



The Syllabus

LONGWOOD UNIVERSITY

DEPARTMENT OF BIOLOGICAL AND ENVIRONMENTAL
SCIENCES

Exploring Science in Our World *General Education 261, Fall Semester 2007*

The Power of Water

⌘ Basic Information ⌘

Class meeting times:

- Lecture: Tuesday and Thursday, 8:00 to 9:15 AM in Science Center G12
- Lab: Wednesday 10:00 to 11:40 (section 1) and 2:00 to 4:30 PM (section 50). All labs meet in Science Center 210.

- Professor:* Dr. Alix Fink
Office: Science Center 201
Research lab: Science Center 217
Phone: 395-2576
Email: finkad@longwood.edu
Office hours: Tuesday 1:30 to 3:30 PM, Thursday 1:30 PM to 3:30 PM, and by arrangement.

- Required materials:* Students are required to purchase a custom e-textbook (approximate cost \$40) through McGraw-Hill's on-line

publishing system; details on the e-text will be provided in a separate handout.

Students are required to purchase “Writing papers in the biological sciences” by V. E. McMillan (approximate cost \$25). This text is available from the University Bookstore.

Students are required to purchase a one-semester subscription to *The New York Times* (approximate cost \$26). This subscription is available through the University Bookstore at a significant discount from the regular subscription price.

Students are required to purchase a binder (1.5” is ideal) in which to house lab papers. Additionally, it is highly recommended that you purchase a folder or binder in which to house all of the various handouts and such for the term. You should keep all handouts, graded assignments, etc., until the end of the term.

Students will be required to periodically photocopy supplementary reading materials from the reserve section at the Longwood library or print from the on-line reserves.

Students will be required to use Blackboard to access and print weekly laboratory exercises, some assignments, supplementary materials, etc.

Approximate total expected cost to each student: \$100

⌘ Longwood University General Education ⌘

This course satisfies Goal 6 of the Longwood University General Education Program. Most of the following is taken directly from the LU Undergraduate Catalog:

GOAL 6. The application of the methods of science to the acquisition of knowledge, and an appreciation of the major contributions of science to our cultural heritage and to the solution of contemporary problems (four credits).

Outcomes: Students will

- Understand the major methods of natural science inquiry
- Recognize and explain major contributions of science to our cultural heritage

- Understand how natural science has been used to address significant contemporary issues

Additionally, General Education courses will:

1. Teach a disciplinary mode of inquiry and provide students with practice in applying inquiry, critical thinking, and problem solving
2. Provide examples of how disciplinary knowledge changes through creative applications of the chosen mode of inquiry
3. Consider questions of ethical values
4. Explore past, current, and future implications of disciplinary knowledge
5. Encourage consideration of course content from diverse perspectives
6. Provide opportunities for students to increase information literacy through contemporary techniques of gathering, manipulating, and analyzing information and data
7. Require at least one substantive written paper, oral report, or course journal and also require students to articulate information or ideas in their own words on tests and exams
8. Foster awareness of the common elements among disciplines and the interconnectedness of disciplines
9. Provide a rationale as to why knowledge of this discipline is important to the development of an educated citizen

How will this course address these goals and criteria?

Over the course of the semester we will practice inquiry in a variety of lab activities. We will apply basic disciplinary knowledge to issues of local importance and to problems that affected our human culture in the past. We will tackle capacious problems using rigorous scientific methods and, at each step, consider the problem from different viewpoints and positions. Most importantly, we will consider the impact of science on our daily lives and reflect on the importance of understanding science.

∞ SENCER ∞

The Power of Water course is part of an international program called SENCER (Science Education for New Civic Engagements and Responsibilities). For additional information on the SENCER program, please see www.sencer.net. Because of this course's participation in that program, students will be asked to complete course assessments beyond the usual course evaluations. Those assessments have been approved by our Longwood Human Subjects Committee. Additional information will be provided.

⌘ Course Objectives ⌘

Student Goals

- Relate science to personal and social contexts
- Become better at making personal and social decisions that are science-related
- Understand some of the historical development of science
- Understand the processes of scientific inquiry
- Learn to ask questions and seek answers that are evidence-based

Learning Objectives

Learning objectives for each major unit, each lab activity, and each assignment will be provided in association with the activity. In so doing, my hope is that the learning objectives will be more meaningful than if listed only in the syllabus.

⌘ Grade Components ⌘

Learning involves much more than sitting in class and listening. It is absolutely critical that you participate actively in the learning process. You will complete a number of assignments over the course of the semester to help you understand and apply scientific concepts.

Skill Development

Homework: Problem sets and various other assignments are designed to provide structured opportunities to practice basic skills (e.g., calculations, problem solving). Assignments will be posted in Blackboard.

Homework due dates will be announced when the assignment is made.

Lab activities: At the end of some weekly lab meetings, part or all of the lab worksheet that focuses on development of basic skills will be collected.

An announcement will be made at the start of the lab to notify you that part or all of the lab will be collected at the end of the lab period and subsequently graded.

Analysis and Application

Scientific paper writing assignment: A very important outcome of your college experience will be an understanding of how different disciplines convey disciplinary knowledge. There is a very specific format for scientific discourse, and through a guided, scaffolded series of assignments you will learn this format. This project, including all relevant due dates, will be discussed in detail in a separate assignment

sheet. The paper assignment is worth 100 points, and associated peer reviews are worth an additional 24 points (3 reviews for 8 points each).

County board writing assignment: Near the end of the semester, you will prepare a written assignment in which you will use scientific data to address a question of importance in the Farmville area. In addition to preparing a written “report,” you will also present your analysis to your peers. Details of this assignment, including all due dates and specific requirements, will be discussed in a separate assignment sheet.

Making Connections

Concept maps: At the end of almost every other week, you will be required to prepare and submit a concept map that identifies the key topics of the preceding weeks and identifies the linkages among them. Additionally, you will identify linkages to topics discussed in previous weeks, items from the news, and discussions in other courses and co-curricular activities. You will construct concept maps using a software program that aids in that process.

Due dates are included in the Blackboard Course Calendar. You will complete 7 maps, and the lowest score will be dropped.

Community contributions: For a class to really work, the people involved need to be more than an assembled group of individuals—they need to be members of a community of learning. In order to facilitate the development of our community, you will earn points for a variety of activities such as participation in in-class discussions, attendance at campus events, development of a service project relevant to the course material, etc. Opportunities to earn community points will be discussed periodically during class and lab meetings.

Assessment of Competencies

Quizzes: Over the course of the semester, you will take 5 major 40-point quizzes. Of those, your lowest score will be dropped and the best 4 scores will be used in determining your final grade. You also may occasionally take unannounced quizzes, which will be counted as homework points. A primary goal of these pop quizzes is to encourage the completion of assignments in advance of class meetings. No make-up quizzes will be given for any announced or unannounced quizzes.

Exams: One mid-term exam and one comprehensive final exam will be administered during the semester. The goal of the exams is to evaluate your competence in four areas: 1) basic concepts discussed in class, 2) basic skills employed in scientific contexts, 3) identification and formulation of connections among topics, and 4) analysis of scientific issues. Each exam will be composed of a variety of questions. Specific information will be addressed in the form of objective questions (i.e., multiple choice, true/false, matching, and fill-in-the-blank). Concepts, connections, skills, analysis, and application will be assessed with short-answer questions.

Exam dates are included in the Blackboard Course Calendar.

⌘ Grading ⌘

Grade components

Component	Number	Point value	Percentage of grade
Midterm exam	1	100 points	14%
Final exam	1	150 pts	21.5%
Major quizzes	5	40 pts each, 160 pts total (lowest score to be dropped)	23%
Homework	Tba	40 points total	6%
Writing assignments	2	164 points total	23.5%
Lab activities	6	5 pts each, 30 pts total	4%
Concept maps	7	6 pts each, 36 pts total (lowest score to be dropped)	5%
Community contributions	Tba	20 points total	3%
Total		700 pts	100%

Grading scale: This course will not be graded on a +/- system.

A 90-100% B 80-89% C 70-79% D 60-69% F <60%

⌘ Course Policies ⌘

✓ *Attendance:* Attendance and participation in all class sessions are expected and required. Students must **arrive on time** for class and **be prepared** to participate in discussions and activities. Absences will be excused only for scheduled University events. It is the responsibility of the student to provide the instructor with **written advance notice** of scheduled events.

Attendance will be taken daily. Students with excessive absences will be penalized. Students missing more than 25% of scheduled class meetings will receive an “F” in the course.

✓ *Preparation for class:* In order to get the most out of each class session, it is critical that you prepare by completing assigned readings and/or homework assignments. It is expected that each student will have read the assigned reading before coming to class—our daily, in-class activities will be based on that assumption.

✓ *Late assignments:* Due dates for homework assignments and other projects will be announced in class. **Late assignments will not be accepted. No make-up quizzes will be given.**

✓ *Honor code:* Each student in this class will be expected to adhere to the Longwood University Honor Code. It is assumed that you want to learn as much as possible from each class you take. As a result, I also assume that you will work to learn the material through completion of assignments and collaboration with peers. However, all work turned in must be your own. All work on in-class exams must be your own. Academic honesty is a foundation of the University; violations of this tenet will be brought to the attention of the Honor Board. Please review the Honor Code, including the section on plagiarism (<http://www.longwood.edu/judicial/honorsystem2.htm>).

✓ *ADA statement:* All reasonable efforts will be made to accommodate students with disabilities. If you have special needs, please discuss these with the professor immediately so that arrangements can be made.

✓ *Flexibility:* This syllabus and schedules are subject to change during the semester. Students will be notified in writing of any changes.

✓ *Courtesy:* Everyone in this course is a member of a learning community. It is expected that each member of this community will treat everyone else with respect and courtesy.