

EHSC 4610/6610
Water Pollution and Human Health
Fall 2007 Syllabus

Department of Environmental Health Science
College of Public Health

Course Information

Instructor: Dr. Marsha Black
Office Location: 206A Environmental Health Science Bldg.
Phone: 706-542-0998
Email: mblack@uga.edu
Office Hours: By appointment. Please email to schedule.

Course Meeting Time and Location

Building: Environmental Health Science Bldg. (1050)
Room: 101
Day: Tuesdays & Thursdays
Time: 9:30-10:45 am

Textbooks and Other Required Course Material

Reading materials will be posted on the class website or emailed to each member of the class as a PDF file.

Course Description

Human health and environmental issues related to water pollution, focusing primarily on water contamination resulting from municipal, industrial, and agricultural practices. Risks of toxicity and disease to human and aquatic populations from actual incidences of water pollution will be explored in a role-playing exercise.

Undergraduate prerequisite: EHSC 3060.

Undergraduate prerequisite or corequisite: CHEM 2211/CHEM 2211L.

Course Learning Objectives

1. Identify and characterize the sources, routes of exposure and effects of anthropogenic and natural sources of water pollution to aquatic biota and humans.
2. Characterize and discuss human health and environmental issues related to water use, water pollution and water management.
3. Analyze the overall ecological and human health impacts of water pollution through case studies of water pollution in industrialized and developing countries.
4. Present findings of water pollution impacts on a single location through town hall meetings organized and led by student groups. Major emphasis will be on determining

the source(s) and extent of damage to human health and the environment, remediation efforts, and the current status and impacts on local populations.

Course Requirements for Grading Purposes

A. Three *non-comprehensive* exams will be given:

Exam 1 (Sept. 20)

Exam 2 (Nov. 1)

Exam 3 (Dec. 13; 9:00-11:00 AM)

Each exam will cover material from the lectures and any assigned readings. Exams will contain multiple choice, short answer and essay questions.

B. *Group Project: Town Hall Meeting (200 points)*

1. Identify a localized pollution event (e.g., a major chemical spill) or chronically contaminated area (e.g., a location that has accumulated high concentrations of a contaminant over time from an identifiable source). Using all members of your small group, research the situation completely from a variety of scientific sources, emphasizing the scenario causing the contamination, the eventual distribution and fate of the contaminant(s), the effects on resident biota and adjacent human populations, and the current status of the situation. Summarize this information in a 3-4 page background paper on the location (page limit does not include references). All members of the group must contribute to this background paper and the information contained within must be edited to flow as if one person wrote it. Five or more legitimate scientific sources (journal articles, US government web sites, book or symposium chapters) must be used and referenced in the paper.

2. As a group prepare and conduct a Town Hall Meeting, where each member of the group assumes the role of a person in the community impacted by the contamination. Roles must include the following: (a) Town leadership, (b) Scientific expert, (c) a person representing the company or entity responsible for the contamination, (d) a concerned towns person or member of a local environmental advocacy group. Each group member must participate in the oral presentation, during which the person will discuss the impact, dangers of the contamination (or benefits of the industry that would override the adverse effects), etc. from the perspective of their role. A 1-2 page position paper will also be written by each presenter that summarizes their major points. Each Town Hall meeting should last a total of 50-60 min (10-12 minutes per person). Following each individual presentation there will be 2-5 minutes for questions. The rest of the class will participate as the press corps and will ask questions of each of the presenters. Use of AV media by the presenters is optional.

3. By 5:00 pm on the day of their Town Hall presentation, the group will turn in four 1-2 page position papers that summarize the points made during the Town Hall meeting for each role (or if more than 4 people are in the group, 1 position paper per group member). Position papers may have only one author (i.e., the person assuming the role), but the group must edit and approve all position papers, as they will be turned in as part of the group effort. The

group summary paper is also due at that time. All work should be submitted as a MS Word document (12 point font, double-spaced, 1” margins). Email submissions of group work assembled into one file are encouraged.

4. To help promote equal participation among group members, each member will rate each member of their group, giving them a grade of 0-100%, which should be emailed to the instructor at mblack@uga.edu after all written work has been turned in. These ratings should reflect your assessment of each team member’s effort and quality of work on the oral and written parts of the Town Hall exercise. All individual ratings will be kept confidential. Peer “grades” for each student will then be averaged and used to adjust the overall points accumulated for the case study for an individual’s % effort, as judged by his/her peers.

C. Additional Assignment for Graduate Credit:

All students taking EHSC 6610 (including graduate and Honors students) will participate in a Journal Club, where they will meet one hour per week outside of class to read and discuss current articles related to the course material. A separate syllabus will provide details for this extra requirement.

Topical Outline

Dates	Topic
16 Aug.	Introduction; organization of the course
21 Aug.	Overview of water pollution; hydrologic cycle
23 Aug.	Aquatic ecosystems
28 Aug.	Overview of aquatic toxicology
30 Aug.	Sedimentation I
4 Sept.	Sedimentation II
6 Sept.	DO and natural purification; eutrophication
11 Sept.	Effects of nutrients (N and P)
13 Sept.	Town Hall Meeting 1: Nutrient Pollution or Sedimentation
18 Sept	Emerging issues in water pollution: Pharmaceuticals
20 Sept.	EXAM 1
25 Sept.	Acidification I
27 Sept.	Acidification II
2 Oct.	Emerging issues in water pollution: Exotic species -- Aaron Wilson
4 Oct.	Inorganic materials; Heavy metals I – Aaron Wilson
9 Oct.	Heavy metals II – Aaron Wilson
11 Oct.	Properties of organic pollutants
16 Oct.	Town Hall Meeting 2: Heavy metal pollution or Acidification
18 Oct.	Pesticides I
23 Oct.	Pesticides II
25 Oct.	No Class—Fall Break
30 Oct.	Emerging issues in water pollution: Nanomaterials
1 Nov.	EXAM 2

- 6 Nov. Polychlorinated biphenyls (PCBs) I
- 8 Nov. PCBs II
- 13 Nov. Water-borne pathogens I -- Dr. Erin Lipp
- 15 Nov. Water-borne pathogens II -- Dr. Erin Lipp
- 20 Nov. Town Hall Meeting 3: PCBs or Pesticides**
- 22 Nov. NO CLASS – Thanksgiving
- 27 Nov. Polycyclic aromatic hydrocarbons (PAHs)
- 29 Nov. PAHs II
- 4 Dec. NO CLASS – Friday schedule
- 6 Dec. Town Hall Meeting 4: Pathogens or PAHs**
- 13 Dec. EXAM 3 (9:00-11:00 AM)**

*****Please note that attendance is mandatory on all presentation days*****
*****Late arrivals will be counted as absences*****

Grading Policy

Points may be accumulated as follows:

1)	Exams (3 @ 100 points each)	300
2)	Town Hall exercise (Team effort):	
	Role play -Oral presentations	50
	Position papers	50
	Background Summary	<u>100</u>
	Team sum	<u>200</u>
	Peer review of group members: Average % involvement	
	Total group project points = (Team sum) (Average % involvement).....	200
3)	Class attendance and participation in the Town Hall meetings (all students) and Journal Club participation for EHSC 6610 students.....	50
	(Students with unexcused absences on required class days will lose 5 points per absence)	
	TOTAL	550

Final letter grades will be based on a percentage of 550 points:
A = 90 - 100%; B = 80 - 89%; C = 70 - 79%; D = 60 - 69%; F < 60%

Make-Up Policy

Students are expected to attend all required classes and to take exams on the scheduled dates. Makeup exams are given only under emergency circumstances. Please inform the instructor prior to the exam or required class of the emergency circumstance by email (preferred) or phone and provide a formal doctor's excuse or written notification of the family emergency at the next class meeting.

Attendance Policy

Students are required to attend ALL Town Hall meetings. Late arrivals will count as absences. Students will be docked 5 points per absence for required class days.

University Honor Code and Academic Honesty Policy

All academic work must meet the standards contained in "A Culture of Honesty." All students are responsible to inform themselves about those standards before performing any academic work. This document is available at http://www.uga.edu/ovpi/academic_honesty/academic_honesty.htm. Students are advised to pay particular attention to the policy on plagiarism, as this course has a significant writing component.

Students with Disabilities

Students with disabilities who require reasonable accommodations in order to participate in course activities or meet course requirements should contact the instructor or designate during regular office hours or by appointment.

General Disclaimers

The course syllabus is a general plan for the course; deviations announced to the class by the instructor may be necessary.

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