



- ▶ **Lecturer:** Dr. Nick Thomas
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- ▶ **Class Days:** Monday/Wednesday
- ▶ **Class Times:** Starting 10:50 am (period 3)
- ▶ **First Class Day:** Mon, Jan 8, Room 319 Goodwyn Hall

Web site

www.getnickt.com - Here you will find study questions from the text, instructions for using burets and pipets, and other important information about the course (note: instructor does not use Blackboard)

Course Description

General Chemistry II (3) Pr., CHEM 1100 and CHEM 1101. A detailed study of acid-base theory, kinetics, equilibria, and thermodynamics. Introductions to organic chemistry and nuclear chemistry will be included. Students who also take CHEM 1201 will conduct experiments which illustrate lecture topics.

Text

General Chemistry: The Essential Concepts, Raymond Chang, 7th Edition. A laboratory manual and safety goggles must be obtained by the students who are also enrolled for CHEM 1201 (lab course).

Course Objectives

Chapters 11, 13-21.

The course will study the dynamic transformations of matter, looking at the thermodynamics and kinetics of reactions. Acid-base, redox, and nuclear reactions will be studied as well, and the student will be introduced to organic chemistry and coordination chemistry. Problem solving, data evaluation, and analysis are stressed.

Students should meet the following basic objectives:

Work with a variety of concentration units; Have a basic overview of hydrocarbons and functional groups; Understanding acid-base theory; Write and use equilibrium constants; Calculate pH in a variety of solutions; Work with free energy and entropy changes; Identify the geometry of coordination compounds; Balance redox reactions and determine cell potentials; Determine rate laws; Understand activation energies & temp dependence of reactions; Write chemical mechanisms; Balance nuclear reactions; Understand fission and fusion.

Registration

All students must be officially registered. Contact the registrar's office if you have any doubts concerning your registration status.

Attendance

Students have an obligation to attend all lectures and to be ON TIME. Lectures will begin promptly at 10:50 am (period 3) on Mondays/Wednesdays in room 319 Goodwyn Hall. Students are required to sign an attendance roll each day for the first few weeks.

- Note: 1. Unless you have a pending emergency please switch off cellphone ringers in class as they are very distracting to all.*
- 2. No cell phone or earphones may be used during exams; only non-programmable calculators*

Assistance

Office hours will be posted on the instructor's office door and web site. Additional appointments may be made with the instructor. The Instructional Support Lab (203G) can also provide tutoring.

Special Needs

Students who require special attention should contact the AUM Center for Disability Services. *AUM attempts to make reasonable accommodations to meet the special needs of its disabled students.*

Grading

There are 5 multiple choice exams during the semester. The course grade is based on the best 4 of these exams (lowest dropped) PLUS a FINAL comprehensive exam which all students MUST take. The final will cover material from both CHEM 1100 and CHEM 1200. Material to be tested in each exam is as follows (see timetable for dates):

1st exam	Chapters 11 & 13
2nd exam	Chapters 14 & 15
3rd exam	Chapters 16 & 17
4th exam	Chapters 18 & 19
5th exam	Chapters 20 & 21
Final	Chapters 1-21

The final exam and four exams taken during the semester will each count 20% towards the course grade. A Scantron is needed for each of the exams (do not bend the Scantrons as they may read incorrectly; write in pencil and be careful if erasing answers to avoid smudges). Letter grades will be assigned as follows:

A = 90-100%; B = 80-89%; C = 65-79%; D = 50-64%; F < 50%

Grades for each exam will be posted on the instructor's webpage. On each exam, students must provide a code under which name the grades will be listed. The same code is to be used on all exams (so remember it!). The code may be any letter-single digit number-letter combination (e.g. A3B). Make up your own code, but do not to use the initials of your name.

Make-up exams: Individual make-up exams will **NOT** be given. If one exam is missed FOR ANY REASON it will automatically be the dropped exam (exception: official university activities, with written permission). If two exams are missed, a comprehensive make-up exam will be given during the final exam to replace the second missed exam.

Withdrawal

If you withdraw from this class during the semester, our department requires that you must also withdraw from CHEM 1201.

Learning Outcomes

Learning Outcomes: After completion of this course, students will be able to analyze:

1. Properties of solutions, with respect to solubilities, molarities, and colligative effects
2. Chemical kinetics, including rate laws and mechanism.
3. Chemical equilibrium, such as acid/base equilibria.
4. Thermodynamic relationships, the 3 laws of thermodynamics and ΔH , ΔG , and ΔS calculations.
5. Oxidation / reduction reactions, including balancing and E calculations.

Students will also be able to describe:

1. Coordination compounds, including their nomenclature and magnetic properties.
2. Nuclear processes.
3. Acid / base properties, such as pH, buffers, and the Bronsted-Lowry definition
4. Organic compounds with respect to their classification and basic nomenclature

Note: Significant home study is essential for any chemistry course. In addition to reading the text, it is recommended that you answer as many questions as you can from the end of each chapter in the text. As a bare minimum, at least tackle the problems highlighted in blue. Several practice tests are available on the website. Each contains 10-15 multiple choice questions typical of those you will encounter on actual exams for this course. Remember, these are just a sample of questions; the actual exams will be longer and contain questions on more course topics.