Syllabus
375:197 Environmental Science Literacy
Douglass Project Environmental Science House course
3 credits

Course description

This course is designed to provide students with a grounding in the history of environmental science and regulations designed to address environmental problems, and to provide basic computer literacy in the tools and software needed in the environmental sciences. The course will cover the major environmental issues of the day, with focus on their impacts on women. We begin with an overview of a local environmental problem with "Tom's River". Then we discuss chemical pollution through the lens of Rachel Carson's "Silent Spring". We examine how the course of human society is constrained by the environment and how food is produced in the modern economy. We examine climate change and its likely effects on women throughout the world. We close by discussing sustainability and the future of the world's environment. On the computational side, we will learn how to use Microsoft Excel, Microsoft Word, Microsoft Access, Google Earth, and ArcGIS, in addition to exploring various online tools and data bases.

Grades will be based on journal assignments (due weekly), one final paper (draft and revision), one midterm and one final exam, and class participation in discussions.

Format:
The class will meet twice per week. The first day of each week, we will meet in the lounge of 50 Bishop St. for discussions of the readings. The second day of each week, we will meet in the computer lab at 50 Bishop St., where each student will have access to her own PC with all of the necessary software.

Assigned readings/videos:
1. Toms River by Dan Fagin

2. Silent Spring by Rachel Carson

3. A Fierce Green Fire: The American Environmental Movement by Philip Shabecoff

4. Guns, Germs, and Steel (video) by Jared Diamond

5. The Omnivore's Dilemma by Michael Pollan

6. Climate Change: Lines of Evidence (video)

Course Schedule:

Week	**Day 1**	**Day 2**
1	Meet and discuss goals of course	Online resources
2	Discuss **Toms River**	Introduction to Excel
3	Continue to discuss **Toms River**	Excel
4	discuss a news story on the environment	Excel
5	Discuss **Silent Spring**	MS Word
6	discuss a news story on the environment	**Midterm**
7	Discuss **A Fierce Green Fire**	Databases
8	talk about plagiarism and ethics re: term paper	Databases
9	Discuss Guns, Germs and Steel	Databases
10	Discuss **Omnivore's Dilemma**	Advanced Excel
11	discuss a news story on the environment	Google Earth
12	Discussion: what do you want to do with your life?	ArcGIS
13	Climate change videos (link)	ArcGIS
14	Discuss climate change	Apps
15	Reflect on class	**Final Exam**

Journal questions

Week 2: Are you an environmentalist? Why or why not? What environmental issues have directly affected your life?

Week 3: How would you feel if you were a resident of Tom's River in the 1970s and 1980s, but your mother worked at the Ciba-Geigy plant, and her income supported your family and paid for your college education?

Week 4: Comment on a recent (within the last week) news story on the environment. How has your perspective on this story changed due to the things you have learned in this class?

Week 5: Do you sympathize with Rachel Carson? How do you expect your life will be similar to or different from hers?

Week 6: Comment on a recent (within the last week) news story on the environment. How has your perspective on this story changed due to the things you have learned in this class?

Week 7: Reflect on "A Fierce Green Fire".

Week 8: Give and outline and list of references for your paper.

Week 9: Do humans control their environment? Or does the environment control us?

Week 10: How did Omnivore's Dilemma change how you think about the food you eat? Have you changed your eating habits after reading this book?

Week 11: Turn in first draft of term paper.

Week 12: In light of what you have learned in this class, what kind of career do you want to pursue? What factors influence your decision: money, altruism, work/life balance, etc.?

Week 13: Turn in revised/final draft of term paper.

Week 14: Do you think that some of the many current/recent conflicts in the Middle East, Ukraine, etc, are a direct or indirect result of climate change? How have these conflicts affected men and women differently?

Week 15: Reflect on what you have learned in this class. Which things surprised you the most? Which have had the deepest impact on you? What would you have done differently if you were teaching the class?

Learning Goals:

The Environmental Science major has eight learning goals. This course will address goals 2, 3, 5, and 7.

Students completing this program will be able to:

1. apply knowledge from the sciences and mathematics to environmental problems and solutions;
2. **use the skills and modern environmental science techniques and tools necessary for a successful career in the field;**
3. **design and conduct experiments, and analyze and interpret data;**
4. function effectively on multidisciplinary teams;
5. **communicate technical information effectively (orally, in writing, and through electronic media).**

Additionally, they will understand:

6. professional ethical responsibilities;
7. **contemporary environmental science issues and the impact of environmental science in a global and societal context;**
8. the need, and have the ability, to engage in lifelong learning and to participate in professional organizations.

Goal 2

Instructional Activity:

Goal 2 will be addressed by exercises using MS Excel, MS Word, MS Access, Google Earth, and ArcGIS in addition to various online tools and data bases. Students will construct simple MS Excel spreadsheets, conduct linear regressions, learn to format word documents that contain mathematical and chemical formulas, and will construct sample maps using to Google Earth and ArcGIS.

Assessment Activity:

Goal 2 will be assessed via the midterm and final exams. Students will be asked to submit spreadsheets that address various problems, such as finding the slope and 95% confidence limits of the slope of a linear regression. Each exam will comprise 50% of the assessment for goal 2.

Goal 3

Instructional Activity:

Goal 3 will be addressed by exercises using MS Excel and ArcGIS that will show students how to analyze data numerically (in Excel) and spatially (in ArcGIS). Students will construct simple MS Excel spreadsheets, conduct linear regressions, and will construct simple maps using to Google Earth and ArcGIS.

Assessment Activity:
Goal 2 will be assessed via the midterm and final exams. Students will be asked to submit spreadsheets that address various problems, such as finding the slope and 95% confidence limits of the slope of a linear regression. Each exam will comprise 50% of the assessment for goal 3.

Goal 5
Instructional Activity:
Students will be assigned a term paper. The paper will be written in steps with each step evaluated. First, the topic will be chosen, and the instructor will demonstrate to the students how to narrow down the topic to make it manageable. Second, students will be given a lecture on plagiarism and how to search for and cite references. Third, students will write an outline of the paper and give a list of references. Fourth, students will submit a draft of the complete paper. Fifth, the draft will be revised into a final paper.

Assessment Activity:
Goal 5 will be assessed via the term paper (100%).

Goal 7
Instructional Activity:
Students will read four books and watch two videos (or video series) on current environmental issues. Every week, students will discuss one of the readings/videos or a current news story on the environment. Students will reflect on these learning materials via their weekly journal entries.

Assessment Activity:
Goal 2 will be assessed via the journal entries (50%) and final exam (50%).