

Chemistry 102 – Chemical Reactivity - Spring 2016

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Office Hours	Office Hours
M, Tu 2-4 PM	Tu, W 4-5 PM

Feel free to make an appointment or stop in when our doors are open.

Text

Gilbert et al. *Chemistry* 3rd Edition

Meeting Times

Lecture	VLH	MWF 11-11:50
Conferences	Chem 105	W 2:10-3, 3:10-4, 4:10-5; Th 11:00-11:50, 1:10-2, 2:10-3
Lab	Chem 308	T-Th 1:10-4; M, F 2:10-5; Tu, Th 9-12 AM

Evaluation

Midterm Exams (**2/19, 3/16, 4/22** – Please mark these dates!)

These will be 50 minutes in length, to be taken in class with closed books and notes.

Final Exam (Date to be announced, do not make departure plans prior to **5/19**)

Three hours long. Cumulative exam covering the entire semester. Same rules as the midterms.

Laboratory Reports - Due one week after completion of the experiment, on scheduled lab day.

Explicit instructions will be given for each lab write-up. Reports will be accepted, with penalty, up to two days late. *To pass this class you must pass the laboratory section of the course.*

Problem Sets - Due Wednesdays in class or at the latest by 1 pm to Kathy Kennedy (Chem 303).

No late work will be accepted without a valid excuse. The lowest PS grade will be dropped.

Academic Collaboration

All work submitted during this course is expected to reflect the effort of the individual whose name appears on top of the page.

You are encouraged to work with friends, tutors and instructors on problem sets and lab reports. However, when the time comes to write this work up for submission, it must be your work, written in your own words and reflecting your individual understanding of the problems at hand. Moreover, in the case of lab reports, the write-up must be taken from the data that you collect in lab, unless you receive specific permission from an instructor to use someone else's data.

All exams are to be taken closed book, closed notes and without any collaboration. In using a calculator, you may only use it for arithmetic and for simple algebraic and trigonometric functions. You may not use programmed equations or graphing functions during the exam period.

Chem 102: Chemical Reactivity

Lecture Schedule

The course will cover the following topics:

Week of	Lecture Topic	In Lab
1/25	Behavior of Gases	Quantitative Skills
2/1	Gases and on to Thermodynamics	Unknown Metal
2/8	Spontaneity and Free Energy	Kinetics I
2/15	Intro to Chemical Kinetics (Exam #1 on Friday 2/19)	Kinetics II
2/22	Kinetics: Mechanism and Catalysis	Formula I
2/29	Equilibrium	Formula II
3/7	Thermodynamics and Equilibrium	Formula III
3/14	Acid base chemistry (Exam #2 on Wednesday 3/16)	Project I
3/28	Buffers and Titrations	Project II
4/4	Redox Chemistry	Project III
4/11	Electrochemistry and Fuel Cells	9 Unknowns I
4/18	Coordination Chemistry (Exam #3 on Friday 4/22)	9 Unknowns II
4/25	Poster presentations for independent project	

Laboratory Sequence

The laboratory portion of the course will follow the lecture material loosely. The order of experiments is as follows:

- Work on quantitative analysis
- Stoichiometry and the ideal gas law
- Kinetics and mechanism
- Synthesis and molecular formula of a copper coordination complex
- Independent Project
- Equilibrium chemistry in identifying unknown solutions

Course Strategy

Chem 102 is a problem-based course. In addition to a qualitative understanding of concepts, we will focus on your ability to place those concepts in an algebraic context and to work quantitative problems. The best approach to mastering this material is *regular* and *frequent* practice. At the beginning of each lecture, I will assign chapter reading for the next lecture and problems that relate to the current lecture. I *strongly* recommend that you devote **one to two hours** per lecture out of class to working the problems and doing the reading. If you have any difficulties, you can immediately seek assistance from Arthur and Danielle. Additional assistance is available from tutors and the DoJo.

Problem sets, lab reports and exams are a much less attractive way to advance your understanding. They come less frequently and there are longer gaps between lectures and due dates. A lot of frustration can be created by waiting a week or two to see what you've failed to learn in that time. We use these assignments to monitor your progress, but you have better tools available to you. Please use them.