

Tentative Course Schedule and Overview

Chemical Equilibrium & Analysis (Chemistry 212)

4.0 credits

Fall 2016

Lecturer: Dr. Brian Rasley (NSF 178, 474-5029, btrasley@alaska.edu)
Office Hours: MWF 10:15-11:30 am or by appointment (drop-ins are welcome on a time available basis)
Lecture: MWF 9:15-10:15 am in NSF 203 Lab: M 2:15-5:15 pm; REIC 245
Text: "Quantitative Chemical Analysis", 9th ed.; by Daniel C. Harris
Required Materials: Text; non-graphing Scientific Calculator, Lab Notebook

Course Overview: Chemistry 212 is an examination of aqueous chemical equilibrium as applied to chemical analysis, separations, spectrophotometry, and other factors considered in the analytical approach. The course is delivered via traditional lectures and laboratory exercises.

Course Prerequisites: "C" or better grade in CHEM 106X and MATH 151X (or equivalents)

Additional Course Resources: See the course web page at: <https://www.uaf.edu/bblearn/prod/>

Important Dates:	Last day to drop the course without a "W" appearing on transcript (100% tuition refunded)	Sept. 9
	First Exam (Tentative)	Oct. 3
	Last day to withdraw from the course (a "W" will appear on transcript)	Nov. 4

Chemistry Department Policy on Cheating: Any student caught cheating will be assigned a course grade of "F". The students academic advisor will be notified of this failing grade and the student will not be allowed to drop the course.

Student Code of conduct (excerpted):

As a UAF student, you are subject to the Student Code of Conduct. The university assumes that the integrity of each student and of the student body as a whole will be upheld. Honesty is a primary responsibility of you and every other UAF student. It is your responsibility to help maintain the integrity of the student community. The main points related to academic honesty are:

1. 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.
2. 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.
3. No work submitted for one course may be submitted for credit in another course without the explicit approval of both instructors.

Alleged violations of the Code of Conduct will be reviewed in accordance with procedures specified in regents policy, university regulations and UAF rules and procedures. For additional information and details about the Student Code of Conduct, please visit www.uaf.edu/deanofstudents.

Class Participation (Active Learning):

Homework: Success in Chem 212 requires practice doing problems. Higher achievement on exams is usually a direct result of time spent doing homework assignments in their entirety.

The class will be using an online homework system called WebAssign. The **WebAssign class code** for our course is: **uaf 3596 1853** Homework assignments and due dates will be posted in the WebAssign system. Students have the responsibility of keeping track of homework assignments and due dates.

Other Class Participation Activities:

Group activities focusing on a particular day's reading assignment will occasionally be assigned in class. The organization of any group activities will be explained separately.

Quizzes: There may be several in-class quizzes during the semester. You will be allowed to drop the lowest quiz grade. Quiz grades will be calculated by averaging the remaining quiz scores. There will be no make-ups for quizzes. Normally, quizzes will cover the day's reading assignments as listed in the syllabus. If for some reason, we deviate from the syllabus, I will assign readings in class. The goal of the quizzes is to enable us to make maximum use of class time.

Exams

There are three scheduled in-class hour exams during the semester plus a cumulative final. All exams count toward the course grade. Make-up exams will be not be given for **any** reason. If you miss an exam due to illness, bring a note (and contact phone number) from your physician or other health care provider in order to have your absence excused. In cases of excused absences, grades will be assigned on the basis of a percentage of the remaining total points available (In effect, each exam, quiz, etc. accounts for a larger percentage of your course grade).

**** Please note that some exam questions may be different from homework questions in the Harris text. The relative amount of time available for exams and homework, the availability of computational facilities and the goals of the two activities are very different.

Course Grading Scheme:	3 Hour Exams @ 100 Points Each	300 pts
	Final Exam (comprehensive)	100 pts
	Class Participation (Homework, group activities, In-class quizzes)	100 pts
	<u>Laboratory Grade</u>	<u>100 pts</u>
	Total	600 pts

Percentages of 90, 80, 70, 60 correspond to grades of A, B, C and D. Percentages below 60 correspond to a failing grade (F). Plus and minus grades will not be awarded for this course.

University guidelines for course grades are as follows:

<u>Grade</u>	<u>University Guideline</u>
A	Indicates a thorough mastery of course content , and outstanding performance in completion of course requirements.
B	Indicates a high level of acquired knowledge and performance in completion of course requirements.
C	Indicates a satisfactory level of acquired knowledge and performance in completion of course requirements.
D	Indicates a minimal level of acquired knowledge and performance in completion of course requirements. This grade does not satisfy requirements for courses in the major, minor, core or graduate programs.
F	Indicates failure to meet the lowest standards. All "F" grades are included in the GPA calculation.

Notes:

1) a satisfactory or average level of performance (a "C") includes completion of all assigned course material. At the end of the semester, I carefully evaluate every students performance in the course. If a student is near a grading breakpoint, I often consider whether the student has attended class regularly and the extent of their class participation when deciding their course grade.

Student Responsibilities:

Students are responsible for all material covered in class lecture. If you miss class for any reason, you will need to find out what you missed (including any changes in reading assignments). Students are responsible for reading the assigned material in the text **before** coming to class. Students should keep all returned, graded assignments until after final course grades have been posted on UAonline.

Attendance: Five (5) or more absences from class before Oct. 28th will result in a faculty initiated withdrawal from the course. Six (6) or more absences during the semester will result in a half letter grade reduction (loss of 25 total points) for the course grade. Attendance on Fridays is required to receive class participation points for in-class discussions of ethics issues and to receive laboratory instructions for the next weeks lab activities.

Course Goals

Students should exit the course with the following skills:

- the ability to perform quantitative dilution problems
- the ability to perform intermediate level equilibrium problem calculations
- an intermediate level of understanding of spectroscopy
- an introductory level of understanding of chromatography
- an introductory level of understanding of basic statistics

Student Learning Outcomes

Student learning outcomes will be assessed via statistical analysis of selected exam questions and an assessment exam given at the beginning and end of the semester.

Disability Services (<http://www.uaf.edu/disability>)

Students with a physical or learning disability, who may need academic accommodations, should contact the Disability Services office, located in the Center for Health and Counseling (474-5655, TTY 474-1827, fax: 474-5688.) You will need to provide documentation of your disability. Disability Services will then notify the instructor of any special accommodations required for students with documented learning disabilities.

Varsity Sports and University Sponsored Activities

Students participating in varsity level sports programs and/or university sponsored activities should contact the instructor at least two weeks prior any travel or activity that will require them to be absent from class.

Week	Dates	Day	Chapter	General Topics	Reading Assignments(read prior to class)
1	Aug29- Sept. 2	M W F	0,1 2,3 3	Introduction, Review Tools of the Trade, Sig figs. Errors, Propagation of Uncertainty	Ch 0 & 1 (pp.1-21) Ch 2 (pp.24-43) & 3 (pp46-49) p. 51-60
2	Sept. 5-9	M W F	4 4 4	Labor Day Holiday Descriptive statistics, Decision making t-testing and F-testing & Linear regression	pp64-80 Pp80-89
3	Sept. 12-16	M W F	5 18 18,19	Accuracy, Precision and LOD/LOQ and Corrections Spectrometry, Beers Law Spectrophotometric analysis, Luminescence & Applications	p. 106-110 p. 433-443 p. 444-450, 461-467
4	Sept. 19-23	M W F	20 20 21	Spectrophotometer hardware Errors in spectrophotometry, Atomic Spectroscopy, atom cloud formation	p. 491-502 p.508-523 p. 530-540
5	Sept. 26-30	M W F	21 21 21	Temperature effects, line broadening, background correction Detection limits, interferences, inductively coupled plasma Catch-up/review	p. 487-493 p. 493-498, 502-506
6	Oct.3-7	M		Exam 1	