

## Syllabus CHEM 312/455 Spring Semester 2010

### *Environmental Chemistry*

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Description: Environmental Chemistry is a very comprehensive topic and we will be able to discuss only the main concepts and some selected topics of current interest during the semester. The major emphasis will be on understanding the three environmental compartments –Atmosphere, Hydrosphere and Lithosphere - and their interconnections as well as on linking these to energy, pollution and conservation.

#### *Selected Topics:*

General Introduction about the environment, its compartments and chemical behavior

Hydrosphere: - Natural water: Oceans  
- Natural water: Fresh water  
- Water quality and pollution  
- Water conservation

Lithosphere - Soil and sediments  
& Geosphere: - Buffer and cleaning capacity of soils  
- Waste and waste management  
- Remediation and recycling

Environmental - Persistent organic pollutants (POP's)  
Pollutants: - Hg, As

Atmosphere: - Atmospheric System  
- Stratospheric chemistry  
- Tropospheric chemistry and air pollution

Climate - Global climate change and greenhouse gases  
Change - Carbon Cycle

Energy: - Fossil fuel and its impact on the environment  
- Alternative energies and their impact on the environment

Class procedure:

Classes are meeting **Monday, Wednesday, and Friday from 8:15-9:05am in Flanner Hall 105**. **Three in-class exams** are scheduled for the semester (**February 15, March 19, April 14**). The average of the two top ranking exams will be counting 40% of the total grade. There will be **no make-up** exams. A midterm paper (due on **March 5, 2010**) on a given topic will count 20% of the grade and the final exam paper on a given topic will also count 40% of the grade. The final exam paper will be due on **April 30, 2010**. Details regarding all exams will be announced in class. **Office hours** are scheduled for **Monday and Wednesday from 9:30am to 10:30am or by appointment**. Course material will be available on-line via blackboard.

Grading:

Average of the top two in-class exams	40%
Midterm paper (due March 5, 2010)	20%
Final exam paper (due April 30, 2010)	40%

Grading Scale:

A:	93% -100%	A-:	87- 92%		
B+:	83-86%	B:	78-82%	B-:	74-77%
C+:	69-73%	C:	65-68%	C-:	61-64%
D+:	56-60%	D:	50-55%		
F:	0 to 49%				