Chemistry 100X: Chemistry in Complex Systems
UAF Course Syllabus
Summer 2012

Course: Chemistry in Complex Systems (CHEM F100X); 4 credits

Locations and meeting times:

  Lecture:    REIC 204; MWF 2:00 pm – 4:45 pm
  Lab:        REIC 245; TR 1:00 pm – 4:45 pm

Blackboard link: http://classes.uaf.edu

All course information, supporting documents, and exam scores for this course will be
maintained on the UAF Blackboard website. It is therefore important that you check the
site regularly for updates. Moreover, time-sensitive information and reminders will
occasionally be sent, so it is important to verify that your email address is correct and
current.

Instructor: Dr. Brian Edmonds
Office: Department of Chemistry and Biochemistry
        Reichardt Building (REIC)
        Room 180
Research: Arctic Health Research Building (AHRB), Room 290
Phone: (907) 474-6527
E-mail: bwedmonds@alaska.edu
Office hours: email for appointment
Preferred contact method: e-mail

Required course material:

  Text:  
  Title: Chemistry in Focus, 4th Edition (2009)
  Author: Nivaldo Tro
  Publisher: Brooks/Cole (Cengage Learning)
  ISBN:  0-495-60547-6 or 978-0-495-60547-8

  OWL homework account:
  You must set up an OWL account in order to complete the homework assignments. Go to
  http://www.cengage.com/owl/video/gettingstarted/ and watch the video for instructions on how to
  obtain an access code, register, and log in to the OWL site for this course. If you have any
  problems, contact the instructor (Edmonds) or OWL technical staff at

  Scientific calculator:
  You must have a calculator capable of scientific notation.

  UAF custom laboratory manual:
  Labs will be made available on Blackboard.
Course Description:
Fundamentals of chemistry with an emphasis on the role of chemistry in environmental and life systems. The role of feedback systems on chemical behavior is illustrated in atmospheric, aquatic, nuclear and nutritional systems.

Course Goals:
Students who successfully complete this course will have a basic understanding of the structure and reactivity of matter. Armed with fundamental concepts, students will gain an appreciation of the role of molecules in everyday life. A major goal of the course is to provide students with an understanding of the relationship between the physical and chemical properties of molecules and the roles that they play in biological and environmental systems.

Core Objective:
Chemistry 100 is part of the UAF Core Curriculum. “The overall goal of the Natural Sciences component of the Core Curriculum is to prepare students for lifelong learning in the natural sciences…” [Faculty Senate Guidelines, 1990]. To partially fulfill this objective, students will, in addition to the specific course coverage outlined above, receive specific instruction on the scientific method, the set of practices that scientists must follow to obtain a meaningful interpretation of their results. In addition, students will be given examples of the interplay between scientific knowledge and public policy throughout the course. The purpose of these examples is to encourage students to think about and comment on the impact of scientific knowledge on public policy. For example, how does the scientific literature concerning health effects of fluoridated water affect decisions to alter the fluoride content of municipal water?

Course Policies:
Attendance:
Students are expected to attend class and actively participate. Attendance will be assessed using traditional methods throughout the course.

Cell phones/Computers:
The use of cell phones during class is not permitted. Notebook computers may be used for taking notes. Any other use is prohibited.

Preparation: Students are expected to read the assigned sections of the textbook (see course calendar, below) prior to class.

Exams:
Five exams will be given (four midterms and a final). Makeup exams will be allowed only with pre-approval of the instructor or with an acceptable reason. Acceptable reasons for makeup exams include severe illness, family emergencies or other unavoidable events including dangerous weather conditions and car accidents. Exam format for makeup exams may be different from the original exam. Exams dates and times are posted on the course calendar.

Lab:
A detailed outline of policies pertaining specifically to the lab portion of the course can be found on Blackboard. Students must complete at least 6 labs to pass the course. Your overall lab grade will be determined from the top 8 labs (the lowest score will be dropped). Questions concerning the lab should be addressed to the lab TA or the laboratory coordinator, Emily Reiter (REIC, 194A; 474-6748; e.reiter@alaska.edu).
Grading:
Exam and lab scores will be posted on Blackboard. OWL homework scores are available on the OWL site (www.cengage.com/owl).

Final grades will be calculated as follows:
- Midterm exams I - IV: 300 pts (75 points for each exam)
- Final Exam: 75 pts (not cumulative)
- Sapling homework: 75 pts
- Lab write-ups/exercises: 100 pts

Letter grades will be assigned as follows:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>495 – 550</td>
</tr>
<tr>
<td>B</td>
<td>440 – 494</td>
</tr>
<tr>
<td>C</td>
<td>385 – 439</td>
</tr>
<tr>
<td>D</td>
<td>330 – 384</td>
</tr>
<tr>
<td>F</td>
<td>Less than 330</td>
</tr>
<tr>
<td>I</td>
<td>Failure to complete course requirements</td>
</tr>
</tbody>
</table>

Support Services:
Support can be obtained through the University of Alaska Library system, online resources, and the instructor. Additional services are available through Student Support Services (http://www.uaf.edu/sssp/) at UAF.

Disabilities Services:
We will work with the Office of Disabilities Services (http://www.uaf.edu/disability/) to provide accommodations for students with disabilities. If you have a disability and require special assistance, please contact the instructor as soon as possible. Students with disabilities must provide a written statement indicating any special requirements that will be necessary as early in the semester as possible (preferably within the first week).

Cheating/Academic Dishonesty:
The Chemistry & Biochemistry Department Policy on Cheating is: “Any student caught cheating will be assigned a course grade of F. The student’s academic advisor will be notified of this failing grade and the student will not be allowed to drop the course.” The Department considers performing unauthorized “dry labs” as cheating. Partnering during the lab is acceptable but lab reports must show your own calculations and ideas. Providing clicker responses for another student or asking another student to provide responses with your clicker are not permitted.

Amending this Syllabus:
The instructor may initiate changes to this syllabus subject to unanimous approval by the students. Any changes will be clearly communicated via email and posted on Blackboard.

The instructor reserves the right to make minor changes to the lecture schedule (attached), and also to make changes to the grading policy that are of benefit to ALL students enrolled in the course. Neither of these two types of changes is subject to student vote/approval.

Important Dates:
- Late registration deadline (last day to add classes) – Thursday, May 31
- Last day for 100% refund of tuition and fees – Thursday, May 31
- Last day for 50% refund of tuition only – Monday, June 4
- Last day for faculty- and student-initiated withdrawals (W grade appears on transcript) – Wednesday, June 20
<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic/Reading Assignment</th>
<th>Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>30-May</td>
<td>Properties of Matter and Atomic Theory (Ch. 1)</td>
<td>Safety (required)</td>
</tr>
<tr>
<td></td>
<td>1-Jun</td>
<td>Measurements and Units (Ch. 2)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>4-Jun</td>
<td>Midterm I; Atoms and Elements (Ch. 3)</td>
<td>T</td>
</tr>
<tr>
<td></td>
<td>6-Jun</td>
<td>Compounds and Chemical Reactions (Ch. 4)</td>
<td>R</td>
</tr>
<tr>
<td></td>
<td>8-Jun</td>
<td>Bonding and Molecular Shape (Ch. 5)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>11-Jun</td>
<td>Midterm II; Organic Chemistry (Ch. 6)</td>
<td>T</td>
</tr>
<tr>
<td></td>
<td>13-Jun</td>
<td>Light and Electrons (Ch. 7)</td>
<td>R</td>
</tr>
<tr>
<td></td>
<td>15-Jun</td>
<td>Nuclear Chemistry (Ch. 8)</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>18-Jun</td>
<td>Midterm III; Gases and Atmospheric Chemistry (Ch. 11)</td>
<td>I</td>
</tr>
<tr>
<td></td>
<td>20-Jun</td>
<td>Liquids and the Chemistry of Water (Ch. 12)</td>
<td>R</td>
</tr>
<tr>
<td></td>
<td>22-Jun</td>
<td>Chemistry of Household Products (Ch. 15)</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>25-Jun</td>
<td>Midterm IV; Molecules of Living Systems (Ch. 16)</td>
<td>T</td>
</tr>
<tr>
<td></td>
<td>27-Jun</td>
<td>Drugs and Medicine (Ch. 17)</td>
<td>R</td>
</tr>
<tr>
<td></td>
<td>29-Jun</td>
<td>Chemistry of Food (Ch. 18)</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>2-Jul</td>
<td>Final Exam and Review/Overflow</td>
<td></td>
</tr>
</tbody>
</table>