ENVIRONMENTAL CHEMISTRY
EOHS440 (21584) / CME411 (23669), 3 Credit

Lecture: Tuesday and Thursday 3:00 – 4:30 pm, SPHW 121
Instructor: Dr. An Li.
Office: Rm 304, SPHW. 2121 W. Taylor Street.
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Office Hours: Tuesday and Thursday 1:00 - 2:30pm, or by appointment

Objective: Students are prepared for further study in their areas and for advanced environmental chemistry courses by learning the basic chemistry concepts related to the naturally-occurring and pollution-related processes in air, water, and soil. Major organic and inorganic pollutant groups will be described. Quantitative calculations will be involved. Through this course, students will understand, from a chemistry viewpoint, the major environmental issues the world is facing and our efforts to solve the problems. The chemistry concepts learned and/or refreshed will help in research and practice in areas such as exposure assessment, industrial hygiene, environmental engineering and management, environmental quality control, etc.

Girard. Principles of Environmental Chemistry. 2nd Ed. Jones and Bartlett Publisher, Sudbury, MA. 2010.

Prerequisite: General Chemistry, or consent of the instructor

Homework: A homework set will be given each Thursday. It will be due on following Thursday. Each set will count for 20 pts. Three (3) points will be deducted if handed in late. No homework will be accepted one (1) week after the due date.

Grading: Homework: 200 (20 x 10)
Midterm Exam-1: 100 (Atmosphere)
Midterm Exam-2: 100 (Water)
Final Exam: 100 (Toxic substances)
Total: 500

(Note: All exams are close-book, 1 ½ hour, in-class)
A: ≥90%; B: 75-89%; C: 60-74%; D: <60%. (The scales are tentative.)

Website: http://blackboard.uic.edu/
STUDENT RESPONSIBILITIES AND RESOURCES

Academic Integrity Statement

Academic dishonesty is an offense against the University and I am obligated to report any incident to the Associate Dean for Academic Affairs. Academic dishonesty includes (but is not limited to): cheating or assisting someone else in academic dishonesty, plagiarism, unauthorized possession of class materials (e.g., tests, reserve materials), and unauthorized changing of one’s grade. Students are encouraged to consult their instructor on rules for proper citation, or website sources such as http://www.library.uiuc.edu/learn/handouts/researchprocess.html#citing%20sources.

Two excellent sources which define plagiarism and how to avoid it may be found at: http://www.indiana.edu/~wts/pamphlets/plagiarism.shtml and http://owl.english.purdue.edu/owl/resource/589/01/

You are also strongly encouraged to review UIC’s Guidelines on Academic Integrity at http://www.uic.edu/depts/dos/studentconduct.html and the School of Public Health’s tutorial at http://publichealth.uic.edu/currentstudents/sphacademicintegritytutorial/

Disability Statement

If you need accommodations because of a disability and are registered with the Office of Disability Services at UIC, if you have emergency medical information to share with me, or if you need special arrangements in case the building must be evacuated, please inform me immediately. Please see me privately after class, at my office, or email me.

Mutual Tolerance and Respect Statement

Public health deals with controversial issues from multiple perspectives and consideration of these issues may cause disagreements among us or may evoke strong personal feelings, depending on our individual experience, histories, identities and worldviews. Therefore, in all of our interactions and communications, it is important that we strive to have mutual respect and tolerance for one another and for any course guests and members of the community with whom we come into contact. If you feel you have been offended by any content or interactions, you are encouraged to discuss this with the instructor or another faculty member.
CHEMISTRY FOR ENVIRONMENTAL PROFESSIONALS
Outline of Lectures
(tentative)

Week 1  Introduction
Chemistry review I – math, units, gas laws
Chemistry review II - thermodynamics

Week 2  Atmosphere
Chemistry review III - kinetics

Week 3  Stratospheric chemistry

Week 4  Aerosols
Tropospheric chemistry

Week 5  Greenhouse effect and global warming

Week 6  Exam 1
Water

Week 7  Gases in water and acid rain
Organic matter in water

Week 8  Metals in water
Drinking water

Week 9  Introduction to wastewater treatment
Field trip: Wastewater management in Chicago

Week 10 Exam 2
Toxic metals

Week 11 Organic Pollutants - PCBs, PBDEs, PCDD/Fs
Introduction to transport and transformation

Week 12 Pesticides
Radioactivity and nuclear energy

Week 13 Alternative energy sources

Week 14 Exam 3
Week 15
Week 16