### Required Materials:

2. OWL access card for *Chemistry and Chemical Reactivity 8th Ed* (6-month or 24-month) The 24-month card comes bundled with the UAF special edition textbook.
3. ResponseCard RF radio frequency clicker (Turning Technologies). (new or used OK)
4. American Chemical Society (ACS) Preparing for General Chemistry Exam
5. A non-graphing scientific calculator is required for each exam. Please note: The Department of Chemistry and Biochemistry does not provide calculators. You must provide your own. **Our advice is to buy one now (cost ~$10), learn how to use it, and then use it regularly to do chemistry homework. Do not wait until the day before an exam to obtain, and learn how to use, a non-graphing scientific calculator.** Please do not bring a graphing calculator such as a TI-83 to Chem 105X exams. **Why?** (i) Graphing calculators may pose a security risk and the instructor does not have the time to check each one. (ii) We wish to have a “level playing field” so that all students are similarly equipped. Most students cannot afford an expensive calculator for one class. (iii) Engineers: The **Engineers in Training (EIT) Exam** given to senior engineering students by the National Council of Examiners for Engineering and Surveying also prohibits graphing calculators. See [www.ncees.org](http://www.ncees.org).

### Optional Texts:

- *Chemistry & Chemical Reactivity - Student Solutions Manual.* Banks
- *Chemistry & Chemical Reactivity - Study Guide.* Moran
- *Essential Algebra for Chemistry Students, 2nd Ed.* David W. Ball.

### Catalog Description:

“CHEM F105X-F106X, together, constitute the standard one-year engineering and science-major general chemistry course with laboratory. Major subjects include measurements, calculations, atomic and molecular structure, gas laws, stoichiometry, an introduction to organic chemistry, chemical reactions and related energy changes. Special fees apply. Prerequisites: Placement in ENGL F111X or higher; placement in MATH F107X or higher; or a B or better in CHEM F103X; or permission of instructor and department chair.”

### Warning Signs for Chemistry 105X.

If **several** of the following conditions apply to YOU, you are in danger of “non-success” in this course. In this case, please try to reduce the number of your applicable warning signs, or postpone taking the class until your situation has improved!

- Marginal math skills such as low math grades or low, but still qualifying, ACT or placement exams.
- No textbook, OWL registration, or clicker in the first week of class.
- No high school chemistry (or forgot it mostly).
- Full or halftime job, plus full-time student status.
- Family responsibilities.
- English as a second language
- Personal physical or psychological problems that prevent class attendance and regular study.
- Poor or no computer or Internet access.
Chem 105X Homepage: http://chem.uaf.edu/keller/Courses/105Fa11/ The homepage includes links to the syllabus, lecture schedule, practice exams and solutions, copies of lecture notes and slides, and others. Also, the Blackboard site, which combines all three sections, has further information, lab handouts, and grades (http://classes.uaf.edu/)

Classroom Expectations: Professors expect you to attend class, and they will be checking your attendance using clicker scores (see below). Each day BEFORE class, the student should read the portion of the textbook that is assigned on the schedule, and begin to work with the assigned OWL questions. With this preparation, you will be better able to understand the discussion and participate in peer instruction, be better prepared to ask questions, and answer “clicker questions”. Please conduct yourself in a business-like manner. Be respectful of the rights other students. If you arrive late, please enter at the back of the auditorium (2nd floor level). Please turn off your cell phone ringer, Put away your laptop computer, and listen. Be quiet so others can hear the discussion, or student questions or comments. If you have a question, raise your hand.

Online Web Learning (OWL): Homework problems will be done using the OWL system, developed at the University of Massachusetts Amherst. Obtain an OWL registration card online or bundled with the textbook. 1/7th of your grade is based on OWL homework.

OWL registration. Register for “Keller-Chem105X-Fall2011”. More instructions in the use of OWL will be given in class and the first lab. OWL questions will be due 3-to-5 days after the chapter has been discussed in class, generally twice weekly. At the end of the semester, your total OWL points, corrected as described below, will be scaled to 90 points and added to the semester total.

This semester, no extensions on OWL due dates will be made for any reason. However, at the end of the semester, points equivalent to about 15% of the total OWL homework will be added to all scores, not to exceed the total possible for the semester. This should take care of most instances of computer problems, sickness, university or business travel, etc that otherwise would unfairly impact your grade.

Supplemental Learning Opportunities. Help can be obtained from (1) your professor’s office hours, (2) any 105 TA office hours, or extra time at the end of lab, (3) a free tutor service offered by the chemistry dept in 170 Reichardt, or (4) you may be eligible for free tutoring at UAF’s Student Support Service office.

"Active learning" means DOING something with your hands and brain to put into practice a concept you have just read or heard about. You can use this while you are studying by doing a problem related to the reading you have just done. You will learn a lot more, a lot faster, if you DO something after you read or think about it. In class, TAKE NOTES! During the weekly lectures, we will do occasional “clicker questions”, multiple-choice questions that you answer with your clicker. If you have been following the lecture, and doing some pre-study, these should not be too hard. Some will be easy, and some will be challenging. Often you will have a chance to discuss the issue with your neighbors, or the whole class! Another avenue for active learning is working in-chapter Exercises and end-of-chapter Study Questions. The answers to about half the end-of-the-chapter questions may be found in Appendix O of the text, or in the optional student solutions manual.

“Clickers”: Each student should obtain a clicker, which is used in lecture to answer questions projected on-screen. The correct clicker (Turning Technologies’ ResponseCard RF) is available at the bookstore or online. Student clicker responses are recorded electronically by the TurningPoint receiver and software on the instructor’s laptop. Questions will be graded 1 point for an answer, 0 points for no answer. The percent maximum score at the end of the semester will be multiplied by 60 pts and included in the semester total. About 50 questions will be asked during all the lectures this semester. You will be allowed about five zero clicker scores without penalty, to take into account the (hopefully few) days you miss class due to travel on University business, sickness, or your clicker batteries ran down, or other legitimate causes. “Makeup clicker questions” cannot be given, nor will answers on paper be accepted.
Laboratory: The purpose of the lab is to do hands-on investigation. We expect you to gain skills in scientific reasoning, experimental design, and use of chemicals and laboratory apparatus. The labs are conducted by graduate and upper division undergraduate teaching assistants. Lab reports will be handed in each week, to be graded and returned by the teaching assistant. Eleven experiments are scheduled for the semester. The laboratory portion of your grade (100 points) will be based upon the average of your best 10 lab grades. You can miss one lab with no impact on your lab grade. If you miss 2 or 3 labs, then 1 or 2 zeros respectively will be included in the average. Do not miss 4 labs: this results in a COURSE F!

All students enrolled in Chem 105 (even those who have taken the course before) must attend laboratory. Students must hand in 8 or more reports to earn a passing grade in this course. In other words, if you hand in only 7 (or fewer) lab reports, an F grade in the course is assigned, even if all your other grades are passing. This stiff requirement is based on the American Chemical Society stipulation that students must spend a certain number of hours in lab for courses such as Chem 105X (and of course you must attend lab in order to write a lab report!) There are no make-up labs scheduled during the semester. If you have special scheduling problems or if you miss more than one lab for an acceptable reason, please discuss alternative plans with Emily Reiter, Laboratory Director. Laboratory reports are due one week after a lab is completed. Late reports will be accepted, but the score will be reduced significantly. The last report of the semester cannot be accepted late. The first lab of the semester includes a safety review. Students must attend the safety review in order to continue in the course.

Exams: The student is responsible for all information from text, lecture, OWL, and assigned study questions. Questions from any of these sources may appear on exams. Four one-hour exams and a cumulative final exam will be given; see the weekly schedule for dates and coverage. Each exam will include a table containing all necessary constants, and a simple periodic table.

Final Exam. The final exam will be a 120-min, 70-item multiple choice exam provided by the American Chemical Society Examinations Institute. This covers the first half of the text. The required review text is an excellent source of information and will help you practice and prepare for this exam, which is about the same difficulty as the other exams during the semester. The date of the final exam, Wednesday, Dec. 14, 1-3 PM, is set by the UAF Faculty Senate: no early or late exams can be scheduled. If you miss the final exam, then according to UAF policy, an Incomplete (I) grade is given (as long as you are doing C-level work), and you would take a final exam later.

Make-up exams will be allowed for good reasons, which you MUST DISCUSS with the professor. “I slept in” is not a good reason (But if you are late, even very late, to the exam, come on in anyway. We can accommodate you). An unexplained absence from an exam results in a zero. If you anticipate an absence (intercollegiate sports, travel on military or University business), talk to your professor before the exam to make arrangements. If the absence is unexpected (illness, family or personal calamity, cold weather transportation difficulty), talk with the professor at the earliest possible opportunity. Come prepared to document your particular calamity. In any case, you must take the makeup exam within 1 week of your return to health. If you are to take a makeup exam, we expect that you have no knowledge of the original exam.
**Ethical Considerations:** The Chemistry “Department Policy on Cheating” is the following: “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.”

As a UAF student, you are subject to UAF’s Honor Code:

“Students will not collaborate on any quizzes, in-class exams, or take-home exams that will contribute to their grade in a course, unless permission is granted by the instructor of the course. Only those materials permitted by the instructor may be used to assist in quizzes and examinations. Students will not represent the work of others as their own. A student will attribute the source of information not original with himself or herself (direct quotes or paraphrases) in compositions, theses, and other reports. No work submitted for one course may be submitted for credit in another course without the explicit approval of both instructors. Violations of the Honor Code will result in a failing grade for the assignment and, ordinarily, for the course in which the violation occurred. Moreover, violation of the Honor Code may result in suspension or expulsion.”

**During hour and final exams** programmable and/or graphing calculators, cell phones, beepers, PDAs, and electronic translation devices are NOT allowed on your person. Power-off any such item, and place it inside your closed briefcase, purse, or pack at the back of the room, or on the floor.

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**Grading**

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<thead>
<tr>
<th>Item</th>
<th>Maximum Pts</th>
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<tr>
<td>Exam 1</td>
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<tr>
<td>Exam 2</td>
<td>75</td>
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<tr>
<td>Exam 3</td>
<td>75</td>
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<tr>
<td>Exam 4</td>
<td>75</td>
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<td>Final Exam</td>
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<td>OWL &amp; other</td>
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<tr>
<td>Clicker score</td>
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<td>Lab</td>
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<td><strong>Total</strong></td>
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**Estimated Grade Scale (as % of total pts).**

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>%</th>
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<tbody>
<tr>
<td>A</td>
<td>88% or greater</td>
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<tr>
<td>B</td>
<td>77-88%</td>
</tr>
<tr>
<td>C</td>
<td>66-77%</td>
</tr>
<tr>
<td>D</td>
<td>55-66%</td>
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<tr>
<td>F</td>
<td>Less than 55%</td>
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*No +/- grades will be given.*

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**Grades.** Letter grades (A-F, no +/- grades except possibly A+) are assigned based on the total out of 650 points accrued in the semester. The approximate cut-offs for letter grades are shown above. These are *estimates only* based on prior semester results, and may be changed by several percentage points (after the final exam). These cut-offs will differ from other Chem 105 sections because the exams, OWL and clicker question weighting may differ.

**Instructor-Initiated Withdrawals:** Any time up to and including Friday, Oct. 28, the professor has the right to withdraw a student from Chem 105 for any of the following reasons: (1) Exam I or II is missed without an excused absence, or (2) two or more labs are missed, or (3) the student shows poor class attendance, or (4) is missing a lot of OWL homework. This is our definition of “...has not participated substantially in the course.”

**Disabilities:** Students with physical or learning disabilities are required to identify themselves to Mary Matthews in the Disability Services office, located in the Center for Health and Counseling (474-7043). The student must provide documentation of the disability. Disability Services will then notify the instructor of any special arrangements for taking tests, working homework assignments, and doing lab work.

**Incomplete (I) grade:** A grade of “I” is assigned only when a student misses the final exam or multiple laboratory classes for a documentable reason, such as a medical problem, a death in the family, etc. Student must also be doing C or better work.

**Important Dates:** Please keep the following dates in mind.

- Last day to drop class and get 100% refund: Friday, September 9
- Last day to drop class w 50% refund (course not on academic record): Friday, September 16
- Freshmen progress reports due: Friday, October 7
- Last day for student- or instructor- withdrawal (“W” on academic record): Friday, Oct. 28
- Last of instruction: Monday, Dec. 12