New Course: Environmental Chemistry
SWES/ATMO/GEOS/HWR 340
Course Syllabus: Fall 2012

Instructor: Dr. Jon Chorover
Office: Gould-Simpson 808
Mailbox: 429 Shantz Building
Phone: 626-5635
e-mail: chorover@cals.arizona.edu

Office Hours: T,R 3-5 pm or by appointment

Class Meetings: T, R 9:30-10:45, Shantz 243E

Course Website: [http://d2l.arizona.edu/](http://d2l.arizona.edu/) (requires UANET ID and password)
Syllabus, Powerpoint lecture material and problem sets will be distributed using d2l.

Prerequisites: The course assumes a background in General Chemistry (e.g., CHEM 151/152).

Overall Course Objectives and Expected Learning Outcomes: This course is an introduction to the chemistry of the environment from the perspective of chemical equilibrium and kinetics. We will learn how to apply the tools learned in introductory chemistry coursework (CHEM 151/152 or equivalent) to describe and predict reactions and associated transformations that occur among molecules and phases in the Earth’s air, water and land environments. Consideration will be given to macroscopic, microscopic, molecular, and atomic perspectives. Course involves an interactive lecture format.

Required Text (Available at Arizona Bookstore):


Student Code of Academic Conduct:
It is expected that all students uphold the Student Code of Academic Conduct (ABOR Policy 5-308-E.10), which prohibits all forms of academic dishonesty, including, but not limited to: cheating, fabrication, facilitating academic dishonesty, plagiarism and threatening behavior. For further details, see [http://dos.web.arizona.edu/uapolicies](http://dos.web.arizona.edu/uapolicies) and [http://policy.web.arizona.edu/~policy/threaten.sthml](http://policy.web.arizona.edu/~policy/threaten.sthml)
• **Breakdown of Percentages for Final Grade:**

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Percentage</th>
<th>Final Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework</td>
<td>30%</td>
<td>A: 90-100</td>
</tr>
<tr>
<td>Midterm 1</td>
<td>20%</td>
<td>B: 80-89</td>
</tr>
<tr>
<td>Midterm 2</td>
<td>20%</td>
<td>C: 70-79</td>
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<tr>
<td>Final Exam</td>
<td>30%</td>
<td>D: 60-69</td>
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<td></td>
<td></td>
<td>E: ≤ 59</td>
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</tbody>
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- There will be no make-up exams except in cases where arrangements were made before the exam is given.

- All holidays or special events observed by organized religions will be honored for those students who show affiliation with that particular religion. Absences pre-approved by the UA Dean of Students (or Deans designee) will be honored.

• **General Lecture/Discussion Outline:**

1. Atmosphere:
   - Chemistry of stratosphere and troposphere
   - Urban and indoor atmospheres
   - Global climate
2. Hydrosphere:
   - Dissolved gases and solutes
   - Metals and metalloids
   - Organic matter, colloids and nanoparticles
   - Microbial catalysis
   - Water pollution
   - Wastewater treatments
3. Terrestrial environment:
   - Chemical rock weathering
   - Biogeochemistry of soils and aquifers
   - Natural and xenobiotic organics
   - Chemistry of solid waste

• **Special Needs and Accomodations:**

Students who need special accommodation or services should please contact the SALT (Strategic Alternatives Learning Techniques) Center for Learning Disabilities (SALT Center, Old Main PO Box 210021, Tucson, AZ 85721-0021, (520) 621-1242, FAZ (520) 621-9448 TTY (520) 626-6072), [http://www.salt.arizona.edu/](http://www.salt.arizona.edu/), and/or the Disability Resources Center, 1540 E 2nd Street, PO Box 210064, Tucson, AZ 85721-0064, (520) 621-3268, FAX (520) 621-9423, [http://drc.arizona.edu/](http://drc.arizona.edu/). *The need for accommodations must be documented by the appropriate office.*