

CHEM-UA 128 Advanced General Chemistry
Spring 2017
NYU Department of Chemistry

Instructor: Prof. Marc Walters, Email: marc.walters@nyu.edu
Office 556 Brown (Molecular Design Institute)
Tel: 998-8477
Lecture: 194 Mercer Rm 201 Mon, Wed 8:00 -9.15 AM
Office hours: Mon 4 – 5, or by appointment

Recitation: Bobst LL149, Fri 9:30 – 10:45
Recitation instructor: Stephen Kennedy Email: smk608@nyu.edu

Laboratory: Brown 455, Thurs 2:30 – 6:45
Laboratory instructor: Malgorzata Mandziuk Email: mmk2@nyu.edu

Date	Chapters	Topics
Jan 23 - 25	Introduction 9	Gaseous State
Jan 30 - Feb 1	10	Solids, liquids and phase transitions
Feb 6 - 8	11	Solutions
Feb 13 - 15	12	Thermodynamic processes
Feb 20	President's Day	
Feb 22	12	Thermodynamics
Feb 27 - Mar 1	13	Spontaneous processes
Mar 6	13	Spontaneous proc.
Mar 8		Midterm 1
Mar 13 - 15	Spring break (no lect, lab or recitation)	
Mar 20 – 22	14	Chemical equilibrium
Mar 27 - 29	15	Acid-base equilibria
Apr 3	16	Solubility, precipitation
Apr 5		Midterm 2
Apr 10-12	17	Electrochemistry
Apr 17 - 19	18	Kinetics
Apr 24 - 26	8	Bonding in Transition Metal Compounds
May 1 - 3	22	Inorganic Materials
May 8	TBA	TBA

Lab final exam will be on Tue May 10, 10 am – 11:50. Room to be announced.

Lecture final exam will be on Wed May 16, 12 pm – 1:50. Room to be announced.

Course details:

CHEM-UA 128 is the second semester of the Advanced General Chemistry series. Preparation for this course entails a strong high school background in chemistry, physics and calculus combined with a strong interest in Chemistry or a related field. The course addresses *fundamental principles in chemistry*, that include the properties of gases, 1st and 2nd laws of thermodynamics, physical and chemical equilibria, electrochemistry and reaction kinetics. This course also provides an overview of the chemistry of the d-block elements and inorganic materials. Contemporary topics in materials sciences and the chemistry of the environment will be introduced to further our discussion of basic concepts.

Special Topics will cover

Text: Oxtoby, Gillis and Butler, *Principles of Modern Chemistry*, 8th Ed.

Other Reading:

To augment the course material outside literature will be assigned when appropriate.

Exam 1: Wednesday, May 8, 2017 (in class)

Exam 2: Wednesday, April 5, 2017 (in class)

Final: Tuesday, May 16, 2017, (location TBA)

Exam questions will be drawn from H.W. assignments, quizzes and ancillary reading material. Each exam may contain at least one question that appeared on an earlier problem set. Make-up exams will be allowed only in the event of a DOCUMENTED illness or family emergency. For example, oversleeping is not an excuse. If you become aware that you cannot be present for an exam and you have a legitimate excuse, notify the instructor immediately. **Make-up exams will be oral exams given jointly by the lecture and recitation instructors.**

Homework assignments: Assignments will be posted on the NYU Classes course site (classes.nyu.edu) each **Wednesday**, beginning in Week 2. Completed problem sets will be due the **following Wednesday**, submitted **PRIOR** to the beginning of the lecture – NO EXCEPTIONS. Each problem set will consist of ten questions, weighted equally. No partial credit will be considered for problems with numerical solutions for which there is only one correct answer. Answers with missing units will be considered incorrect. Points will be deducted for answers with an incorrect number of significant figures. No more than twelve problem sets will be assigned; the lowest two grades will be dropped. In cases of a DOCUMENTED illness or family emergency, a missed problem set(s) will not be used in evaluating the student's grade. The combined problems sets constitute 10% of the grade. Collaboration with others in the class is permitted, even encouraged, but the names of your collaborators must be included on your problem set. If you collaborate, however, be sure you understand the solutions to the problem sets. If you do not fully understand the problem sets, you will not be well prepared for the exams and your grade will suffer accordingly. **Questions about problem sets and course material must be addressed during office hours, not by Email.** The only exception – if you

see a mistake or typographical error in a problem set that escaped your instructors (this can happen!), feel free to send an Email to Professors Walters and Mandziuk.

Note: One of the ten questions in each problem set will be a special challenge. You will be asked to construct a challenging problem of your own and supply a complete solution, with all steps included. The problem should be at a level appropriate for the class, but challenging. Your grade for this problem will be based on the quality, clarity and appropriateness of the problem, and the clarity of the solution. The instructors may select up to two problems each week from the collected problem sets, pending sufficient quality. These problems will then appear on a future problem set. Consequently, if your problem is selected you will capture an easy 10 points out of 100 on the problem set because you already know the answer. You will find that the exercise of framing a question that is clear and unambiguous is a valuable learning experience. You are permitted to work with one partner on each question submitted.

Quizzes: Short quizzes will be given periodically at the beginning of **Wednesday** lectures, beginning in Week 3. Each quiz will consist of a few short questions pertaining to material covered in previous lectures and/or in assigned readings. Quizzes will begin promptly at 8:00 AM and will be collected at 8:10 AM precisely.

Exams: Exams will be closed book, **in class**. It is crucial you arrive 10 minutes prior to the beginning of the class period when exams are given. You will be allowed to use (1) one 3 x 5 in. index card, (2) a calculator, and (3) writing utensils to the exam. Any other necessary information will be provided.

Recitations: Attendance at recitations is HIGHLY recommended.

Grading (Lecture): The final lecture grade will be based on the following distribution:

Problem Sets	10%
Quizzes	10%
Exam 1	25%
Exam 2	25%
Final	30%
Total	100%

Grading (Laboratory): See the laboratory syllabus for details.

Final Total Grade: Final Grade: **Lecture:** 75% **Laboratory:** 25%

Grade Appeals: If you have a concern about a grade, or a concern about how a particular problem(s) was graded, you should contact the instructor who graded the problem set/quiz/exam or the specific question in the problem set/quiz/exam. The instructor who graded a particular problem set/quiz/exam or a specific question usually will be identified by their initials on the assignment or next to the specific question. Please be aware that an appeal of a grade opens the entire assignment or exam to review. If the instructor finds a problem that has been graded as correct is actually incorrect, your grade may be lowered.

**SEE SEPARATE LABORATORY SYLLABUS
FOR DETAILS ABOUT THE LABORATORY SEQUENCE!**