

- Course Title:** **Strategies for Environmental Inquiry  
ENS200 (4 Credit)**
- Prerequisites:** ENS111/113: Introduction to Environmental Science OR ENS110: Humans and Nature
- Instructor:** **Dr. Ryan Kirk**  
rkirk2@elon.edu (e-mails will be responded to within 24 hours)  
Phone: 336-278-6477
- Class Meeting Time** MWF 12:15-1:25
- Class Meeting Location** 102 Lindner Hall (aka, 102 AVAS or 102 Academic Village Arts and Sciences)
- Office hours:**
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|----|--------------------------------------|
| M  | 8:00 – 9:00 p.m. (in 112A Lindner)   |
| T  | 9:00 – 10:00 p.m. (in 112A Lindner)  |
| T  | 3:30 – 4:30 p.m. (in 320 McMichael)  |
| Th | 10:00 – 11:00 p.m. (in 112A Lindner) |
- Course Web site:** We will use **blackboard** extensively for locating readings, communication, submission of assignments, and grading. For help getting established on blackboard see:  
<http://org.elon.edu/idd/bb6/students/troubleshooting.htm>
- Required Book:** **McKillup, Steve. 2011. Statistics Explained, An Introductory Guide for Life Scientists, 2<sup>nd</sup> ed. London: Cambridge University Press.**
- Required Purchase:** **One pack of 5x8 inch lined white note cards for short assignments.** You will use up to 40 cards, so you could split this with another student.
- Readings on Reserve:** The book and the several articles define the conceptual content base for this course. These articles will be available as pdfs on Blackboard. Additional readings will be provided for case studies discussed below. Readings will be organized sequentially by the class period (#1 = 1<sup>st</sup> day, #39 = last day)

**Course Introduction:** The fields of environmental studies and environmental science are broad and complex. In order to fully address an “environmental problem”, you likely will need to know how to: 1) research, develop and interpret scientific information, 2) define and analyze normative arguments, 3) identify, understand, and interact with different stakeholders, 4) identify and evaluate various courses of action, and 5) communicate and collaborate with different groups of people. This process is further complicated because environmental issues also require value judgments about relative worth and utility, which in turn requires identifying and understanding value systems, assumptions and biases, and possibly identifying and sifting out misinformation.

Indeed, there is little that is simple in the realm of environmental inquiry, but one thing we can all likely agree upon is that applying rigorous analyses and systematic, interdisciplinary methods for conducting inquiries is extremely important. That is what this class is about. It is not a typical research methods class, but research methods are an important part of it. It is not simply a science course or a statistics course, but we will identify core parts of the scientific process and learn to use and interpret fundamental statistical concepts. Similarly, it is not completely an ethics or a policy or sociology course, but we will incorporate aspects of all of these into our discussions. By the end of the semester, I hope you will gain a solid foundational toolkit for improved future scholarly work and personal inquiry into the complex issues of the modern world.

**Catalog Description:** This course consists of in-depth examination of different ways of thinking about and studying the environment, with a primary emphasis on conducting scholarly work within an interdisciplinary framework. Topics include: researching and writing literature reviews; qualitative and quantitative research methods used in natural sciences, social sciences and the humanities; basic empirical design and statistical methods; stakeholder analysis; and analysis of value systems. This course is designed for Environmental Studies and Environmental and Ecological Sciences Majors, but may be useful for other students. Prerequisite: ENS111/113 or ENS110.

**Learning Outcomes:** The primary objective of this course is in-depth exploration of the process of conducting scholarly work, including developing research questions and identifying and applying appropriate strategies for assessing those questions. Within this context, by the end of this semester you should be able to:

- 1) Research and write effective literature reviews.

- 2) Understand how and when to use fundamental quantitative and qualitative research methods, as well as recognize their limitations.
- 3) Use and interpret empirical design and fundamental statistical concepts in ecology and environmental studies, as well as recognize their limitations.
- 4) Understand a breadth of terminology on the scientific process, value systems, policy analysis, stakeholder analysis, and critical inquiry.
- 5) Demonstrate rigorous and systematic analysis for environmental inquiry.

**Peripheral goals:** In addition to the course learning outcomes, this course has peripheral goals of:

- a) Learning about the Environmental Studies Department Learning Outcomes for Majors.
- b) Meeting a variety of ENS faculty and learning about their scholarly pursuits and methods of inquiry.
- c) Improving the efficiency and effectiveness of your reading, studying, writing, and research strategies.
- d) Fostering camaraderie amongst your ENS cohort, since you will likely collaborate (and become friends) with this group in multiple courses over the next several years at Elon.

**General Course Flow:** We will follow a case-based model of inquiry this semester. For approximately the first 2/3 of the course, we will use two case studies to facilitate our discussions and explorations. As we learn new concepts, we will evaluate those concepts in the context of both the current and the previous case study. During this time, various faculty members in the department will give presentations on their research and how they go about identifying and addressing research questions. The last portion of the course will consist of each student developing a research question, then conducting a literature review and defining a research plan for analyzing that question.

**Grades:** Grading will be broken down into the following categories. You can calculate your grade-to-date at any time by dividing the points you earned by the total possible points for completed components.

<u>Component</u>	<u>Points available</u>
Participation & Low-Stakes Exercises	150
Case Study grades	
Exercises (4 @ 50 pts each)	200
Literature Review (2 @ 75 pts each)	150
Final Project	
Literature Review	90
Research Plan	45
Reflection Essay	15
Exams	
Mid-term Exams (2 @ 100 pts each; 2 <sup>nd</sup> is cumulative)	200
Final Exam (Cumulative)	150
Total Points:	1000

**Attendance Policy:** This class is specifically designed to help you develop skills for success as an Environmental Studies or Environmental and Ecological Sciences Major. Attendance and participation are important for both this semester and future courses, so the attendance policy has been strengthened accordingly. **The policy is simple: you are given 3 absences without penalty, and your final grade will be reduced 3% for each additional absence.** These absences include illnesses and other typically excused absences, so use them wisely. Absences for sanctioned Elon events will not be counted towards these three, and additional sanctioned Elon events will be excused. Please keep me informed well in advance of such events.

**Participation:** The participation grade rewards demonstration of the following characteristics:

- a) Preparedness: The student comes prepared for each class session, having completed readings and addressed assigned questions or research topics.
- b) Initiative: The student takes a lead in group-related work and seeks out ways for advancing our success of the course.
- c) Contributive: The student regularly contributes to discussions and group projects.
- d) Professionalism: The student arrives on time, is respectful in discussions, and assists other students where possible.

I will take regular notes on participation, and you will also conduct anonymous peer-reviews of participation for each group project. The peer reviews will be summarized and returned to each of you at the end of the semester.

**Low-Stakes Exercises** Throughout the semester, you will complete a series of short writing or exercise assignments for a variety of reasons: 1) synthesize your answer to a prompt regarding a reading assignment; 2) in-class writings to reflect on a speaker or

topic; 3) answer a question to provide the instructor with continuous feedback of your learning. The grading for these Low-Stakes writing will be based on the consistency of your efforts throughout the semester. Low-Stakes exercises, when collected, will be marked on a 0-3 pt scale. These assignments will be used for a variety of reasons, and grading will be based primarily on 1) demonstrating that you are fully engaged in the material and work to think through it even if you don't know the answer, and 2) demonstrating that you have completed readings and are working to make connections with the different aspects of this course. You won't be graded on writing quality for Low-Stakes Exercises, but poor writing quality that reduces clarity may result in lower scores. The scores for Low-Stakes assignments will represent the following criteria:

**3: Strong submission:** demonstrates clear, concise and rigorous analysis; demonstrates full understanding of the readings or other pertinent material; provides clear evidence linking your answer/thought process to readings and previous course content.

**2: Moderate submission:** demonstrates modest understanding of the readings or other pertinent material; some attempt to link your answer/thought process to readings or other pertinent material, but of limited success; answer isn't always clear or concise.

**1: Limited submission:** demonstrates limited understanding of the readings or material; little evidence of linking answer/thought process to other topics; superficial analysis; limited evidence of critically engaging the question.

**0: Unacceptable submission:** no clear evidence that student read or understood the material; no evidence that the student attempted to think through the question and engage the material; short, confusing, or superficial answer; no answer submitted.

For the mid-term and end of the semester grades, I will plot your participation and Low-Stakes exercise scores and assign points based on 1) quality of effort, 2) consistency of effort, and 3) scores relative to the all-class distribution.

**Case Studies:** Three case studies will be used as a basis for applying theoretical concepts learned in this course. For each case study, you will complete one Exercise Set and one Literature Review (described below). The case study topics are:

- 1) Ecosystem services
- 2) Environmental justice

**Exercises (4 @ 5% each, for a total of 20% of your final grade):** The exercises will consist of a combination of applied and theoretical questions related to the course content. They are cumulative in nature, so you will have to draw on any previous material covered during the semester. Some questions will be quantitative and will require the use of statistical or other software packages, but the emphasis will primarily be on why and when to use the software tools in question.

**Literature Reviews (2 @ 10% each, for a total of 20% of your final grade):** You will complete 3 literature reviews during this semester. The first two are 1200-2000 words, and the final is 2500-3000 words. These are not long, so the focus will be on quality and clarity, not quantity. The final lit review is part of your Final Project, and you will identify your own topic and sources.

**Final Project (15% of your final grade):** The final project is your opportunity to apply the concepts learned in this class towards a topic of your interest. The project will consist of identifying a research project, conducting a literature review, defining a research question, and discussing how you would assess that question. You won't actually do the research; rather, you will do all the steps to set up the research project.

**Exams (35% of your final grade):** The two midterm exams and the final exam will consist of multiple choice, short answer, and short calculation questions. These will be drawn from the book, other readings, and lecture material. A list of topics will be provided at least two weeks prior to exam dates. The final exam will also have an open-note synthesis assignment where you will demonstrate understanding of integrated themes of this course by reflecting on a case study. A detailed example will be provided in class.

### Grading Policies:

Overall grading is criterion-referenced, in which grades are designed to measure how well students perform relative to predetermined standards. Final grades are based on a standard scale: (e.g., > 90% = A, > 80% = B, etc). The instructor reserves the right to curve final grades upwards (never downwards), but this is not guaranteed.

Bonus Points may be added on any of the assignments at the discretion of the instructor, based on any of the following criteria that indicate an "above-and-beyond" effort or quality-level: 1) professional presentation, 2) clarity of argument/presentation, or 3) thoroughness of argument/presentation. Thus, a grade greater than 100% is possible.

Grades on each assignment can be contested to the instructor up to 2 weeks after the assignment is returned for errors or perceived injustice. Send an e-mail or bring a written statement to office hours containing sound reasons why a grade should be changed.

Incomplete grades are assigned at the discretion of the professor when, due to extraordinary circumstances, e.g., hospitalization, a student is prevented from completing the work of the course on time. Requires a written agreement between the professor and student *before* the final exam.

Submitting Assignments: Due dates are listed on the course schedule (below). **Assignments are to be submitted via Blackboard by the start of class on the assigned date.** A separate sheet for instructions and requirements will be provided.

Late Assignments: Extensions may be granted if requested in advance with appropriate justification. **Without an approved extension, assignments may be submitted up to 3-days late for 80% partial credit, or up to 7-days late for 60% partial credit.** This does not apply to exams or items due during the last week of the semester.

Academic Integrity Policy: Students are expected to abide by the Elon Academic Honor Code (available at <http://www.elon.edu/e-web/students/handbook/honorcpp.xhtml> ). In this course, plagiarism and cheating during in-class quizzes are the most important concerns. Alleged violations will be dealt with according to University policy.

Special Assistance: Please inform the professor of any special needs for accessibility and learning, and appropriate measures will be taken to aid success in the course. If you are a student with a documented disability who will require accommodations in this course, please register with Disabilities Services in the Duke Building, Room 108 (278-6500) for assistance in developing a plan to address your academic needs.

### **How to succeed in this course**

This class is admittedly broad in content, objectives and pedagogy. To succeed in this course, you must be willing to commit to strong and consistent effort, including doing the assigned readings and tasks, working with your peers, and spending time thinking about the material: how do the diverse pieces fit together? How do these concepts fit in with other courses you are taking or have taken? How does this material alter how you do scholarly work? Be sure you understand expectations for assignments and exams, and if you do not, please ask!