

***Chemistry 116 Syllabus  
Spring 2017***

Chemistry 116 is the second semester of a two-semester sequence on chemical principles. The course will begin with thermodynamics, and then apply thermodynamics to: basic physical equilibria, chemical equilibria, acids and bases, solubility/precipitation equilibria, and electrochemistry. Chemical kinetics will follow, as will special topics in materials chemistry, if time remains. Compared to Chem 115, we focus on macroscopic rather than microscopic descriptions of chemical systems, i.e., we focus on the behavior of a large number ( $N_A = 6 \times 10^{23}$ ) of atoms/molecules/ions.

*Instructor:* Mark Ediger, [ediger@chem.wisc.edu](mailto:ediger@chem.wisc.edu) ; 7303 Chemistry

*Class time:* MWF 8:50 am, 2373 Chemistry

*Office hours:* Tuesday 4:30 pm and Thursday 3:00 pm, other times by appointment, or try just stopping by

*Teaching assistant:* Tesia Janicki, [tjanicki@wisc.edu](mailto:tjanicki@wisc.edu), Office hours in General TA office/desk 39: Monday 4 pm and Thursday 4 pm

*Text:* “Principles of Modern Chemistry”, 6<sup>th</sup> ed., by D.W. Oxtoby, H.P. Gillis, and A. Campion. I expect you to read the textbook before class. During our regular class periods, I will ask questions and you should be prepared to answer. Each student in the class will be a part of one of three groups, based on the first letter of last names. On Mondays, I will call on A-G; on Wednesdays, J-P; on Fridays, S-Y.

*Labs:* For the first six weeks of the semester, you will meet in the teaching lab on *either* Tuesday or Thursday morning. You must come to laboratory prepared. Before coming to the lab, you must read and understand the procedure and complete the prelab assignment, if there is one. You must keep a laboratory notebook providing a detailed record of your primary data. A laboratory notebook with provision for making copies is required; your notebook from Chem 115 will suffice if enough pages remain. Instructions for preparing reports will be given in your lab manual.

For the next 8 weeks of the semester, you will work in faculty research labs for at least 8 hours per week. This experience will culminate in a written research report and a class presentation on your research project. Class presentations will occur during the Tuesday/Thursday morning laboratory times during the last week of class.

*Safety Goggles:* You are required to wear safety goggles at all times when in the laboratory.

*Problem Sets:* You will receive a problem set about once per week. Problem sets will be due at the end of class on the designated day; late problem sets will not be accepted. The TA will grade your solutions to selected problems and provide solution sets. You should be prepared to discuss the problems in your discussion section. I encourage you to work with other students on the problems, but you must hand in and take responsibility for your own solutions.

*Discussion section:* I know this occurs early in the morning but past students have found this really helpful. You will work through problems related to the problem set and current lecture material.

Occasionally, material not presented in lecture may be discussed and the exams may draw on this as well.

*Examinations:* There are three mid-term exams (7-9 pm) and a final exam, as listed in the course outline. *We will have 8:50 am class on exam days.* If you feel that a problem on the exam has not been graded correctly, you should contact the instructor or your TA within three days after receiving your exam.

*Conflicts:* If a religious observance conflicts with any scheduled activity, please notify me at the beginning of the semester. We will schedule a makeup activity or otherwise accommodate you.

<i>Grading:</i>	Three exams (@120 points each)	360 points
	Final exam (Cumulative)	140
	Problem sets	200
	First six weeks of lab	150
	Research lab work/presentation	<u>150</u>
	TOTAL	1000 points

You must complete the laboratory to pass the course. There is no set quota of any particular grade and thus you are not competing with your classmates in this course. I will assign final course grades, in consultation with your teaching assistant, taking into account participation in class, discussion, and the laboratory.

### ***Course Outline -- Chemistry 116***

Thermodynamic processes and thermochemistry (Chapter 12)  
Spontaneous processes and thermodynamic equilibrium (Chapter 13)

EXAM I                      7-9 pm                      Weds, Feb. 22

Chemical equilibrium (Chapter 14)  
Acid-base equilibrium (Chapter 15)

EXAM II                      7-9 pm                      Weds, Mar. 29

Solubility and precipitation equilibria (Chapter 16)  
Electrochemistry (Chapter 17)

EXAM III                      7-9 pm                      Weds, Apr. 26

Chemical Kinetics (Chapter 18)  
Other Topics  
Student Research Talks

FINAL EXAM                      7:45 am                      Wednesday, May 10

# Inclusivity at UW-Madison

## Message from campus leaders:

“At Wisconsin, we value our diversity, in all of its forms, and are trying to create a safe and inclusive community for everyone.” – Lori Berquam, Dean of Students

“UW–Madison is committed to fostering a campus environment where every student can learn, feels safe and valued, and is able to thrive.” – Chancellor Rebecca Blank

## Building good communication skills is critical to your success:

In our diverse society, employers seek candidates who can effectively interact and work in teams with people from many different backgrounds. Like leadership or critical thinking, learning how to communicate well with people from diverse backgrounds is a skill anyone can learn with practice. Badgers who build this skill in college are not only doing the right thing, they are also more successful in the job market and excel more quickly in their careers.

## What your peers think:

A recent survey found that 87% of UW students agreed with this statement: “I embrace diversity and make sure that people from all backgrounds feel part of the UW-Madison community.” They also said they do their best to behave inclusively, though they sometimes worry about saying the wrong thing. While overt acts of discrimination occur at UW, recent research suggests these acts are committed by a small minority of individuals who differ radically from other students in terms of their attitudes and personalities.

## What you can do:

Building cultural sensitivity and behaving inclusively aren’t difficult. Engaging in a few straightforward behaviors can both sharpen your skills and improve our campus climate.

DO...	DON'T...
...have a conversation with a student who has a different background from you. Ask them about their experiences.	...assume you know about an individual’s abilities and interests just because they belong to a certain social group.
...attend several activities, talks, or other diversity events per semester. Find an events list at <a href="http://bit.ly/UWdiverse">bit.ly/UWdiverse</a> .	...use expressions others find offensive (e.g., “that’s gay,” “gypped,” “ghetto,” “retarded”). Others see your behavior, not your intent.
...display the same level of warmth and enthusiasm when interacting with students from all social groups.	...tell someone their name is odd because you find hard to pronounce. Instead, learn how to say their name correctly.
...ask individuals from different social groups what terms or phrases they find offensive.	...tell someone they are different from “typical” members of a social group they belong to.
...choose students from different social groups for class projects.	...remain silent when you see others engage in discrimination. Speak up!

Questions about this page? Send an email! [mdunne2@wisc.edu](mailto:mdunne2@wisc.edu)

## Laboratory Schedule for Chem 116, 2017 Spring Semester

### Laboratory Director:

Dr. Pamela Doolittle

[pssemrad@wisc.edu](mailto:pssemrad@wisc.edu)

Office phone: 608-262-9679

### Teaching Assistant:

Tesia Janicki

[tjanicki@wisc.edu](mailto:tjanicki@wisc.edu)

### Stockroom Staff:

Dominic Colosi

Michelle Fitzgerald

Zoe Samer

Labs meet once a week either Tuesday (Section 302) or Thursday (Section 301) for the first six weeks of the semester. For the rest of the semester you should use this time block to forward progress on the research project. Your TA may schedule study and review sessions during this time as well, so do not schedule work hours or other commitments after the initial six week formal lab period is finished. You can find the Experimental descriptions in the Lab section of the content on Learn@UW. The lab schedule:

Week 1 (January 17/19)	Molecular Modelling
Week 2 (January 24/26)	Fluoride Ion Selective Electrode *(Individual lab exercise)
Week 3 (January 31/February 2)	Synthesis of Biodiesel*
Week 4 (February 7/9)	High Pressure Liquid Chromatography*
Week 5 & 6 (February 14/16 & February 21/23)	A Study of an Unknown Acid * (Individual lab exercise)

*\*Complete the online laboratory quiz BEFORE coming to lab. Access to the quiz will close at the lab start time.*