INTRODUCTION TO ENVIRONMENTAL HEALTH
Fall 2012, Course: HEHS590
Thursday, 5:30 P.M. to 8:20 P.M.,
East Campus George Education Center (GEC) Classroom 4 (C4)

Course Co-Directors:
- Michael S. Bloom, Ph.D, MS  Assistant Professor, Departments of Environmental Health Sciences and Epidemiology and Biostatistics, University at Albany School of Public Health, GEC Rm. 157 (in the Dept. of Epidemiology & Biostatistics); (518) 473-1821, mbloom@albany.edu;
  - Office hours, Wednesdays, 12:00-2:00, GEC Rm. #157 and by appointment.
- Ramune Reliene, Ph.D, MS Assistant Professor, Department of Environmental Health Sciences and Cancer Research Center (CRC), University at Albany School of Public Health, CRC Room 310; (518) 591-7152, rreliene@albany.edu;
  - Office hours, Wednesdays, 2:00-4:00, CRC Rm. #216 and by appointment.

Teaching Assistant:
- Chibuzo Ilonze, MBBS, MPH Doctoral Student, Department of Environmental Health Sciences, University at Albany School of Public Health, GEC Rm. 144 (in the Dept. of Epidemiology & Biostatistics); cilonze@albany.edu;
  - Office hours, Tuesdays, 10:00-12:00, GEC Rm. #144 and by appointment.

Text Book:
- Available at the University at Albany Bookstore (located in the Student Center on the Uptown Campus);
- Available at Mary Jane Books on 215 Western Ave. Albany, NY 12203-1273 (518) 465-2238;
- A single copy has been placed on restricted reserve at the Dewey Library on the Downtown campus. Additional required readings will be distributed electronically via Blackboard.

Course Description:
This course is designed to provide you an overview of the key areas of environmental health and to prepare you to succeed in more advanced topic area courses offered at the UAlbany School of Public Health (SPH). Though the course will be conducted using a ‘traditional’ didactic format, the Blackboard Learning System will be employed to augment this class; so be sure to explore the course Blackboard website. Lecture notes, required readings not found in the textbook, and additional supplemental readings can be found on the Blackboard website. Using the perspectives of the population and community, we will address issues pertinent to the development of environmental health problems. During our exploration of myriad topics comprising the environmental health sciences, we hope you will gain an appreciation for, and an understanding of the interaction of individuals and communities with the environment, the potential impact on health of environmental agents, and of specific applications of concepts of environmental health. We will address these issues.
Course Objectives:
Students who complete this course will be able to:
1. Discuss the history and definition of environmental health;
2. Discuss the association between population growth and dissemination of environmental pollutants;
3. Describe methods used in toxicology, epidemiology and risk assessment to evaluate environmental exposures and hazards;
4. Describe policies that have been developed to manage health risks associated with exposures to environmental hazards;
5. Identify chemical, physical, microbial and nano-agents that originate in the environment and can impact human health;
6. Describe specific applications of environmental health concepts to fields such as water quality, food safety, occupational health and injury control;
7. Demonstrate the identification, retrieval and synthesis of the peer-reviewed scientific literature related to an environmental health topic of choice.

Grades:
Your final course grade will be based on two exams, a class term paper, a homework assignment and class participation.

- **Mid-term Exam (30%)**: A written in class mid-term exam will cover the lecture and assigned reading material up to the date of the exam on October 18th.
- **Final Exam (30%)**: A final written in-class exam on December 13th will cover the lecture and assigned reading material after the mid-term exam.
- **Class Term Paper (30%)**: You will prepare a short term paper written on an approved topic, that you will submit to Blackboard by 5:00 PM on November 15th at the latest (you are encouraged to submit earlier). The topic will be submitted for approval using the Blackboard site by 5:00 PM October 4th at the latest. Late submissions will be penalized. You will lose credit if you do not follow the assignment instructions exactly. This paper is to be no less than ten pages and no more than 12 pages excluding the title page and reference list, double-spaced with 12 point Times New Roman font, 1” margins and numbered pages. You may incorporate figures or schematics in your manuscript but be sure to label and discuss in the text. Your first page should comprise your title, name and a capsule (a summary of your short paper not to exceed 50 words), followed by your text. Number pages consecutively beginning with the title page. A references section should follow your text and be formatted exactly according to the instructions provided in the document “Instructions for references in class paper” that can be found in the “Course Information” folder on the Blackboard site. You are expected to cite a minimum of 10 peer-reviewed primary-source manuscripts (web sites, newspapers, review papers, etc. do not count towards this total) however, more than this will be fine. Use Pub Med, Science Direct, SCOPUS, Google Scholar, or other search engines to identify relevant manuscripts. Also, the reference lists from reading assignments for this course may provide useful citations for your class paper. You can find links to peer-reviewed publications and to search engines for identifying peer-reviewed publications using the “Web links” tool on the Blackboard site. For those unfamiliar with the information resources available at UAlbany, the University Libraries will provide a literature resources seminar during class on 9/27.
Homework Assignment (5%): A homework assignment based on the manuscript by Navas-Acien et al., 2008 and the commentary by Kile & Christiani, 2008 will be assigned on September 20th. This assignment must be submitted to the Blackboard site by 5:00 PM on September 27th at the latest. Late submissions will be penalized.

Class Participation (5%): In class exercises will be assigned during the semester; participation & attendance will comprise 5% of the final course grade; there will be no ‘make-ups’ offered for missed in class exercises. Part of your class participation grade entails completion of a pre-course and a post-course competencies evaluation. To find the competencies evaluations you must login to the “SPH Core-Competencies Assessments” Blackboard course and select the “EHS 590 - Pre-Course Competencies Evaluation” or the “EHS 590 - Post-Course Competencies Evaluation.” The evaluations are designed to assess your acquisition of critical competencies/information during this course. Completion of the pre-course and post-course evaluations are a requirement; however, your grades on these assessments DO NOT COUNT TOWARD YOUR COURSE GRADE (i.e., you receive credit for simply completing the assessment irrespective of your performance). Completion is very important as these data are used for UAlbany SPH accreditation purposes. The evaluations will be administered at the beginning and end of the course and the change in performance for the class as a whole will be evaluated; data will only be reported in aggregate form and so your individual performance will not be identified. For each, there are 15 questions and there is a 15 minute time limit for completion. To receive credit, the Pre-Course evaluation must be completed by Friday September 7th at 5 PM at the latest. To receive credit, the Post-Course evaluation must be completed by Thursday December 13th at 5 PM at the latest.

Final Course Grades:
A (95-100%); A- (90-94%); B+ (86-89%); B (81-85%); B- (76-80%); C+ (71-75%); C (66-70%); C- (61-65%); D (50-60%); E (<50%).

Course Policies:
If your schedule does not permit you to be present for one of the exams be sure to speak with the instructors as soon as possible so that we can make alternate arrangements.

There is NO EXTRA CREDIT available for this course.

All students need to be aware of the University at Albany's standards of conduct as described in the booklet Community Rights and Responsibilities. This document itemizes the standards related to academic dishonesty, provides complete definitions of each type of misconduct and summarizes the penalties for violations of academic integrity. Please familiarize yourself with the contents of this document. Should problems arise during this course, a lack of knowledge of the content of this document cannot be used as a defense in determining the outcome of possible violations of the standards. I take academic integrity and honesty very seriously; a ZERO TOLERANCE POLICY with regard to violations of academic integrity will be strictly enforced. Any violation of UAlbany’s Standards of Academic Integrity, including plagiarism, cheating, multiple submission, sabotage, etc. as described in Appendix C of the Community Rights & Responsibilities (see course information for a copy) will result in a failing grade for the course with no opportunity for withdrawal, and referral to the UAlbany judicial system.
Course Schedule: Class Topics, Reading Assignments, & Exams

The proposed course outline is subject to change contingent on circumstances (Assignment due dates & exams are in bold)

<table>
<thead>
<tr>
<th>Topic</th>
<th>Date/s</th>
<th>Speaker</th>
<th>Reading Assignments</th>
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<tbody>
<tr>
<td>Toxicology &amp; Risk Assessment</td>
<td>8/30</td>
<td>Reliene</td>
<td>Friis Chapter 3</td>
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<tr>
<td>Introduction to Environmental Health &amp; Policy</td>
<td>9/6</td>
<td>Bloom</td>
<td>Friis Chapters 1 &amp; 4</td>
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<tr>
<td>Epidemiology &amp; Exposure Assessment</td>
<td>9/13</td>
<td>Bloom</td>
<td>Friis Chapter 2 &amp; Hill, 1965</td>
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<td>Literature Research Tutorial* &amp; Elements &amp; Metals Pt. 2 &amp; Review homework assignment</td>
<td>9/27</td>
<td>Kaczor* &amp; Bloom</td>
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<td>Organic Compounds</td>
<td>10/4</td>
<td>Bloom</td>
<td>Friis, Chapter 7</td>
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<td>Fukushima Disaster* &amp; Ionizing &amp; Non-ionizing Radiation</td>
<td>10/11</td>
<td>Hosler* &amp; Reliene</td>
<td>Friis, Chapter 8</td>
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<td>Midterm Exam</td>
<td>10/18</td>
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<td>Midterm Exam Review; Air Quality</td>
<td>10/25</td>
<td>Bloom</td>
<td>Friis Chapter 10</td>
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<tr>
<td>Water Quality &amp; Food Safety</td>
<td>11/1</td>
<td>Bloom &amp; Reliene</td>
<td>Friis Chapters 9 &amp; 11 &amp; Schnoor, 2010</td>
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<td>Vector-borne &amp; Zoonotic Disease</td>
<td>11/8</td>
<td>Backenson* &amp; Reliene</td>
<td>Friis Chapter 5 &amp; Gubler, 1998 &amp; Rosenberg and Beard, 2011</td>
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<td>Waste Management</td>
<td>11/15</td>
<td>Bloom</td>
<td>Friis Chapter 12</td>
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<td>Thanksgiving Break</td>
<td>11/22</td>
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<tr>
<td>Injury Control &amp; Nanotoxicology</td>
<td>11/29</td>
<td>Reliene</td>
<td>Friis Chapter 14 &amp; Bystrzejewska-Piotrowska et al., 2009</td>
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<td>Occupational Health &amp; Hygiene</td>
<td>12/6</td>
<td>Bloom</td>
<td>Friis Chapter 13</td>
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<td>Final exam</td>
<td>12/13</td>
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* Guest speaker.

**Important Due Dates for Class Assignments:**

- 9/7: Complete pre-course competences evaluation (due at 5:00 PM);
- 9/27: Submit homework assignment using Blackboard (due at 5:00 PM);
- 10/4: Submit title for class paper using Blackboard (due at 5:00 PM);
- 10/18: Midterm exam;
- 11/15: Submit class paper using Blackboard (due at 5:00 PM);
- 12/13: Complete post-course competences evaluation (due at 5:00 PM);
- 12/13: Final exam.
Potential Topics for Class Term Papers: (NOTE: these are just some ideas for appropriate topics, you are encouraged to come up with a topic of your own as well; whichever you decide be sure to focus on the environmental health aspects of the issue):

Air fresheners – are they toxic?
Aluminum toxicity
Antibiotic resistance
Antibiotics in food animals
Are fish safe to eat?
Artificial food colors and flavors – what do they do to you?
Arsenic in drinking water
Barbequed foods – dangerous?
Beach water quality – past, present, future
Biodiesel – good or bad?
Bisphenol A – good or bad?
Breast feeding, risks vs. benefits
Brownfields - problems and policy
Cadmium and human health
Carbon sequestration
Causes of autism
Causes of infertility
Cholera
Chromium dangers in industry and as a dietary supplement
Coal and pollution related to it
Community design and its impact on exercise.
Deforestation of Sub-Sahara Africa
Depleted uranium – how dangerous?
Desalinization
Desertification and public health
Dioxin in food
Early onset of puberty – causes and effects
Ebola in Sub-Sahara Africa
E. Coli 0157:H7
Effects of ephedrine on athletes
Environmental endocrine disruptors
Environmental causes of cardiovascular disease
Environmental causes of diabetes
Environmental causes of obesity
Environmental causes of violence
Environmental exposures and the immune system
Environmental justice and hazardous wastes
Epigenetics and environmental exposures
Ethanol-based fuels
Farm injuries - how to prevent them
Fetal alcohol syndrome
Fetal nicotine syndrome
Fish consumption – risks vs. benefits.
Fluoride in drinking water - good or bad?
Food irradiation – risks vs. benefits
Genetically modified foods - are they dangerous?
Green chemistry – what is it really?
Growth hormone in milk
Health effects of 50-60 Hz Electromagnetic fields.
Health effects of cell phone use
Health effects of chlorination by-products
Health effects of depletion of the ozone layer
Health effects of dry cleaning fluids
Health effects of global warming
Health effects of the Gulf oil spill
Health effects of high-sulfur coal use
Health effects of use of marijuana
Health effects of mercury-based dental amalgams
Health effects of methylene chloride
Health effects of methyl mercury
Health effects of molds
Health effects of polybrominated flame retardants
Health effects of perchlorate
Health effects of pesticide use in food production
Health effects of trichloroethylene
Health effects of UV radiation
Health effects of vinyl chloride
Health effects of Russian fires
Health effects of the Gulf oil well disaster
Health hazards from consumption of raw shellfish
Herbal & dietary supplements - should they be regulated?
High-level radioactive waste - policy and problems
Incineration of municipal waste
Fukushima –health effects
Lathyrism
Local and global health effects of Chernobyl
Low-level radioactive waste - policy and problems
Mad Cow Disease
Mobile phones and brain cancer
Mold – Health effects and how to control
MTBE - good or bad?
Nanotoxicology
Noise pollution
Omega-3 fatty acids – are they really good?
Organic Food - Is it Healthy?
Organochlorines and breast cancer.
Pesticides in schools
Phthalates – good or bad?
Prevention of tropical water-transmitted parasitic diseases
Prion Diseases - Transmission and mechanisms
Rabies
Radon exposure
Relationship of environmental exposure & breast cancer
Renewable fuels – risks vs. benefits
SARS – a vector-borne disease
Second-hand Smoke
Sick building syndrome
Teflon and Scotchgard - Are they dangerous?
Third hand smoke – how bad?
Use of DDT vs. Malaria - should use continue?
West Nile virus and pesticide spraying
Which is worse, cockroaches or pesticides?