Student Syllabus for Chemistry 105
Fundamental Chemistry
Fall 2018

Instructor: Dr. David Szpunar
Office: Chemistry Biology Building 406
e-mail: dszpunar@uwsp.edu
Phone: 715-346-3771

Prof. Gary Lueck
Chemistry Biology Building 243
glueck@uwsp.edu
715-346-4914

Lecture:	Mon., Tue., Thur.		3:00 PM -3:50 PM	**Location:**	CBB 105
Discussion:	06D4	Thur.	8:00AM-8:50AM	**Location:**	CBB 265
	06D3	Thur.	9:00AM-9:50AM		CBB 265
	06D2	Thur.	10:00AM-10:50AM		CBB 265
Lab:	06L3	Tues.	11:00AM-1:50PM	**Location:**	CBB 226
	06L4	Wed.	11:00AM-1:50PM		CBB 226
	06L2	Fri.	8:00AM-10:50AM	(Prof. Lueck)	CBB 230

Text: **Lecture**: *Chemistry: An atoms focused approach, 1st ed.*, T.R. Gilbert, R.V. Kirss, and N. Foster; W.W. Norton & Company: New York, New York, 2014 (required)

- *ISBN-13*: 978-0393912340
- *ISBN-10*: 0393912345
- This is available for rental at the University Bookstore

Sapling Learning Homework (required)

- Homework access card available for purchase at the University Bookstore
- Can login/create an account at: www.saplinglearning.com/login
- Can register for the course at: https://community.macmillan.com/docs/DOC-5972-sapling-learning-registering-for-courses.

Scientific calculator (required)

Lab: Chem. 105 Laboratory Manual (required)

- Available for purchase at the University Bookstore

Laboratory Notebook (required)

- Available for purchase at the University Bookstore

Laboratory safety goggles (required)

- Available for purchase at the University Bookstore

Office hours: Dr. Szpunar
Mon. 10:00-11:00 AM
Wed. 3:00-4:00 PM
Fri. 1:00-2:00PM
By appointment

Tutoring:

Group Tutoring scheduling can be found here: http://www.uwsp.edu/tlc/Pages/schedules.aspx. Times and locations will be listed by Week 2 of the semester.

Drop-In Tutoring Center (DUC 205) schedule can be found here: http://www.uwsp.edu/tlc/Pages/dropInTutoring.aspx. The Fall 2018 schedule will be posted by Week 1 of the semester.

One-on-One Tutoring is available by appointment only. Please send students to the TLC (ALB 018, library basement) to request tutoring. Appointments are made based upon tutor availability – we cannot guarantee that every student will be matched with a tutor.

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.

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.

(a) 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.

(b) work safely in a chemistry laboratory.

(c) 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.

(d) search the chemical literature for information relevant to a project of interest utilizing modern methods.

(e) document experimental results in a laboratory notebook according to accepted scientific standards.

(f) 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.

(g) analyze experimental results to draw justifiable conclusions.

(h) address chemical problems using their accumulated knowledge and skills in combination with scientific methodology to design and conduct experiments.

METHODOLOGY: The class is composed of three lectures, one lab and one discussion meeting per week. The lecture itself will primarily be lecture-based, although students will be asked to break up into groups to work on problems daily. These problems will not be due, but it is expected that every student will pair up into a group and complete the assigned problems. The discussion section is usually earmarked for Q&A sessions and group work. Unless otherwise noted, you will perform laboratories weekly. Please see the laboratory schedule provided in this syllabus.

Exams: There will be three hourly exams will be given on Thur., Oct. 4, Mon., Nov. 5, and Thurs. Dec. 13. **The cumulative final is on Tues., Dec. 18 in CBB 105, 12:30PM-2:30PM.**

Quizzes: There will be three 25 minute quizzes at the start of class on Mon., Sept. 24, Mon., Oct. 22, and Thurs., Nov. 29.

D2L: Course information (exam/quiz solution sets, course grades, lecture slides etc.) will be posted daily on DTL. It is your responsibility to visit the site daily. You can log into D2L at: http://www.uwsp.edu/d2l/Pages/default.aspx

Homework: We will be using the Sapling online homework system. Mandatory homework is assigned for each chapter, and is due one week after it is assigned. There are a total of 9 assignments for a total of 180 points. The assignment and due dates are given in the course outline section of the syllabus. It is essential to do the homework in order to succeed in this class. Exams and quizzes are heavily based on homework. You may work together on the homework, but each student is responsible for understanding each problem. Copying another's homework is not "group work" - it is plagiarism. If asked, you are responsible for justifying that your work is your own. I will not credit anything that I perceive to be copied work.

Laboratory: As detailed in the laboratory schedule, 12 experiments will be assigned. I will drop your lowest two lab scores. Prelabs (detailed in each lab) are due at the start of the lab period. Grading schemes for these prelabs are detailed below. Brief reports are due at the end of the lab period. If there is not enough time to finish the lab report, it will be due the following class period. **There are no makeup labs**.

Laboratory grading rubric:

CHEM 105 Lab Notebook Grading Rubric **Name: _____**

Experiment: **Section: _____**

Item	√
*To be Completed by the Lab Instructor (**pre-lab**)*:	
Updated table of contents	
Experiment title	
Experiment purpose	
Brief procedure or flow chart	
Data tables prepared in advance	
All entries made in ink	
Lab Instructor Signature/initials:	
*To be Completed by the Lab Grader (**post-lab**):*	
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

General considerations:

-Significant figures will be considered on all quizzes, exams, lab reports, prelabs and homework assignments.

-Phases (i.e. solid, liquid, gas or aqueous) must be included in all chemical equations.

-Carbon atoms are shown with more than 4 bonds in Lewis structures etc.

Make-up policy: There will be **NO** unexcused make-ups of homework, exams, or quizzes. Any excused makeups must be performed within 48 hours of the original date. Due to the nature of labs, there are no lab makeups. However, your lowest two labs will be dropped to compensate for this. All unexcused absences will result in a grade of zero.

Final Exam: Note that the final exam is cumulative covering Ch. 1-9. It is scheduled for Tuesday, 12/18 12:30-2:30AM in CBB 105

Grading: Your final grade will be based on the following point system:

Hourly exams:	3 × 100 pts	=	300 points	(30.0%)
Final exam:	1 × 200 pts	=	200 points	(20.0%)
Quizzes:	3 × 30 pts	=	90 points	(9%)
Homework:	9 × 20 pts	=	180 points	(18%)
10 lab notebooks and reports:	10 × 23 pts	=	230 points	(23.0%)
	1000 points			100%

You will be graded on the following scale:

% Total Points	Grade	% Total Points	Grade
≥ 93 %	A	73 – 76 %	C
90 – 92 %	A-	70 – 72 %	C-
87 – 89 %	B+	67 – 69 %	D+
83 – 86 %	B	63 – 66 %	D
80 – 82 %	B-	< 63 %	F
77 – 79 %	C+		

Lecture policies:
You are expected to be at class on time. There will be no make up quizzes.

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.

Bring your text, a calculator, and note-taking materials to every class. This is important because we will often times need calculators and books for group work. I will not supply "loaner" calculators--you must bring your own.

Please do not hesitate to raise your hand and ask questions during lecture if you are unclear on some point.

Quiz keys will be posted on D2L.

You are responsible for checking your e-mail and D2L daily.

Working in groups is encouraged. However, **copying work for homework assignments is unacceptable. Any such assignments will not be accepted and will receive a score of zero points. <u>This includes lab results as well</u>!**

Please turn all cell phones to vibrate before class. No texting or iPods allowed. Laptops are for taking notes only. If I see you texting or using your laptops in an inappropriate manner I will give you one warning before asking you to leave the class. *Talking/texting/surfing the web is inappropriate and will not be tolerated. It distracts other students and is rude*.

Treat all fellow students with respect and civility. Failure to do so will result in your dismissal from that day's lecture.

Study Tips for General Chemistry.

- Lectures will primarily follow the text. Read the assigned sections before lecture and again shortly after, using your lecture notes as a supplement. Repeating the information helps the facts and concepts sink and remain in your brain.
- Try to work the problems as soon as possible after lecture. This will help you discern where your understanding may be lacking and will help reiterate the important concepts.
- I cannot overemphasize the importance of peer groups!! Form a group of students from class and plan to meet outside of class at least once a week to discuss problems and material. Your peers may have picked up on something in lecture that you missed, they may be able to explain something in terms that you will understand better than I may be able to do, and you will be reviewing the material which will again help you to remember it come test time.

- This course covers some difficult material and necessarily maintains a rapid pace. Expect to spend 9-12 hours per week outside class for study, homework and writing lab reports. If you cannot commit to this level of study, I recommend you reduce your other commitments or withdraw from the course.
- Do the homework, re-do the homework, and do practice problems. "Practice makes perfect."

Academic Honesty/Plagiarism Policy:

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. Any violations will result in a zero for that assignment/exam. A second violation results in an F for a final grade in the class.

Accommodation of Persons with Disabilities:

The Americans with Disabilities Act (ADA) is a federal law requiring educational institutions to provide reasonable accommodations for students with disabilities. If you have a disability and require classroom or exam accommodation, please register with the Disabilities Services office and then contact me within the first two weeks of the semester. In order to receive accommodations, you must have documentation of your disability on file with the Office of Disability Services. In addition, you must provide me with an Accommodations Request Form (available on their website). You must have me sign the form and return it to the Office of Disability Services.

University Policy on Absence to Observe Religious Holidays

It is UW System policy to reasonably accommodate your sincerely held religious beliefs with respect to all exams and other academic requirements. You will be permitted to make up an exam or other academic requirement at another time or by an alternative method, without any prejudicial effect, if:

- There is a scheduling conflict between your sincerely held religious beliefs and taking the exam or meeting the academic requirements; and
- You have notified me within the first three weeks of the beginning of classes of the specific days or dates that you will request relief from an examination or academic requirement.
- I will accept the sincerity of your religious beliefs at face value and keep your request confidential.
- I will schedule a make-up exam or requirement before or after the regularly scheduled exam or requirement.
- You may file any complaints regarding compliance with this policy in the Equity and Affirmative Action Office.

Tentative Course Outline
(Subject to change)

Week	Day	Date	Lecture	Discussion	Due
1	M	3-Sep	**No Class**	**No Class**	----
	T	4-Sep	Introduction	----	----
	Th	6-Sep	Ch. 1	Ch. 1 Lecture	----
2	M	10-Sep	Ch. 1	----	----
	T	11-Sep	Ch. 2	----	HW #1
	Th	13-Sep	Ch. 2	Ch. 1/2 problems	----
3	M	17-Sep	Ch. 2	----	----
	T	18-Sep	Ch. 3	----	----
	Th	20-Sep	Ch. 3	Ch. 2 problems	----
4	M	24-Sep	**Quiz #1 (Ch. 1-2)**/Ch. 3	----	HW #2
	T	25-Sep	Ch. 3	----	----
	Th	27-Sep	Ch. 3	Ch. 3 problems	----
5	M	1-Oct	Ch. 4	----	HW #3
	T	2-Oct	Ch. 4	----	----
	Th	4-Oct	**Exam #1 (Ch. 1-3)**	Exam #1 review	----
6	M	8-Oct	Ch. 4	----	----
	T	9-Oct	Ch. 4	----	----
	Th	11-Oct	Ch. 4	Ch. 4 problems	----
7	M	15-Oct	Ch. 5	----	HW #4
	T	16-Oct	Ch. 5	----	----
	Th	18-Oct	Ch. 5	Ch. 5 problems	----
8	M	22-Oct	**Quiz #2 (Ch. 4/5)**/Ch. 5	----	----
	T	23-Oct	Ch. 5/Ch. 6	----	----
	Th	25-Oct	Ch. 6	Ch. 5/6 problems	HW #5
9	M	29-Oct	Ch. 6	----	----
	T	30-Oct	Ch. 6	----	----
	Th	1-Nov	Ch. 7	Ch. 6 problems	HW #6
10	M	5-Nov	**Exam #2 (Ch. 4-6)**	----	----
	T	6-Nov	Ch. 7	----	----
	Th	8-Nov	Ch. 7	Ch. 7 problems	----
11	M	12-Nov	Ch. 7	----	----
	T	13-Nov	Ch. 7	----	----
	Th	15-Nov	Ch. 7/Ch. 8	Ch. 7 problems	----
12	M	19-Nov	Ch. 8	----	HW #7
	T	20-Nov	Ch. 8	----	----
	Th	22-Nov	**Thanksgiving**	**No**	**Class**
13	M	26-Nov	Ch. 8	----	----
	T	27-Nov	Ch. 8	----	----
	Th	29-Nov	**Quiz #3 (Ch. 7/8)**/Ch. 8	Ch. 8 problems	----
14	M	3-Dec	Ch. 9	----	HW #8
	T	4-Dec	Ch. 9	----	----
	Th	6-Dec	Ch. 9	Ch. 9 problems	----
15	M	10-Dec	Ch. 9	----	----
	T	11-Dec	Ch. 9	----	HW #9
	Th	13-Dec	**Exam #3 (Ch. 7-9)**	Exam #3 review	----
16	M	17-Dec	**----**	----	**----**
	T	18-Dec	**FINAL EXAM**	**FINAL**	**EXAM**
	Th	21-Dec	**----**	**----**	**----**

Please note, the last day to drop without a grade is Thur., Sept. 13, and the last day to drop with a "W" is Fri., Nov. 9.

Lab Schedule

Week	Dates	Lab Exercise
1	9/4-9/7	Check-in
2	9/10-9/14	Precision vs Accuracy in Scientific Meas & Calcs
3	9/17-9/21	Water Content of a Hydrated Salt
4	9/24-9/28	Introduction to Absorption Spectrophotometry
5	10/1-10/5	Colorimetric Determination of Iron
6	10/8-10/12	Periodic Properties
7	10/15-10/19	Lewis Formulas and Molecular Models
8	10/22-10/26	Spectrophotometric Analysis for Iron in Cereals
9	10/29-11/2	Intermolecular Forces
10	11/5-11/9	Separation of a Mixture
11	11/12-11/16	Limiting Reactant
12	11/19-11/23	Thanksgiving - No Lab
13	11/26-11/30	Introduction to Titrations - Standardization of KHP
14	12/3-12/7	Titration of Vinegar - Is the label Truthful?
15	12/10-12/14	Checkout
16	----	----

Important Dates

Date		Event
Th	13-Sep	Last day to drop without a grade
M	24-Sep	Quiz #1 (Ch. 1-2)
Th	4-Oct	Exam #1 (Ch. 1-3)
M	22-Oct	Quiz #2 (Ch. 4/5)
M	5-Nov	Exam #2 (Ch. 4-6)
F	9-Nov	Last day to drop with a “W”
Th	22-Nov	Thanksgiving
Th	29-Nov	Quiz #3 (Ch. 7/8)
Th	13-Dec	Exam #3 (Ch. 7-9)
T	18-Dec	FINAL EXAM