

**Developmental and Reproductive Toxicology (EHSC 8550)**  
**Environmental Health Science Department**  
**University of Georgia**  
**Spring 2009**

Instructor: Mary Alice Smith, Ph.D.

Office: 201B Environmental Health Science Building

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Office Hours: Tuesdays and Thursdays from 3:15-5:15 pm or by appointment

Description of course: Developmental and Reproductive Toxicology (EHSC 8550) will examine the basic principles of how teratogens (chemical, physical, or microbial) affect developing systems and result in birth defects and abnormal pregnancy outcomes.

Credit: 3 hours

Prerequisite: Introductory Toxicology or permission of department

Meeting Time: Class: 2:00-3:15 pm, Tu, Th

Meeting Location: Room 207, Environmental Health Science Building

**Text:** There is no text, but required readings include the Teratology Primer (provided to the class), published scientific literature, and material available on the web.

**Course Objectives:** This course is intended for graduate students at any level with an interest in developmental and reproductive toxicology. By the end of the course, the students will be able to:

- Describe the basic principles of how toxicants can adversely impact developmental and reproductive processes
- Describe experimental approaches to evaluate agents for developmental and reproductive impacts
- Discuss the significance, reliability, and interpretation of developmental and reproductive toxicity studies in animals
- Critically evaluate published/peer reviewed literature
- Participate in open discussion about mechanisms, case reports, and other special topics presented to class.

**Guest Speakers:** Guest speakers will be invited to talk on their area of expertise as available.

**Course Schedule**

DATE	TOPIC	ASSIGNMENT
Jan 8	Introduction to Developmental and Reproductive Toxicology Website: <a href="http://www.med.unc.edu/embryo_images/unit-welcome/welcome_htms/contents.htm">www.med.unc.edu/embryo_images/unit-welcome/welcome_htms/contents.htm</a>	
Jan 13	Basic Embryology	Read Foreword in Teratology Primer and Read pgs. 1-11, 32-33, and

DATE	TOPIC	ASSIGNMENT
		34-43 ;
Jan 15	Methods Website: <a href="http://www.cfsan.fda.gov/~redbook/redivc9b.html">www.cfsan.fda.gov/~redbook/redivc9b.html</a>	Read pgs. 44-59 in Primer
Jan 20	Infections during Pregnancy	Chapt Infections in Pregnancy - handout
Jan 22	Malaria during pregnancy	
Jan 27	Neural Crest	Birth Defects Research v. 72 (2)
Jan 29	Developmental Signaling	BDR v. 69 (4)
Feb 3	Developmental Signaling continued	
Feb 5	Apoptosis	BDR v. 75 (4)
Feb 10	Apoptosis continued	
Feb 12	Skeletal and Limb Development; Case Study: Thalidomide	BDR v. 69 (2)
Feb 17	Skeletal and Limb Development continued	
Feb 19	Placenta	Read pgs. 22-26 in Primer
Feb 24	Placenta continued	
Feb 26	Stem Cells	BDR v. 69 (3)
Mar 3	Stem Cells continued	
Mar 5	Developmental Patterning	BDR v. 78 (3)
Mar 10,12	Spring Break	
Mar 17	<i>Society of Toxicology Annual Meeting</i> ; TBA	Guest speaker – stem cell research
Mar 19	<i>Society of Toxicology Annual Meeting</i> ; TBA	Guest speaker – malaria research
Mar 24	Spinal Cord and Brain	
Mar 26	Case Study: Fumonisin and Folate	
Mar 31	Drugs During Pregnancy; Case Study – Anti-infective drugs	
Apr 2	Reproductive Toxicology (Male and Female)	Read pgs. 15-18 in Primer
Apr 7	Reproductive Toxicology (Male and Female) continued	
Apr 9	Cardiovascular	BDR v. 69 (1)
Apr 14	Cardiovascular continued	
Apr 16	Maternal and Paternal Effects on Development	BDR 72 (4); Read pgs. 19-21, 60-63, and 67-71 in Primer
Apr 21	Proteomics and Microarray	BDR v. 78 (2); Read pgs. 27-31 and 54-59 in Primer

DATE	TOPIC	ASSIGNMENT
Apr 23	In-class Paper Presentations	
Apr 28	In-class Paper Presentations continued	Last Class Day for Tu/Th

**Other dates:** April 30: Last class day but Monday schedule  
May 1: Reading Day  
May 5: Final Exam 3:30 –6:30 pm

### Course Policies:

**Attendance:** Regular attendance is required of all students at all classroom sessions. In the event of your absence, you are held responsible for all material covered or assigned during class. Please notify Dr. Smith in advance, if you will be absence.

**Assignments:** Handouts and assigned readings will be announced during class at various times during the semester. You are expected to read all materials and turn in assignments by the due date.

**Grades:** Grades will be based on the projects that are due throughout the semester, class presentations and participation, and the final paper.

50% - Articles and in-class discussion  
Selection and presentation of journal articles  
Discussion of journal articles

50% - Review article –  
20% Drafts  
20% Final review paper  
10% In-class presentation of review paper

**For Review Paper:** Jan 29- Topics due  
Feb 5- Preliminary outline due  
Feb 19- Detailed outline due  
Mar 5- Rough 1<sup>st</sup> draft due  
Apr 2- Final draft due  
Apr 21- Final review paper due

**Department of Environmental Health Science  
College of Public Health  
University of Georgia**

**EHSC 2020  
Orientation to Environmental Health Science  
Spring Semester 2009 Syllabus**

**Course Information**

Instructor: Denita Williams  
Office Location: 200 Environmental Health Science Bldg.  
Phone: (706)542-7473 (lab) OR (803)378-3880 (mobile)  
E-mail: [williamd@rx.uga.edu](mailto:williamd@rx.uga.edu)  
Office Hours: Monday 11:00-12:00, or by appointment

**Course Meeting Time and Location**

Building: Environmental Health Science  
Room: Room 101  
Day: Mondays  
Time: 10:10 - 11:00 am

**Textbooks and Other Required Course Material**

There is no required text for this course.

**Course Description**

Seminars focusing on current topics in environmental health science, including environmental protection, industrial hygiene, toxicology, risk assessment, and public health.

**Course Learning Objectives**

This course is intended for students who are majoring in Environmental Health Science or non-majors who are interested in learning more about the Environmental Health Science field. Upon completion of the course, the students should be able to:

- Formulate questions and participate in class discussions on topics presented by professionals in the various fields of Environmental Health Science.
- Discuss current Environmental Health topics.
- Describe various roles and career pathways of an Environmental Health Scientist in today's society.

## Course Requirements for Grading Purposes

**1) Mandatory attendance!** Roll will be taken at the beginning of each class. Each absence will result in a reduction of 1 letter grade (i.e., from “A” to “B”). Excused absences will be noted only if accompanied with written documentation from an appropriate professional such as the health clinic or a medical professional. Please give instructor sufficient prior notification of any excused absences. Final decisions concerning excused/unexcused absences will be determined by the instructor.

**2) Tardiness:** As tardiness is disruptive to the class as well as the guest lecturer, two late entries into the class will be considered one unexcused absence and will result in a deduction of one letter grade.

**3) Class Participation:** Each student is to formulate two questions regarding each lecture. Although each question may not be asked to the presenter, they must all be turned in to the instructor at the end of each class session.

## Topical Outline

Topics covering an array of environmental issues will be covered weekly by guest lectures from experts in the field.

## Grading Policy

Grades will be assigned for attendance and class participation. If questions are not received by the instructor at the end of each meeting session, you will be counted as absent for that day and subsequently receive a letter grade reduction.

## Make-Up Policy

There are no make up options for this course

## Attendance Policy

Attendance is mandatory. See above for handling of excused absences.

## 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.*

A link to more detailed information about academic honesty can be found at:  
<http://www.uga.edu/ovpi/honesty/acadhon.htm>

**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.*

<b>Tentative Schedule</b>
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<b>Date</b>	<b>Class Activity</b>
01/12/09	Organizational Meeting
01/19/09	Martin Luther King Day (No Class)
01/26/09	Graduate Student Panel (Arena Richardson, Sheppard Martin, Hongbo Ma, Carrie Futch, Suzie Baird and Kevin Horton)
02/02/09	Mrs. Suki Janssen
02/09/09	Mrs. Ashley Wells
02/16/09	Endnote Training Session (Ian Thomas)
02/23/09	Mr. Greg Bell (Environmental Safety Division—UGA)
03/02/09	Dr. Anne Marie Zimeri
03/09/09	Spring Break (No Class)
03/16/09	Dr. Erin Lipp
03/23/09	Dr. Travis Glenn
03/30/09	Mr. Bill Cosgrove
04/06/09	Dr. Ronald Riley
04/13/09	Dr. Luke Naehar
04/20/09	Dr. Tippit
04/27/09	Guest Presenter
04/30/09	Last Day of Class (Question and Answer Session/Review Grades)

**Department of Environmental Health Science  
College of Public Health  
University of Georgia**

**EHSC 3800  
Environmental Health Science Seminar  
Spring 2009 Syllabus**

**Course Information**

Instructor: Denita Williams  
Office Location: 200 Environmental Health Science Bldg.  
Phone: (706)542-7473 (lab) OR (803)378-3880 (mobile)  
E-mail: [williamd@rx.uga.edu](mailto:williamd@rx.uga.edu)  
Office Hours: Fridays 11:00-12:00, or by appointment

**Course Meeting Time and Location**

Building: Environmental Health Science  
Room: Room 101  
Day: Fridays  
Time: 10:10 - 11:00 am

**Textbooks and Other Required Course Material**

There is no required text for this course.

**Course Description**

Selected topics in Environmental Health. Papers to be presented by students.

**Course Learning Objectives**

This course is intended for seniors. Upon completion of the course, the students will be able to:

- Conduct a literature review concerning any current Environmental Health Science topic.
- Write a detailed abstract concerning a current Environmental Health Science topic.
- Prepare and deliver an oral scientific presentation using Microsoft PowerPoint.
- Evaluate presentations, including abstract content and oral presentations of fellow classmates.
- Formulate questions and participate in class discussions on Environmental Health Science topics presented by peers.

## Course Requirements for Grading Purposes

**1) Mandatory attendance!** Roll will be taken at the beginning of each class. Each absence will result in a reduction of 1 letter grade (i.e., from “A” to “B”). Excused absences will be noted only if accompanied with written documentation. Please give instructor sufficient prior notification of any excused absences. Final decisions concerning excused/unexcused absences will be determined by the instructor.

**2) Presentations:** Each student will make two presentations during the semester. Each presentation should last 10-12 minutes, followed by a 3-5 minute period for questions.

**3) Seminar topic:** Each student will present a seminar on some topic in environmental health. The presentation should include a review of the literature pertaining to the subject or a review of a current journal article on the subject. Students must submit their proposed seminar title to the instructor by the assigned date, and the topic must be approved by the instructor.

### **4) Required materials:**

**a. Abstract:** Seminar speakers must submit a 275-300 word abstract to the instructor by 5pm on the Tuesday prior to their seminar. Copies of the abstracts must be available to the class and EHS faculty 3 days before the seminar. Abstracts should be placed in EHS main office by noon on the Wednesday prior to seminar. It will be the student’s responsibility to distribute the abstract after obtaining approval from the instructor.

**b. Visual aids:** The use of computer-generated visual aids is recommended for each presentation. Speakers should prepare slides or overheads using a presentation graphics program such as PowerPoint or Freelance Graphics. During the presentation, visual aids can be shown using an overhead projector, a slide projector, the computer projection system, or a combination of the media. Each student is responsible for reserving and setting up any necessary equipment prior to his/her seminar. Reservations for computers, etc should be made with Ms. Ella Willingham.

**c. Bibliography:** On the day of the presentation, each student must turn in a bibliography citing all reference materials used for the presentation. A minimum of 5 sources from the scientific literature must be used for each presentation. The following journals may be of interest: Environmental Health Perspectives, Science, Nature, and Science News. Reputable news media such as Newsweek, Time, AJC, etc. can be used if supported with scientific articles. The following websites may aid in your seminar preparation:

<http://www.uga.edu/honors/curo/symposium/index.html>

[www.scholar.google.com](http://www.scholar.google.com)

[www.ncbi.nlm.nih.gov/entrez/query.rcgi](http://www.ncbi.nlm.nih.gov/entrez/query.rcgi)

[www.libs.uga.edu](http://www.libs.uga.edu)

**5) Reviews:** Each presentation will be evaluated by the instructor and 4 student reviewers. Students are responsible for asking at least 1 question per presentation. Review forms are available on the day of the seminar and must be turned in to the instructor by 12 noon on the Tuesday following the presentation.

### **Topical Outline**

Weekly seminar topics on environmental health issues will be guided by student interest

### **Grading Policy**

Grades will be based on student presentations (75% based on instructor's and peer reviewers' comments) and class participation, including written reviews and questions asked.

### **Make-Up Policy**

There are no make up options for this course

### **Attendance Policy**

Attendance is mandatory. See above for handling of excused absences.

### **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.*

A link to more detailed information about academic honesty can be found at:  
<http://www.uga.edu/ovpi/honesty/acadhon.htm>

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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.*

<b>Tentative Schedule</b>
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<b>Date</b>	<b>Class Activity</b>
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01/09/09	Organizational Meeting
01/16/09	Prepare for presentations (No Class)
01/23/09	Prepare for presentations (No Class)
01/30/09	Student Presentations
02/06/09	Student Presentations
02/13/09	Student Presentations
02/20/09	Student Presentations
02/27/09	Student Presentations
03/06/09	Student Presentations
03/13/09	Spring Break (No Class)
03/20/09	Student Presentations
03/27/09	Student Presentations
04/03/09	Student Presentations
04/10/09	Student Presentations
04/17/09	Exit Survey (Seniors)
04/24/09	Last Day of Class
05/01/09	Reading Day (No Class)

**EHSC 6400**  
**Environmental Issues in the Developing World**  
**Spring 2009 Syllabus**

**Department of Environmental Health Science**  
**College of Public Health**

**Course Information**

Instructor: Dr. Marsha Black  
Office Location: 148 Environmental Health Science Bldg.  
Phone: 706-542-0998  
Email: [mblack@uga.edu](mailto: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: 3:30-4:45 pm

**Textbooks and Other Required Course Material**

Required reading materials will be emailed to each member of the class as a PDF file.

**Course Description**

Study of environmental issues in developing countries, including water, soil, and air contamination resulting from human impacts and industrial development. Strategies to mitigate or manage contamination issues will also be discussed.

**Course Learning Objectives**

- Identify key environmental concerns of selected developing countries, focusing on contamination of water, soil and air from traditional land use practices through impacts of industrialization.
- Know the environmental laws and regulations of select developing countries and their effectiveness in regulating pollution.
- Identify specific environmental issues of selected countries and develop cost-effective pollution prevention and remediation strategies that are appropriate for each country's economy and culture.

**Course Requirements for Grading Purposes**

Grades will be assigned on a point system, to include quiz scores, leading and participation in discussions, final exam scores and presentation scores (graduate students only).

**Quizzes (100 points):** A total of 6 quizzes will be given at the beginning of class (15 minute duration) on each discussion day (Jan. 29; Feb. 12, 24; March 17, 31; and April 16). The lowest quiz grade will be dropped when calculating the final grade.

**Discussion of readings (25 points):** The class will be divided into groups who will lead paper discussions on the discussion days (see above for dates). Two articles that relate to the current topic will be discussed on each day. One paper will be chosen by the instructor; the other will be chosen by the group and distributed to the class by the class date before the discussion day. All members of the group must participate in leading the discussions. Peer grades (100% scale) will be solicited following each group discussion date and individual scores will be adjusted by that average grade.

**Participation (25 points):** Class participation and attendance during discussion and special presentation days (graduate and guest lectures) will be graded. More than one unexcused absence on these days will result in the loss of 5 points/day.

**Final Exam (100 points):** The final exam will be a take-home exam. It will be given to students on April 21. Answers should be typed and turned in to Dr. Black's office by NOON on the scheduled final exam date (May 7, 2009). The exam is open-book and for each question, a minimum of two journal sources must be used. Please cite references used in your answers in CBE name-year format. Format instructions and examples are located at <http://www.wisc.edu/writing/Handbook/DocCBE.html>. Treat all journal articles available in electronic format as a print journal article – no internet address is necessary, as long as the year, volume# and page numbers are available. If the article is an internet-only preprint, identify the DOI number. Internet sources are NOT allowed, except for official government sites. Please note that the exam may not be discussed with others.

**Presentation (25 points-- Graduate students only):** Each graduate student will research and give a 30 minute presentation (use of PowerPoint is required) on an environmental issue in a developing country that was not previously discussed by the instructors or guest lecturers. Include in the presentation the political and cultural framework that has shaped the issue in that country, its past and current status, in addition to details on the issue.

<b>Graduate Students</b>	<b>Points</b>
Quiz grades (7 of 8 quizzes @ 20 points/quiz)	100
Discussion grade (leading) x Group % grade	25
Participation during class discussions	25
Presentation	25
Final exam	100
Total points	275

<b>Grading Policy</b>
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Final grades will follow the scale: 90-100% A; 80-89% B; 70-79% C; 60-69% D; <60% F.

<b>Attendance Policy</b>
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Attendance is encouraged for all class dates and **REQUIRED for all discussion and special (guest lecture and graduate student) presentation days**. Roll will be taken on those days and participation grades will be docked 5 points per absence. Late arrivals will be counted as absent. A written doctor's excuse will be needed to be excused from any required class. Other potential excused absences should be discussed with the professor before class.

**Make-Up Policy**

There will be no make-up grades for quizzes. The lowest quiz grade will be dropped.

**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.

**Students with Disabilities**

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<b>Proposed Schedule</b>		
<b>Dates</b>	<b>Topic</b>	<b>Presenter(s)</b>
January 8	Introduction	Dr. Black
January 13	Video: Baraka ( <i>Note: Video lasts 1 h 40 min</i> )	
January 15	Discussion of environmental justice readings	Dr. Black
January 20	Development and deployment of innovative solutions at the bottom of the economic pyramid	Dr. William Kisaalita, Bio & Ag Engineering
January 22, 27	Eastern Europe/Former Soviet Bloc: Environmental quality and the transition to EU membership	Dr. Black
January 29	Discussion of readings; Quiz 1	Group 1
February 3,5	China: Rapid industrialization – impacts on water quality, use and management	Dr. Black
February 10	Human Health Issues in China	Dr. J.S. Wang, EHS
February 12	Discussion of readings; Quiz 2	Group 2
February 17, 19	The Aral Sea: Post-Soviet central Asia and transnational water issues	Dr. Black
February 24	Discussion of readings; Quiz 3	Group 3
February 26	Environmentally-induced human health issues in Uganda	Dr. Chris Whalen, Epidemiology/Biostat
March 3, 5	Ethiopia: Poverty, famine and environmental health ramifications	Dr. Black
March 10, 12	<i>Spring Break – No Class</i>	
March 17	Discussion of readings; Quiz 4	Group 4
March 19	Parasitic diseases that result from environmental issues in the developing world	Dr. Dan Colley, Ctr. Tropical and Emerging Global Diseases
March 24, 26	Vietnam: Ancient land, emerging economy, legacy from ancient and modern wars	Dr. Black
March 31	Discussion of readings; Quiz 5	Group 5
April 2	Air pollution in Vietnam	Dr. Tham Hoang, Florida Intl. University
April 7, 9	Peru: Mining activities - economic and environmental implications	Dr. Black
April 14	Cooking stove-related indoor air pollution in the developing world	Dr. Luke Naeher, EHS
April 16	Discussion of readings/Quiz 6	Group 6
April 21	Guest Speaker: Wildlife and conservation issues in Bulgaria <i>Final take home exam will be handed out</i>	Dr. Sarah Schweitzer, Warnell Sch. Forestry and Natural Resources
April 23	Graduate student presentations	
April 28	Open/Wrap up	Dr. Black
May 7	Take-home exam due at 3:30 pm	
<b>General Disclaimers</b>		

The course syllabus and proposed schedule are general plans for the course; deviations announced to the class by the instructor may be necessary.