

## Chemistry 105X: General Chemistry I Fall Semester 2008

Instructor: Dr. John Keller (Office: 161 NSF; Tel 474-6042, email [ffjwk@uaf.edu](mailto:ffjwk@uaf.edu) )  
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 Class Meeting: MWF, 1:00-2:00 PM 201 Reichardt  
 JK Office Hours: Mon ,2:15-3:15 PM; Thurs 11:30 AM-12:30 PM; others by appointment

### Prerequisites:

(UAF Catalogue): "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." Students not meeting these prerequisites may be dropped from the course.

### Required Materials:

- (1) *Chemistry and Chemical Reactivity 7<sup>th</sup> Ed.*; Kotz, Treichel, and Townsend, Brooks/Cole; 2009 Volume 1 (ISBN 978-0-495-38711-4) or Complete text 7<sup>th</sup> Ed. (ISBN 978-0-495-38703-9) or e-book
- (2) OWL access card for *Chemistry and Chemical Reactivity 7<sup>th</sup> Ed* (1-semester or 2-semester)
- (3) Turning Technologies ResponseCard R<sub>F</sub> radio frequency clicker. (new or used OK)
- (4) *Experiments in General Chemistry 105X and 106X: A Laboratory Manual* (Free! Pick up in lab.)
- (5) American Chemical Society (ACS) General Chemistry Study Guide
- (6) A non-programmable non-graphing scientific calculator is required for **each exam**. N.B. The Department of Chemistry and Biochemistry does not provide calculators in exams. You must provide your own. Our advice is this: 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 the exam to obtain, and learn how to use, a non-programmable scientific calculator. Please do **not** bring a graphing and/or programmable calculator such as a TI-83 to Chem 105X exams.

### Optional Texts:

*Chemistry & Chemical Reactivity - Student Solutions Manual.* Kotz  
*Chemistry & Chemical Reactivity - Study Guide.* Kotz  
*Essential Algebra for Chemistry Students, 2<sup>nd</sup> Ed.* David W. Ball.

**Course Overview:** Chemistry 105X is the first semester of a two-semester series in general chemistry, which deals with a variety of microscopic and macroscopic chemical phenomena. These courses emphasize the quantitative, mathematical (but non-calculus based) analysis of chemical phenomena. Chem 105X covers chapters 1-11 of the textbook; Chem 106X covers chapter 12-25. A schedule of lecture topics and assignments is provided on another sheet. Chem 105X satisfies UAF's Core Curriculum in science (that is what the "X" refers to).

**Chem 105X Homepage:** <http://www.uaf.edu/chem/105Fa08/> The homepage includes links to the syllabus, lecture schedule, practice exams and solutions, copy of lecture notes, and others. There may also be materials, information, and grades available at the Blackboard site for this course (<http://classes.uaf.edu/>)

**Classroom Expectations of Students:** JK expects you to attend class, and will check 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 (see assignment sheet). With this preparation, you will better be able to understand the discussion, ask questions, and answer "clicker questions" (see below). Please conduct yourself in a business-like and professional manner. Be respectful of the rights other students to a quiet and uninterrupted learning experience. If you arrive late, please enter at the *back* of the auditorium (2<sup>nd</sup> floor level). **Turn off your cell phone ringer. Put away your laptop computer. Listen.**

**Online Web Learning (OWL):** Homework problems will be done using the OWL system, developed at the University of Massachusetts Amherst. The link to the OWL registration page is shown below or can be

found on the course homepage. You must obtain an OWL card at the bookstore or online. 1/7 of your grade is based on OWL homework.

**OWL: Make sure you register for “Chem105-Keller-Fall2008”** . More instructions in the use of OWL will be given in class. OWL questions will be due 1-to-3 days after the chapter has been discussed in class, generally twice weekly. The OWL assignment will amount to about 5 to 7 sections per week. Students will have **5 chances** to solve assignment questions. At the end of the semester, your total OWL points on required questions will be scaled to 100 points and added to the semester total.

If you have a serious problem that prevents you from completing an OWL assignment on time, a several-day extension may be granted. Request the extension by email.

Link for purchasing OWL cards online (1-semester \$39; 2-semester \$46)

<http://owl.cengage.com/partners/brookscole/epin.html>

Link for first-time registering in OWL, and other information:

<http://owl.cengage.com/partners/brookscole/help/reglogin.html>

Link for logging into OWL after you have registered:

<http://owl.cengage.com/owl-c/user/loginpage.cgi?Server=owl-univalaskafairbankskotz7e&UserType=Student>

**Chemistry Now website:** The OWL website for the course also contains additional materials that may help you learn chemistry, including chemistry videos, pre-tests in multiple choice format, and step-wise solutions to Study Questions (those marked by the ■ symbol in the text).

**Supplemental Learning Opportunities. OPTIONAL recitation or question/answer sessions** will be given by professors, TAs, and/or personnel from the UAF Advising Center. Times and places to be announced. Other help can be obtained from (1) your professor’s office hours, (2) your lab TA’s office hours or extra time at the end of lab, and/or (3) you may be eligible for free tutoring at UAF’s Student Support Service office (<http://www.uaf.edu/sssp/>)

**"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”, which are 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. 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 must 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 UAF Bookstore or from Internet sources. Student clicker responses are recorded electronically by the TurningPoint receiver and software on JK’s laptop. Some questions will be graded, with 2 points for correct, 1 incorrect, and 0 no answer. For others we assign 1 point for an answer, 0 points for no answer. The percent maximum score at the end of the semester will be multiplied by 100 pts and included in the semester total. Different clicker scenarios will be used, such as individual questions on the assigned reading, questions where students collaborate, or others. **About 50 questions will be asked during all the lectures this semester. You will be allowed ten 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.** No “makeup clicker questions” will be given. No answers on paper can be accepted.

**It is the student’s responsibility to bring the clicker to each class, take care of it, replace it if lost, and keep it supplied with fresh batteries (they should last the whole semester with normal usage).**

“Clicker by proxy” is a no-no. **Click only you own clicker!**

Register your clicker ID on the OWL website. Go “Clicker Registration” in the Support & Miscellaneous panel on the left had side. **Clicker IDs must be registered by SUNDAY, Sept. 14, 6:00 PM**

**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. Three 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 should be no more difficult than the other exams during the semester. **The time (Mon, Dec. 15, 1-3 PM) and place (201 Reichardt) of the final exam have been set by the UAF Registrar, not your professor. No early or late exams can be scheduled. If you miss the scheduled exam due to travel, then the University policy on Incomplete (I) grades will be invoked.**

**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, or even very late, to the exam, 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 other electronic 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.

**Grading**

Item	Maximum Pts
Exam 1	100
Exam 2	100
Exam 3	100
Final Exam	100
OWL Homework	100
Clicker score	100
Lab	100
<b>Total</b>	<b>700</b>

**Estimated Grade Scale (as % of total pts).  
(Subject to change):**

%	Letter Grade
89% or greater	A
78-89%	B
66-78%	C
55-66%	D
Less than 55%	F

\*No +/- grades will be given.\*

**Grades.** Letter grades (A-F, no +/- grades) are assigned based on the total out of 700 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 up to  $\pm 3$  percentage points (after the final exam). These cut-offs differ from other Chem 105 sections because the exams, OWL and clicker questions are different.

**Instructor-Initiated Withdrawals:** Any time up to and including Friday, Oct. 31, the professor has the right to withdraw a student from Chem 105 for any of the following reasons: (1) Exam I 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. (See p.44 in the Catalog.)

**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 Prof. Keller of 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.

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

- Last day to drop class and get 100% refund.....Friday, September 12
- Last day to drop class w 50% refund (course not on academic record) ....Friday, September 19
- Freshmen progress reports due.....Friday, October 10
- Last day for student- or instructor- withdrawal ("W" on academic record).....Friday, Oct. 31
- Last of instruction: ..... Friday, Dec. 12