



Directions for Undergraduate Program Director Reports:

1. Talk to students in your major, ask around if there are any current academic issues.  
(ex: class conflicts within the major, issues with professors, etc)
2. Look at Degree Navigator, write down the course requirements
3. Formulate a list of things you would like to know about the program (corporate connections with the university, current research projects, opportunities for students to get involved, etc)
4. Email Undergraduate Program Director and Arrange Appointment
5. Fill out Undergraduate Report Sheet
6. email to [vicepresident@sgc.rutgers.edu](mailto:vicepresident@sgc.rutgers.edu) and complete by December 4th



Name: Elliot Lewandowski

Major: Environmental Science

Date: 04/20/20

Semester: Spring 2020

Undergraduate Program Director: Dr. Jeffra Schaefer

UPD Contact Information:

jschaefer@envsci.rutgers.edu

### I. Major Options - What options are offered within the major? How do they differ?

Environmental Sciences Option:

- Required courses: Fate and Transport (375:423), Calculus II (640:136 or equivalent)
- The most flexible in terms of course requirements. This allows students more variation in where to concentrate.

Applied Environmental Science Option:

- Required courses: Water and Wastewater Treatment (375:302), Solid Waste (375:307), Principles of Air Pollution (375:421), Hazardous Waste (375:430)
- Environmental Science with a focus on engineered systems (water, air, and waste management and treatment)

Environmental Health:

- Required courses: Water and Wastewater Treatment (375:302), Solid Waste (375:307), Epidemiology (10:832:335), Environmental Toxicology (375:407)
- Public health and toxicological side of environmental science. A focus on environmental problems in relation to occupational health and safety.

### II. Total number of students within the major

98-105 on a yearly basis

### III. Goals within the major - What are expectations of students post-graduation?

#### IV. Major Courses - What is the goal of each course? What should students be learning?

- 119:115 General Biology I and 116 General Biology II OR 119:103 Principles of Biology
  - To gain a fundamental understanding of broad biological systems and mechanisms
- 750:193 Physics for the Sciences I and 194 Physics for the Sciences II **OR**  
750:203 General Physics I and 204 General Physics II
  - To gain a fundamental understanding of physical properties and laws
- 160:161 General Chemistry I and 162 General Chemistry II and 171 Introduction to Experimentation
  - To gain a fundamental understanding of the chemical processes and mechanisms
- 375:201 Biological Principles of Environmental Sciences
  - To underline relevant biological processes with context to environmental science, in natural and engineered systems
- 375:202 Chemical Principles of Environmental Sciences
  - To underline chemical processes that govern our environment and gain understanding in some of the common chemical interactions
- 375:203 Physical Principles of Environmental Sciences
  - To gain an understanding of the physical processes that pertain to environmental interactions and contaminant transport
- 375:310 Analytical Environmental Chemistry Laboratory
  - To introduce analytical methods of pollutants/contamination/interpretation and reporting

- Calculus 1 (640:135 or equiv)
  - To understand basis for the differential equations that define environmental science and to improve mathematical skill
- 216:351 Principles of Ecology
  - To consider the ecological intra/interactions between groups of organisms and habitats
- 160:307 Organic Chemistry I and 308 Organic Chemistry II OR 160:209 Elementary Organic Chemistry
  - To expand upon prior chemical knowledge pertaining to organic chemicals to gain an understanding of chemical pollutants
- Quantitative skills
  - To understand basis of data modeling
- Lab and Experience
  - To develop in-lab techniques and lab experience

#### V. Concerns/Student issues with classes? How to resolve, suggestions?

- More hands-on lab experience
  - Talk to advisors to help guide students towards opportunities: you can take all the lab classes
- An Environmental Science degree has a lot of options, what else is out there?
  - Electives can offer broader views: core curriculum focuses heavily on STEM
- Making research more public/promoted
  - Utilize faculty to student ratio: there is no clear solution to advertising structure
- A class with a focus on how to interpret research papers
  - Offered at graduate level: need expertise to digest the papers

#### VI. Things going on within the major (Research, Visitors, Talks, Seminars within the major)

- Faculty regularly organize and participate in research, with web pages detailing research.

- With a favorable faculty to student ratio, academic advisors and form personal relationships and understandings with students
- Updated job/internships postings on the main page of program website
- Seminar options emailed out on a regular basis

## VII. Job Outlook, suggestions for students in this major (ex: organizations to join, news to pay attention to)

- Capitalize on networking and internship experience when available, many of which are posted on the program website
- Keep an eye out for in-state environmental associations, some of which are free for students to join
- Student base environmental organizations are prevalent; there are many opportunities there to gain insight into out of school involvement

## IX. Changes within the major in the upcoming year?

The learning goals are in the process of being refined. They will not fundamentally change but will become simpler and more clear, with proper terminology