

Prof. Hladky (schedule in bold, other lab sections shown in small font, not bold)

Prof. Lawrence 105-01L1 (Monday 8-11 AM) and 105-01L2 (Wednesday 8-11 AM)

Prof. Timerman 105-01L4 (Monday 2-5 PM)

	Monday		Tuesday	Wednesday	Thursday	Friday
08:00	105-01L1 PRAG Lab B140		105-01 Lect A121	105-01L2 PRAG Lab B140	105-01 Lect A121	105-01 Lect A121
09:00	105-01L1 PRAG Lab B140		Prep	105-01L2 PRAG Lab B140	Prep	Prep
10:00	105-01L1 PRAG Lab B140		333-01 Lect A111	105-01L2 PRAG Lab B140	333-01 Lect A111	333-01 Lect A111
11:00	105-01L3 Lab B140		Prep	PRAG	PRAG	PRAG
12:00	105-01L3 Lab B140		105-01D1 Disc A112	PRAG	PRAG	PRAG
13:00	105-01L3 Lab B140		Prep	PRAG	PRAG	PRAG
14:00	105-01L4 Lab B140	335-01L1 Lab C141	105-01D2 Disc A112	335-01L2 Lab C141	PRAG	Meeting or Seminar
15:00	105-01L4 Lab B140	335-01L1 Lab C141	105-01D3 Disc A112	335-01L2 Lab C141	PRAG	PRAG
16:00	105-01L4 Lab B140	335-01L1 Lab C141	105-01D4 Disc A112	335-01L2 Lab C141	PRAG	PRAG

PRAG = Projects, Research, Appointments or Grading

I. Course Descriptions (CHEM 105 & CHEM 106)

CHEM 105 - Fundamental Chemistry (5 cr)

Description:

(Two semester basic course) Fundamental principles and theories of chemistry, including stoichiometry, atomic and molecular structure and bonding, nuclear chemistry, thermodynamics, descriptive chemistry of nonmetals and transition metals, chemical kinetics and equilibria, introduction to organic chemistry.

Prerequisites:

[MATH 090](#) or placement in [MATH 100](#) or above. (See [notes 3, 4, 5](#) in Course Catalog).

CHEM 106 - Fundamental Chemistry (5 cr)

Description:

Continuation of [CHEM 105](#).

Prerequisites:

[CHEM 105](#), [MATH 100](#) or higher. (See [note 4](#) in Course Catalog.)

Note that MATH 100 is being phased-out and two courses, MATH 95 and MATH 107, have been introduced to replace it.

II. Course Objectives

General Education Program (GEP)

**Natural
Sciences
(Learning
Outcomes)**

(lab
component
also required)

- Identify the basic taxonomy and principles of the scientific method as it pertains to the natural, physical world.
- Infer relationships, make predictions and solve problems based on an analysis of evidence or scientific information.
- Apply scientific concepts, quantitative techniques and methods to solving problems and making decisions.
- Describe the relevance of some aspect of the natural science to their lives and society.

Student Learning Outcomes (Chemistry Department)

Students graduating with a major in Chemistry from the University of Wisconsin-Stevens Point will be able to perform tasks representing all eight of the following learning outcomes. Students completing Chem 105 will perform tasks, at an introductory level, representing the five underlined learning outcomes.

- apply the foundational principles of chemistry (conservation of matter, the laws of thermodynamics, the principles of phenomenological and mechanistic kinetics, and models for the electronic structure of atoms and molecules) to explain the chemical and physical properties of matter.
- work safely in a chemistry laboratory.
- use appropriate methods, techniques, and equipment and modern instruments for the synthesis, isolation, and characterization of matter and for the analysis of mixtures. Graduates will be able to explain the operating principles and interpret the output of instruments.
- search the chemical literature for information relevant to a project of interest utilizing modern methods.
- document experimental results in a laboratory notebook according to accepted scientific standards.
- communicate experimental results and chemistry related issues as a written report, as a poster, and as an oral presentation. Students will be able to work in teams to perform laboratory work and report on this work.
- analyze experimental results to draw justifiable conclusions.
- address chemical problems using their accumulated knowledge and skills in combination with scientific methodology to design and conduct experiments.

III. Course Schedule

Week	Lecture Days Text Chapters and Exams			Lab Exercise Lecture Activities and omitted sections
	Tue	Thur	Fri	
1	Intro / 1	1	1	Check-in
2	1 / 2	2	2	Precision vs Accuracy in Scientific Meas & Calcs omit sections 2.6 and 2.7
3	2 / 3	3	3	Water Content of a Hydrated Salt
4	3	3	4	Introduction to Absorption Spectrophotometry
5	4	Ex 1	4	Colorimetric Determination of Iron Exam 1 covers chps 1,2,3 and Nomenclature of Ionic and Molecular Compounds (see handout and section 4.2)
6	4	4	5	Periodic Properties omit section 5.7
7	5	5	5	Molecular Models
8	6	6	6	Lab Practical omit section 6.5
9	7	Ex 2	7	Intermolecular Forces Exam 2 covers chps 4,5,6
10	7	7	7	Separation of a Mixture omit section 7.7
11	7 / 8	Ex 3	8	Limiting Reactant Exam 3 covers chapters 1 - 6
12	8	---	---	Thanksgiving - No Lab
13	8	8	8 / 9	Titration - Standardization of KHP
14	9	Ex 4	9	Titration of Vinegar - Is the label Truthful? Exam 4 covers chapters 7 and 8
15	9	9	Lab Fnl	Calorimetry & Check-out from lab Lab final (given during lecture) covers weeks 1 - 13
16	---	---	---	Lecture Final Exam - Monday 12/18/2017 Lecture Final Exam covers chapters 1 - 9

Class Attendance: Attendance for all lectures, discussions and laboratories is expected as outlined in the UWSP Undergraduate Catalog. See the section about Attendance under Academic Policies.

UWSP is committed to providing reasonable and appropriate accommodations to students with disabilities and temporary impairments. If you have a disability or acquire a condition during the semester where you need assistance, please contact the Disability and Assistive Technology Center on the 6th floor of Albertson Hall (library) as soon as possible. DATC can be reached at 715-346-3365 or DATC@uwsp.edu.

IV. Principle Assignments

Assignment	Graded (Y / N)	Notes
Concept Tests	N	learning aid located in most textbook sections
Sample Exercises	N	learning aid located in many textbook sections
Practice Exercises	N	learning aid located in many textbook sections
Visual Problems	N	learning aid located at the end of each chapter
Questions and Problems	N	learning aid located at the end of each chapter
Online Homework	Y	log in to Sapling website using directions and links supplied in an email.
Lecture Exams	Y	see schedule in syllabus for more information
Lab Notebook	Y	See pages 1-7 and 2-4 for the prelab assignment. The grading rubric is shown below. Note that it is worth zero points if all items are done but there are 0.25 pt deductions for each item that is not done.
Lab Reports	Y	The structure of lab reports will be discussed in the first discussion period.
Lab Practical Exam	Y	see schedule, more information will be given in lab
Lab Final	Y	see schedule. A review session will be held during the discussion period preceeding the exam.
Lecture Final	Y	comprehensive exam focusing on the main topics of the semester

Suggestions For Studying / Learning:

The main principles to remember for studying are that (a) you should learn something new every day, (b) your understanding of chemistry will be measured using exams, and (c) you work alone on exams. In other words, you won't get any help from the instructor, a tutor, another student, or any of your friends during exams. You also will not be able to look at your notes, look at sample problems in the textbook, nor Google for help. To put this in a different light, your studying should involve a transition from getting help with problems to doing them completely by yourself. The following suggestions / hints may be helpful.

- 1) Skim each chapter before you start reading. The section headings and bold-type words should give you a sense of the chapter's material. I strongly recommend that you do this before I start the chapter in lecture.
- 2) Attend the lectures. I will follow the authors' order of topics fairly closely so my presentation of the material should complement the textbook. I will also relate the material that I am presenting to past and future topics. **I don't expect you to learn the material during lecture.** Instead, lectures are where you prepare to learn by hearing presentations about the course material and watching my solve sample problems. Lectures also set the pace of the course. Note the professors' rule of thumb - students should spend two to four hours working outside of class for every hour spent in class. Translation - most of your learning occurs outside of the classroom.
- 3) Take notes during lecture but don't try to write down every word. I use the white board rather than PowerPoint Slides so that you can write down every thing I put in the board. You may want to flesh out your lecture notes when you read the textbook.
- 4) Read the textbook but don't try to read it all at once. The lectures set the pace and you should read the relevant sections before the next class period. Check your initial understanding sections with the ***Concept Tests***. Remember that part of your education is to become literate at the college/university level and that means you must be able to read college-level textbooks.

- 5) Take notes when you read but keep them to a minimum. For example, write down, or sketch, as appropriate:
 - a) section and subsection headings and a brief description,
 - b) terms in bold, italicized or underlined type and along with brief definitions,
 - c) important figures, tables and diagrams,
 - d) important equations, the meaning of each term and the units that appear in it,
 - e) a functional summary of the example problems in each section.
 Taking these notes if much more important than reading them.

- 6) Work problems, work problems, work problems, ... and then work more problems.
 - a) Study the ***Sample Exercises*** and work the ***Practice Exercises*** that appear in the sections. You may ***peek*** at the book or your notes but try to get your own answer before looking at the authors' answer.
 - b) Work the **boldfaced *Visual Problems*** and ***End-Of-Chapter Questions and Problems*** as soon as you finish reading the relevant section. For your convenience, answers to the **boldface** problems are provided at the back of the book. Try to ***not peek*** at your notes, textbook, or the authors' answers until you have an answer to check. Remember that you can't peek when you take exams.
 - c) Working a few problems every day or two is much more valuable than trying to do them all in one marathon session the day before an exam.
 - e) Don't spend more than 5 minutes trying to start a problem.
 - f) It may be helpful to rework a selection of problems as you study for an exam but don't work the same problem over and over and over again.
 - g) If you spend 30 minutes on problems and you haven't worked any of them correctly, then you have wasted at least 20 minutes of your time. Wasted time does not count as study time.

- 7) Attend discussion sections. I will pose a variety of problems based on material from previous lectures, give you some time to work on them individually, and then provide the solutions. You can also ask questions about assigned problems.

- 8) If you are really stuck on a problem ask other students, talk to me after class, or come and see me during an office hour.

The textbook authors provide a summary and a problem-solving summary and at the end of each chapter which should be helpful when reviewing for exams. Remember that studyin for an exam should be reviewing and the most important reviewing is reworking previous problems a second time.

CHEM 105 Lab Notebook Grading Rubric Name: _____

Experiment: _____ **Section:** _____

Item	✓
<i>To be Completed by the Lab Instructor (pre-lab):</i>	
Updated table of contents	
Experiment title	
Experiment purpose	
Brief procedure or flow chart	
Data tables prepared in advance	
All entries made in ink	
<i>Lab Instructor Signature/initials:</i>	
<i>To be Completed by the Lab Grader (post-lab):</i>	
Date and signature present at the bottom of each page with data	
All data present in tables with titles, headings, and units	
Data errors appropriately labeled and corrected	
Results summary and/or conclusion	
Total Number of missing/incorrect Items	

Score on post lab questions	
Lab notebook deductions	
Overall Lab Score	

Notes: ✓ means item is present and correct.

0.25 pts will be deducted for each missing/incorrect item

V. Evaluation

ITEM	Raw Pts Possible	Course Pts
12 Lab Notebooks & Reports (8 pts per lab, best ten lab scores)	80	80
Lab Practical	20	20
Lab Final Exam	30	30
Midterm Exams (100 pts / Exam) See item 2 below for more information about midterm exam scores.	300	300
Online Homework (Point values of problems vary but they are internally consistent and will be scaled to 20 course points at the end of the semester.)	variable	20
Final Exam, Lecture (cumulative)	150	150
	----	600

Notes and Policies:

1. All exams will be closed notes and closed book. They will be given only on the date listed in the lecture schedule. Information sheets will be provided when appropriate and will contain important equations, conversion factors and other information that may be needed.
2. Missed or bombed midterm exams. No early nor makeup midterm exams are given. Instead, the percentage of your final exam score is also treated as midterm exam scores. The best three of these five scores (four midterms and the final exam percentage) are the three midterm exam scores used to calculate your final point total. In any case, the final exam score is always part of the final point total.
3. You must attend your scheduled lab session. Most of the experiments have prelaboratory exercises associated with them. These prelabs must be handed in at the beginning of each laboratory period.
4. Missed laboratory session. There are no makeup lab sessions for any reason and you can't do a lab at a different time. Instead of makeup labs, I will count your best 10 out of 12 lab scores.
5. A scientific calculator is required for this course, it may be used on exams and you are expected to know how to operate it. There will be no sharing of calculators without the instructors permission. **Cell phones may not be used as calculators.**
6. Course grades will be assigned as follows: 100%-90.0%, A or A-; 89.9%-80.0%, B+, B or B-; 79.9%-70.0%, C+, C or C-; 69.9%-60.0%, D+ or D; Below 59.9%, F. I reserve the right to "curve" the final grades, but in no case will the curve result in requiring more than the above percentages for any grade.
7. There are no individualized extra credit opportunities. If I offer an extra credit opportunity, it will be available to the entire class. Each hour exam has extra points and the final exam has extra points.
8. If you believe that you need additional time for exams, then you must make arrangements with Student Disability Services. I have always honored their recommendations and requests.

These policies cover all absences (illness, university events, sports, family emergencies, ...) whether they are planned or unplanned. Since I can't reliably judge every student's absence to determine whether or not it is legitimate, these policies enable me to treat everyone equally and as fairly as possible. If you believe that you have extenuating circumstances that are not covered by these policies, then please see me as soon as possible. If you are not satisfied with my decision, you may take your case to the Dean of the College of Letters and Science or the Dean of Students.

Academic Responsibility: You are encouraged to study together, work problems and exercises with others in the class, and to seek help in understanding the material. However, unless specifically instructed otherwise, all work to be graded should be your own work, and not copied from any other person. Any instances of plagiarism or cheating will be dealt with in accordance with the UWSP Chapter 14 rules on Academic Misconduct.

VI. Bibliography

Text: Gilbert, T. R.; Kirss, R. V.; Foster, N. *Chemistry - an atoms-focused approach*; W. W. Norton & Company: New York, 2014.

SCHEDULE OF EXPERIMENTS

CHEM 105

FALL SEMESTER 2017

Week	Points	Individual or Pairs	Title
1	---	I	Check-in
2	8	I	Precision vs Accuracy in Scientific Meas & Calcs
3	8	I	Water Content of a Hydrated Salt
4	8	P	Introduction to Absorption Spectrophotometry
5	8	I	Colorimetric Determination of Iron
6	8	I	Periodic Properties
7	8	P	Molecular Models
8	20	I	Lab Practical Exam
9	8	P	Intermolecular Forces
10	8	I	Separation of a Mixture
11	8	I	Limiting Reactant
12	---	---	Thanksgiving - No Lab
13	8	I	Titration - Standardization of KHP
14	8	I	Titration of Vinegar - Is the label Truthful?
15	8	P	Calorimetry & Check-out

Name (please print): _____

I have received a copy of the course syllabus and the following items from it have been explained to me to my satisfaction:

- 1) the lecture schedule including the dates for the midterm exams and the lab and lecture finals;
- 2) the grading policy for the course including the point totals for all of the lecture and laboratory items and the grading scale;
- 3) the policy for missed* or bombed hour exams (no early nor makeups allowed);
- 4) the policy for missed* experiments (no makeups nor alternate times allowed);
- 5) the attendance policies for lecture, discussion and lab;
- 6) the need for a scientific calculator;
- 7) the absence of individualized extra credit opportunities.
- 8) extenuating circumstances (see me first and then the Dean of the College of Letters & Science).

* **These policies cover all absences. Since I can't reliably judge every student's absence to determine whether or not it is legitimate, these policies enable me to treat everyone equally and as fairly as possible. If you believe that you have extenuating circumstances that are not covered by these policies, then please see me as soon as possible. If you are not satisfied with my decision, you may take your case to the Dean of the College of Letters and Science.**

I understand the following policies and practices that will be in effect during examinations:

- 1) All notes and books will be closed and put away 5 minutes before the start of the test period.
- 2) Exams will not be opened until the instructor announces that it can be started. You may fill in the information on the cover page.
- 3) Looking and even glancing at another exam is considered cheating and will not be tolerated. Similarly, allowing others to look at your exam is also considered cheating. The instructor will issue warnings and/or assign alternate seats for instances of possible cheating. Cases in which cheating is strongly suspected will be dealt with according to UWSP policies on Academic Misconduct.
- 4) All writing must stop at the end of the test period. The instructor may impose penalties for each person who fails to stop working on their exam when the test period is over. These penalties may be 5 points for each minute of extra time taken past the end of the test period.
- 5) Caps may be worn but the bill must face backwards during the exams.
- 6) No sharing of calculators during the exam.
- 7) No electronic devices other than a calculator may be present during the exam without instructor approval. **Cell phones are not considered calculators. Electronic translators are not allowed.**

I agree to abide by all of the policies described in the syllabus and listed on this page.

Signature: _____ **Date** _____