

**Course Website**     [http://www.uwosh.edu/faculty\\_staff/mihalick/genchem.html](http://www.uwosh.edu/faculty_staff/mihalick/genchem.html)

The website contains copies of the syllabus, class schedules, and homework assignments.

**Lecturer and Course Coordinator:**

Dr. Jennifer Mihalick     HS 439     424-7095     mihalick@uwosh.edu  
office hours: MW 8-9, T Th 9:30-10:30, or by appointment

**Additional Instructors for Discussion and Laboratory sections:**

Dr. Sandra Neuendorf     HS 415     424-7101     neuendor@uwosh.edu  
Dr. George Olsen     HS 444     424-2398     olsengp@uwosh.edu

**Course Registration** and advising are coordinated by the Department Program Assistant

Ms. Diane Kromm     HS 432     424-1400     krommd@uwosh.edu

When sending email messages please include "Chem 106" in the subject line.

**Required course materials:**

Silberberg, *Principles of General Chemistry*, 1st ed. (McGraw-Hill 2007)

*Laboratory Manual for Chemistry 106*, Fall 2009

cps RF response pad - After you receive an activation coupon in class you can register your clicker at the  
eInstruction website [www.eInstruction.com](http://www.eInstruction.com); Class Key is **I 5 4 5 7 0 L 6 3 8**

bound laboratory notebook with carbonless copying

calculator with scientific notation, powers, roots and logs (not a personal digital assistant)

safety goggles with indirect vents (available from Chemistry Club)

**Course Prerequisites:** C in Chemistry 105; C in Math 104 (or placement in a higher math course).

**Course Overview:** Chemistry 106 is the second chemistry course for science majors. It also meets the requirements for pre - chiropracty/dental/medical/pharmacy/physical therapy/veterinary students. It is primarily an introduction to chemical reactions. There will be frequent references to material covered in Chemistry 105.

Chemistry 106 fulfills a natural science requirement for the University's general education program, which provides a foundation in the liberal arts and sciences. This course assists students in developing effective written and oral communication; skills related to critical thinking, problem solving, and creativity; the ability to manipulate symbol systems and use quantitative methods; and skills associated with the scientific method including data collection, analysis, theory formulation and hypothesis testing.

## Description of Course Components

Each week you will have at least four places to learn chemistry. Success in this fast-paced and challenging course requires good attendance and a significant investment of time in addition to scheduled class hours. You are encouraged to visit the instructors during office hours to clear up points of confusion or to explore topics beyond the scope of the textbook.

**Homework:** A homework assignment will be distributed for each week. Plan to skim each chapter before it is presented in lecture: look at the introduction, list of concepts and skills to review, section titles and summaries, and pictures. After each lecture, review your notes and re-read the appropriate textbook sections. Work through sample and follow-up problems as you go along. If anything is confusing, ask the professor about it. Next, go to the end of chapter problems and see which ones you know how to do. You can check your work since answers are in the back of the book for many of the problems. Mark any that you have trouble with so you can do more examples of that type of problem. After finishing each chapter, use the **learning objectives** as a study guide. Be sure you can apply the **key terms** and **equations**.

**Lecture:** Lectures are given Tuesdays and Thursdays 8:00-9:30 in HS 107. The schedule of topics is on page 4. In lecture you will listen to descriptions of important concepts, take notes, and do practice problems. You will use your cps RF response pad (clicker) to participate in interactive exercises. Four multiple choice exams will be given in lecture. Student reflections on learning will be assigned periodically.

**Discussion:** Small group discussions will be guided by worksheets designed to demonstrate a property of matter. You will use data or models and calculations to build and test theories. A quiz based on homework will usually be given at the beginning of the period.

**Workshop:** Optional weekly workshops organized by Dr. Neuendorf provide practice problems to do with a group, assisted by experienced chemistry students. They meet Friday 8:30-10:30 am or Monday 5:30-7:30 pm in HS 305. The workbook is distributed by the University Bookstore.

**Laboratory:** In the laboratory you will learn to design experiments, use scientific instruments, and make careful observations. This semester you will also write lab reports in a standard scientific paper format. The schedule appears on page 5. Bring your lab manual, lab notebook, and calculator to the laboratory. The dress code includes safety goggles, long pants and long sleeved shirts, closed shoes. Your shirt and pants must overlap. Long hair must be tied back. Do not bring food or beverages to the lab (not even gum). Additional safety regulations will be discussed at the first lab. Students who do not follow the safety rules will lose some of the lab work points, and may be asked to leave the laboratory.

**Grades:** Grades will be determined by the total points earned in different activities in the course, except that students earning less than 50% of the lab points will receive only F or Incomplete.

Exams (4x150 pts)	600	<i>Laboratory components</i>	
Worksheets (best 12x10 pts)	120	Lab work (12x5 pts)	60
Discussion Quizzes (best 10x10 pts)	100	Lab notebooks (12x5 pts)	60
Lecture "clicker" questions	50	Prelabs, plans, analyses	55
reflection assignments	20	<u>Lab reports</u>	<u>65</u>
<u>Laboratory</u>	<u>240</u>		240
TOTAL	1130		

The computer scan sheets for multiple choice exams will not be returned to you; you must check the posted answer keys to verify that your score was entered properly. Misgraded quizzes must be returned to your instructor for possible regrading no later than one week following their return to you. The lowest score of the 10 discussion quizzes will be dropped when computing grades. Worksheets will be graded pass/fail. You will receive one point for each clicker question, up to a maximum of 50 (at least 80 will be asked over the course of the semester). Each reflection exercise will be worth two points, up to a maximum of 20.

Typical grade cutoffs in 106 are

87% A

75 B

63 C

50 D

Under the new University grading system, pluses and minuses will be added to grades when point totals are near the grade cutoffs. A grade of "C" in Chemistry 106 is required to take additional courses (Chem 221, Modern Analytical Chemistry or Chem 235, Organic Chemistry I).

**Attendance policy:** Students are expected to attend every scheduled class but will be excused for illness or family emergencies. Due to the administrative complexity of this large course, no makeups are offered. If you miss a lecture, copy the notes from a classmate and make sure you find out about any important announcements. If you miss an exam, discussion or laboratory, send an email message or bring a written excuse to your instructor. You may be able to attend a different laboratory or discussion section. An excused absence will not count against your record (your grade computation will be modified), but you will be held responsible for material covered during your absence. Repeated absences may justify assignment of an "Incomplete" grade.

## Chemistry 106 LECTURE AND DISCUSSION SCHEDULE Fall 2009

week of	Tuesday chapter	Wednesday Q?	topic	Thursday chapter
1 9/7	<i>no class</i>	No	syllabus	4 Classes of Reactions
2 9/14	4	Yes	precipitation reactions	4
3 9/21	4	Yes	redox reactions	20 Thermodynamics
4 9/28	20	Yes	thermodynamics	14 Main group; review
5 10/5	<b>Exam 1</b> (4,20)	No	main group elements	16 Kinetics
6 10/12	16	Yes	kinetics	16/17 Equilibrium
7 10/19	17	Yes	kinetics + equilibrium	17/review
8 10/26	<b>Exam 2</b> (14,16,17)	No	acids	18 Acid-Base Equilibria
9 11/2	18	Yes	acid base reactions	18
10 11/9	19 Ionic Equilibria	Yes	complex equilibria I	19
11 11/16	lab discussion/review	Yes	complex equilibria II	<b>Exam 3</b> (18, 19)
12 11/23	21 Electrochemistry		<i>no class</i>	<i>no class</i>
13 11/30	21	Yes	fuel cell	21/22 Transition Elements
14 12/7	22	Yes	transition metals I	22
15 12/14	22, review	Yes	transition metals II	<b>Exam 4</b> (21, 22)

Lecture meets Tuesday and Thursday from 8:00 am - 9:30 am in HS 107.

All discussion sections meet on Wednesday in HS 456.

Section 1	9:10 am - 10:10 am
Section 2	10:20 am - 11:20 am
Section 3	12:40 pm - 1:40 pm
Section 4	1:50 pm - 2:50 pm

Friday 8:30-10:30 am or Monday 5:30-7:30 pm workshop sessions in HS 305 provide extra practice problems to help you prepare for quizzes and exams.

## Chemistry 106 LABORATORY SCHEDULE Fall 2009

<i>week of</i>	<i>experiment (10 pts each)</i>	<i>prelab, plan, analysis (5 pts each)</i>	<i>report</i>
9/7	<i>no lab meeting</i>		
9/14	Safety review, lab check-in; Identification of Compounds	analysis of knowns	
9/21	ID of Compounds 2	identity of unknowns	
9/28	ID of Compounds 3	Molarity	Results & Discussion draft (5 pts) due next week; final (10 pts) in two weeks
10/5	review drafts; Kinetics 1	Beer's Law	
10/12	Kinetics 2	plan in lab	
10/19	Kinetics 3	order+rate constant	full report (20 pts) due next week
10/26	Formation Constant 1	formation constant	
11/2	Formation Constant 2	buffers analysis	
11/9	Formation Constant 3	plan in lab	
11/16	Formation Constant 4		full report (25 pts) due in 2 weeks
11/23	<i>no lab meeting</i>		
11/30	Voltaic Cells	analysis	
12/7	Synthesis of Transition Metal Complex; lab check-out	prelab (p. 501) due at beginning of lab	products (5 pts)
12/14	<i>no lab meeting</i>		

All laboratory sections meet in HS 404.

1	M	8:00 am - 11:20 am	Olsen	3	T	1:20 pm - 4:30 pm	Olsen
2	M	1:50 pm - 5:10 pm	Olsen	4	Th	1:20 pm - 4:30 pm	Mihalick