

Course Title: *Environmental and Occupational Toxicology, Spring 2017*

Course Number: *ENOH 0594*

Course Location: *Room 1A, School of Public Health Building, Piscataway*

Course Date & Time: *Tuesday, 6:00 to 9:00 pm*

Course Instructor: *Jun-Yan Hong, PhD, Professor, Rutgers (SPH-ENOH), Room 385, SPH Bldg, 732-235-2845, hongju@sph.rutgers.edu*

Office Hours: *By Appointment Only*

Course Assistant:

Required Course Text: *Casarett & Doull's Essentials of Toxicology*

Additional/Supplemental Readings/Resources: *Supplemental readings related to course topics and subtopics will be assigned during class.*

Course Description: *This course will introduce students to the basic language and principles of toxicology.*

Selected Department Competencies Addressed:

For MPH students

- Describe the major environmental health problems to the general public as well as specific communities within that population;
- Explain the basic mechanism of toxicology and dose-response regarding environmental toxicants;
- Describe the federal and state regulatory programs that relate to environmental (community) and worker (occupational) protection;
- Develop a testable model of environmental exposures (one or more agents) and adverse health outcomes (causing injury, disability, other measure of morbidity or mortality); and
- Specify current environmental risk assessment approaches and methods for a particular hazard or risk in a community.

For PhD students

- Design a testable hypothesis and execute research activity to investigate the effects of a toxicant, or toxin, or hazard event in a community;
- Explain the importance of differences of susceptibility and vulnerability to environmental toxicant/toxins based upon age, gender, race, ethnicity, genetics and socioeconomic status in different populations;
- Provide an informed expert opinion to government and/or community leaders regarding the extent or level of risk associated with a particular environmental or occupational hazard or condition;

- Be able to teach a course in Environmental and Occupational Health; Obtain grant funding from private and/or governmental agencies to initiate an ENOH research program;
- Explain basic principles in environmental and occupational health sciences including toxicology, quantitative risk assessment, epidemiology, and exposure science; and
- Develop and/or apply novel and cutting-edge research methods in the laboratory and/or in the field.

Please visit the Department webpages on the School of Public Health's website at <http://sph.rutgers.edu/> for additional competencies addressed by this course for other degrees and departments.

Course Objectives: By the completion of this course, students will be able to:

- Understand the basic concept of toxicology (e.g., dose response, thresholds);
- Understand the major dynamic processes (e.g., absorption, metabolism, excretion);
- Understand the mechanisms by which xenobiotics damage living systems at the molecular, cellular, tissue and organ levels;
- Understand the major categories of toxicological damage on an organ-system basis and
- Understand the major classes of toxic substances and the manner in which they produce damage

Course Requirements and Grading:

- *In addition to attending the lectures and taking two examinations, each student is required to present a literature review on a specific environmental/occupational health issue. The topics will be assigned after the first examination. The presentation will include a 20-min oral presentation. **For PhD students, submission of an additional 10-page report with original references at the end of course is required.***

- **Grading**

1. Examination #1	35 pts.
2. Examination #2	35 pts.
3. Project & Presentation	20 pts
4. Participation in classroom discussion	10 pts
Total:	100 pts.

- **Grades**

- A=4.0, >95; A-=3.75, 90-94; B+=3.5, 85-89; B=3.0, 80-84; C+=2.5, 75-79;
- C=2.0, 70-74; F=0, <70

Course Schedule: *Include week by week listing of each class session (copied below)*

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<u>Subject</u>	<u>Date</u>
Introduction to Principles of Toxicology	1/17
Mechanism of Toxicity	1/24
Metabolism and Toxicokinetics	1/31
Carcinogenesis/Genetic Toxicology	2/07
Toxic Response of the Liver and Kidney* (Dr. Michael Gochfeld)	2/14
Toxic Response of the Immune System and Lung	2/21
Exam I	2/28
Developmental Toxicology	3/07
No Class (Spring Break, March 13 to March 19)	3/14
Toxic Response of the Nervous System	3/21
Risk Assessment and Regulatory Toxicology* (Dr. Mingzhu Fang)	3/28
Toxic Effects of Metals and Solvents	4/04
Toxic Response of the Skin* (Dr. Jeffrey Laskin)	4/11
Exam II	4/18
Student Paper Presentation	4/25
Student Paper Presentation	5/02

*guest lectures

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School of Public Health Honor Code: The School of Public Health Honor Code is found in the student bulletin (sph.rutgers.edu/academics/catalog/index.html). Each student bears a fundamental responsibility for maintaining academic integrity and intellectual honesty in his or her graduate work. For example, all students are expected to observe the generally accepted principles of scholarly work, to submit their own rather than another's work, to refrain from falsifying data, and to refrain from receiving and/or giving aid on examinations or other assigned work requiring independent effort. In submitting written material, the writer takes full responsibility for the work as a whole and implies that, except as properly noted by use of quotation marks, footnotes, etc., both the ideas and the works used are his or her own. In addition to maintaining personal academic integrity, each student is expected to contribute to the academic integrity of the school community by not facilitating inappropriate use of her/his own work by others and by reporting acts of academic dishonesty by others to an appropriate school authority. It should be clearly understood that plagiarism, cheating, or other forms of academic dishonesty will not be tolerated and can lead to sanctions up to and including separation from the Rutgers School of Public Health.

Policy Concerning Use of Recording Devices and Other Electronic Communications Systems:

When personally owned communication/recording devices are used by students to record lectures and/or classroom lessons, such use must be authorized by the faculty member or instructor who must give either oral or written permission prior to the start of the semester and identify restrictions, if any, on the use of mobile communications or recording devices.

Acknowledge (Print name)

Signature and Date