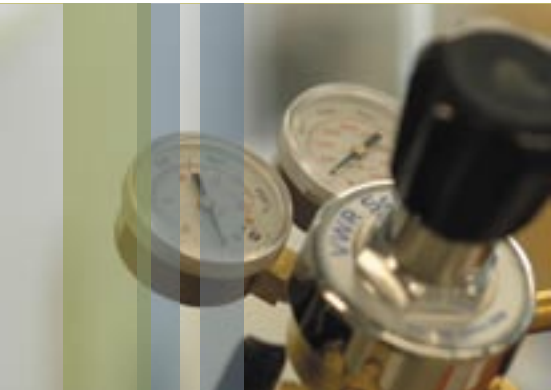
Since 1990, the Seattle University Department of Civil & Environmental Engineering has offered a specialization in environmental engineering within the ABET-accredited civil engineering program. Civil engineering students with an interest in environmental engineering can specialize in this discipline as part of their BS in Civil Engineering.

Courses in this specialization include Environmental Engineering Chemistry, Biological Principles for Environmental Engineers, Principles of Environmental Engineering, Water and Wastewater Engineering, Hazardous Waste Engineering, and Air Pollution Engineering. Consistent with the other courses in the civil engineering program, hands-on experiences and collaborative projects are emphasized in problem solving and the design of solutions to environmental problems.

## JUMP-START YOUR CAREER

In your senior year you will participate in a challenging year long design project sponsored by government or a business organization. Recent senior projects included design of a treatment system to reduce pollutants in storm water runoff, restoration of a stream to improve use by salmon, recovery of ethanol fuel from the treatment of solid waste, and design of a water recycling system for city fire training exercises. A centerpiece of SU's College of Science and Engineering is the Project Center, where businesses and agencies enlist the help of environmental engineering student teams to solve real problems these organizations face in the region and community. Seattle Public Utilities and Boeing are just two of many local organizations that have participated.

In the Department of Civil and Environmental Engineering, you will also have ample opportunities to work with faculty members on research projects and intern with a local consulting firm or public agency. Following graduation, nearly 100% of our students find jobs in these firms and agencies or continue their education through graduate studies.



"The environmental engineering department at Seattle University is determined to make each student's educational experience a rewarding and successful one. The faculty members are consistently available to answer questions and provide mentoring and they take a personal interest in getting to know each student. In addition, the environmental engineering curriculum strives to incorporate current issues and a greater sense of responsibility and ethics into its program. I feel very fortunate to have had the opportunity to take environmental engineering classes through SU. The faculty helped me to focus my career choices and helped me identify internships. Even after graduating from SU, environmental engineering faculty members have continued to be in touch and have continued to support my career."

**Christina Avolio, '01**  
**Environmental Engineer**  
**Herrera Environmental Consultants**

"The staff, professors, and coursework in SU's Department of Civil and Environmental Engineering provided me the educational foundation that was immediately applicable in the real world. I'm designing new streams, wetlands, and fish-passage structures—exactly what I wanted to do when I left SU in 1998. It would not have been possible without the solid education, problem-solving skills, and personal interactions I had at SU."

**Toni Turner, P.E., '99**  
**Hydraulic Engineer**  
**U.S. Bureau of Reclamation**





## CONTACT US

We welcome you to explore the wealth of environmental studies opportunities we offer. For more information, contact Seattle University admissions or any of the program contacts listed below. We would be happy to answer your questions and arrange a campus visit.

### ENVIRONMENTAL STUDIES

Department of Environmental Studies  
[www.seattleu.edu/artsci/eco](http://www.seattleu.edu/artsci/eco)  
Phone (206) 296-2030 or (206) 296-6492  
Prof. Trileigh Tucker: [tri@seattleu.edu](mailto:tri@seattleu.edu)

### ENVIRONMENTAL SCIENCE

Department of General Science  
[www.seattleu.edu/scieng/gensci](http://www.seattleu.edu/scieng/gensci)  
[gnsc@seattleu.edu](mailto:gnsc@seattleu.edu)  
Phone (206) 296-5591  
Prof. Jen Sorensen: [sorensj1@seattleu.edu](mailto:sorensj1@seattleu.edu)

### ENVIRONMENTAL ENGINEERING

Department of Civil and Environmental Engineering  
[www.seattleu.edu/scieng/cee](http://www.seattleu.edu/scieng/cee)  
Phone (206) 296-5520  
Prof. Jean Jacoby: [jacoby@seattleu.edu](mailto:jacoby@seattleu.edu)  
Prof. Phillip Thompson: [thompson@seattleu.edu](mailto:thompson@seattleu.edu)

### SEATTLE UNIVERSITY ADMISSIONS

901 12th Avenue  
P.O. Box 222000  
Seattle, WA 98122-1090  
Phone (206) 296-2000

Seattle University does not discriminate on the basis of race, color, religion, sex, national origin, age, disability, marital status, sexual or political orientation, or status as a Vietnam-era or special disabled veteran in the administration of any of its education policies, admission policies, scholarship and loan programs, athletics, and other school-administered policies and programs, or in its employment-related policies and practices. All university policies, practices and procedures are administered in a manner consistent with Seattle University's Catholic and Jesuit identity and character.

Inquiries relating to these policies may be referred to the university's Associate Vice President of Human Resources and Equal Opportunity Officer. Consistent with the requirements of Title IX of the Education Amendments of 1972 and its implementing regulations, Seattle University has designated three individuals responsible for coordinating the University's Title IX compliance. Students or employees with concerns or complaints about discrimination on the basis of sex in employment or an education program or activity may contact any one of the following Title IX coordinators: Philip Irwin, Associate Vice President of Human Resources and Equal Opportunity Officer, University Services Building 107, (206) 296-5869, [irwinp@seattleu.edu](mailto:irwinp@seattleu.edu); Robert Kelly, Associate Vice President for Student Development, Student Center 140B, (206) 296-6066, [rkelly@seattleu.edu](mailto:rkelly@seattleu.edu); or Robert Dullea, Vice Provost for Academic Administration, Administration Building 104, (206) 296-6151, [dullea@seattleu.edu](mailto:dullea@seattleu.edu). Individuals may also contact the Office for Civil Rights of the U.S. Department of Education. © 2006 Seattle University.



# SEATTLE UNIVERSITY

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General Information (206) 296-6000 Admissions Office (206) 296-2000 Alumni Office (206) 296-6127 [www.seattleu.edu](http://www.seattleu.edu)

