

Course Title: Water Resources Management: ENS 340/GEO 340 (4 Credit)

Prerequisites: none

Class Meeting Time & Location: McMichael 333, TTh 2:20-4:00

Instructor: Dr. Ryan Kirk, Dept of History and Geography, Dept of Environmental Studies
rkirk2@elon.edu (e-mails will be responded to within 24 hours)
Office: 112C Lindner Hall
Phone: 336-278-6477

Office hours: Mon 1:00- 2:00 Tue 9:30-10:30
Wed 11:00-12:00 Thu 10:30-11:30 or by appointment

Course Web site: We will use **moodle** extensively for communication, submission of assignments, and grading.

Required Text: Principles of Water Resources: History, Development, Management, and Policy, 2nd or 3rd ed
By Thomas V. Cech. Available in the bookstore or as an ebook for \$39.50 from:
<http://www.coursesmart.com/9780470136317>

Course Overview: This course focuses on the role that water plays in human and environmental systems by examining the cycling and spatio-temporal distribution of water, exploring the importance of water to biological processes and the mechanisms by which water shapes human use of the land, and evaluating water management policies and economics to explore the decision-making challenges surrounding water resources. This semester, we will have an emphasis on sustainable water management and will conduct several applied projects in our local waterways.

- Course Objectives:**
- 1) Gain a fuller understanding and appreciation of the importance of water in our lives
 - 2) Develop core knowledge of the cycling and spatio-temporal distributions of water
 - 3) Expand understanding of the complexities of managing our natural resources
 - 4) Explore the benefits of incorporating sustainability practices in resource management
 - 5) Participate in applied group research or outreach project
 - 6) Gain experience with quantitative data analysis
 - 7) Improve critical analysis, communication, writing and research skills

General Course Flow

This course is divided into 2 sections. For the first 3rd of the semester, we will explore the hydrologic cycle and link the distribution of water to the needs and patterns of human land use. After that, we will explore the institutions and regulations that influence our management of water. We will focus primarily on water management in the U.S., but will also include global case studies. Given this structure, most of our time in the beginning of the semester will involve traditional lectures to develop core knowledge, but as the semester progresses, we will use that foundational knowledge to explore the challenges and complexities of managing our water resource in more unstructured format.

Grades: Grading will be broken down into the following categories:

<u>Component</u>	<u>% of Final Grade</u>
Participation	5%
Labs/Exercises (5 @ 7% each)	35%
Water Management Case Study (Paper and Presentation)	20%
Mid-term exam	10%
Final exam (partially cumulative)	15%
Group Community project (with individual reflection)	15%

Participation: Participation is paramount to the success of this course. Grade is based on the following categories:

- * Consistent attendance. **The policy is simple: you are given 3 absences without penalty, and your final grade will be reduced 2% for each additional absence.** These absences include illnesses and other typically excused absences. 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 in guest lecture or field lecture note compilations. Effectively, you all will take turns documenting our field lectures, field trips, and guest lectures to provide to the rest of the students.
- * Regular contributions in discussions.
- * Full involvement in our applied group projects.

Exams (1 mid-term, 1 final): The exams cover all aspects of the assigned readings, in-class content, and field trips. A list of topics and sample questions for each exam will be handed out 2 weeks before each exam. Key concepts will be cumulative for the final exam, and it will be explicit which topics are cumulative. Exams will consist of multiple choice, short answer, and math problems. All math in this class will be standard algebra.

Water management Case Study: You will research and write a 2000+ word paper about the water management challenges of a specific body of water from somewhere in the world. The case study will be developed in multiple parts, including a proposal, literature review, class presentation, and the final paper. Specific details will be available on Moodle.

Labs / Exercises (5): Homework exercises will be assigned regularly throughout the semester. They are designed to provide quantitative data analysis experience, gain insight into the math behind water management, and reinforce class content for exams. You are encouraged to work together on exercises, but all submitted work must be in your own words.

Class project: Our central project this semester will be a paired-watershed study using the Elon Forest watershed and a nearby suburban watershed. Collectively, we will develop water budgets of the two watersheds. We will divide data collection and analysis into sub-groups, then will assimilate all data into a central database. You will have the choice of developing a report individually or as part of a small group. Group papers will have proportionately larger length and content expectations.

Grading Policies:

Overall grading is criterion-referenced, in which grades are designed to measure how well students perform relative to predetermined standards. Grades follow the traditional scale and the traditional thresholds are guaranteed: (e.g., > 93% = A, 90-93% = A-, etc). No individual assignments will be curved, but the final grades may be curved upwards (never downwards) at the discretion of the instructor based on how class performance and grade distributions match expectations. I will work hard to communicate grade status throughout the semester as well as give indications of any potential final curve.

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 for assignments are listed on the course schedule (below). Assignments will be due at the beginning of class unless explicit directions to the contrary are provided.

Late Assignments: Extensions on assignments 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.** Assignments will not be accepted later than 7 days after the due date without an approved extension. Exams may be rescheduled if arrangements are made at least 1 day prior to the exam date, but no exams can be made up with prior notification or documented emergency.

Academic Integrity Policy: Students are expected to abide by the Elon Academic Honor Code (available at <http://www.elon.edu/e-web/students/handbook/violations/default.xhtml>). In this course, plagiarism and cheating during exams 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 is an upper-level class that covers a lot of material and requires careful organization and consistent effort. A general rule of thumb is that you are expected to spend 2 hours outside of class for every hour in the classroom, and I suspect that will be the standard required to achieve a high grade. For this course, that outside time means completing homework assignments, keeping up on readings, continually reviewing the core concepts that will make up the heart of the exams, regular study sessions, researching and writing the papers, and strong and regular participation in our group projects. I highly suggest working with other students on homework assignments and for studying. The primary character trait for success is a willingness to commit to hard work in order to better understand the challenges we face as a society in managing so important a resource as water.