Student Syllabus for Chemistry 106-03
Fundamental Chemistry
Spring 2022

Instructor: Dr. David Szpunar
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Lecture:	Mon., Tue., Thurs.		3:00 PM-3:50 PM	**Location:**	CBB 105	
Discussion:	03D1	Mon.	9:00 AM-9:50 AM	**Location:**	CBB 265	
	03D2	Mon.	10:00 AM-10:50 AM		CBB 265	
Lab:	03L1	Mon.	11:00AM-1:50PM	**Location:**	CBB 236	(Dr. Jonsson)
	03L2	Wed.	11:00AM-1:50PM		CBB 236	

Text: **Lecture**: *Chemistry: Structure and Properties, 2nd ed.*, Nivaldo J. Tro; Pearson: Hoboken, New Jersey, 2018 (required)

- *ISBN-13*: 978-0134293936
- *ISBN-10*: 0134293932
- This is available for rental at the University Bookstore

Achieve Online Homework (required)

- Can login/create an account at: https://achieve.macmillanlearning.com/start
- MacMillan Achieve trouble-shooting help can be found here: Home (force.com) or call 1.800.936.6899

Scientific calculator (required)

Lab: Labflow Laboratory Package (required)

- Available for purchase at the University Bookstore
- OR visit https://labflow.com/app/login

Laboratory Notebook (required)

- A simple bound composition notebook available for purchase at the University Bookstore

Laboratory safety goggles (required)

- Available for purchase at the University Bookstore

Office hours: Dr. Szpunar
Mon. 2:00-3:00 PM
Tue. 4:00-5:00 PM
Thurs. 10:00-11:00AM
By appointment

The STEM Tutoring Program offers **FREE** tutoring to support you in your STEM classes. The tutors are UWSP students who have done well in their classes and who are here to share their successful study habits and content knowledge to help others succeed. Discussing concepts and practicing problems together clarifies and solidifies knowledge, and the tutors are eager to study with you. If you have questions about the schedules or would like to make an appointment, please visit us in ALB 018 (library basement), email (tlctutor@uwsp.edu), or call (715) 346-3568.

STEM Tutoring – Spring 2022

What	Location	Schedule	Cost
STEM Drop-In Tutoring	CBB 190	No appointment needed – stop by when tutors are available: https://www.uwsp.edu/tlc/Pages/dropInTutoring.aspx	Free
STEM One-on-One Tutoring	ALB 018 or Virtual*	By appointment. Complete online request form here: https://www.uwsp.edu/tlc/Pages/Mathandscischedules.aspx	Free

* *Availability of virtual tutoring appointments may be limited*

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)	• To be able to explain major concepts, methods, or theories in the natural sciences to investigate the physical world. • To be able to interpret information, solve problems, and make decisions by applying natural science concepts, methods, and quantitative techniques. • To be able to describe the relevance of aspects of the natural sciences 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 106 will perform tasks, at an introductory level, representing the underlined learning outcomes.

- Apply the foundational principles of the major sub disciplines of chemistry (Analytical, Inorganic, Organic, and Physical) to identify and explain the chemical and physical properties of matter.
- Demonstrate safe work habits and techniques in the chemical laboratory

- Analyze experimental results in order to draw justifiable conclusions

- Evaluate, document, and communicate experimental results and chemistry related issues according to accepted scientific standards, as a written report, as a poster, and as an oral presentation

- Design and construct experiments to address chemical problems using appropriate methods, techniques, equipment, and modern instruments for the synthesis, isolation, and characterization of matter and the analysis of mixtures using relevant information compiled from scientific literature.

Living and Learning During COVID-19

University COVID-19 Information Page:

- The University COVID-19 Information page can be found here: Home - Information on Coronavirus | UWSP

Face Coverings:

- At all UW-Stevens Point campus locations, the wearing of face coverings is mandatory in all buildings, including classrooms, laboratories, studios, and other instructional spaces. Any student with a condition that impacts their use of a face covering should contact the Disability and Assistive Technology Center to discuss accommodations in classes. Please note that unless everyone is wearing a face covering, in-person classes cannot take place. This is university policy and not up to the discretion of individual instructors. Failure to adhere to this requirement could result in formal withdrawal from the course.
- A document featuring the UWSP face covering guidelines is posted on our class Canvas site.

Other Guidance:

- Please monitor your own health each day using this screening tool. If you are not feeling well or believe you have been exposed to COVID-19, do not come to class; email your instructor and contact Student Health Service (715-346-4646).
    - As with any type of absence, students are expected to communicate their need to be absent and complete the course requirements as outlined in the syllabus.
- Maintain a minimum of 6 feet of physical distance from others whenever possible.
- Do not congregate in groups before or after class; stagger your arrival and departure from the classroom, lab, or meeting room.
- Wash your hands or use appropriate hand sanitizer regularly and avoid touching your face.
- Please maintain these same healthy practices outside the classroom.

METHODOLOGY: The class is composed of three lectures, one lab, and one discussion meeting per week. The lecture itself will primarily be lecture-based, with three 50-minute lecture exams (total of 375 points/37.5% of the grade). 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.

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

Exams: There will be three hourly exams (total of 375 points/37.5% of the grade) will be given on Mon, Feb. 21.; Thurs., Mar. 17; and Mon, Apr. 25.

Quizzes: There will be eight 10-15 minute quizzes at the start of discussion (see schedule for dates) each worth 10 points for a total of 80 points/8% of the grade.

Final Exam: Note that the final exam is cumulative covering Ch. 11, 13-19. It is scheduled for Monday, 5/16 10:15-12:15AM in CBB 105

Discussion Group Assignments: These problems will be turned in at the end of discussion and are worth a total of 8 × 4 = 32 points (3.2% of your grade).

Homework: We will be using the Achieve online homework system. Mandatory homework is assigned for each chapter. There are a total of eight assignments (20 pts each), giving a total of 160 points/16% of grade. The due dates are given in tabular format at the end 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, thirteen experiments will be assigned (not including the safety quiz). Labs are worth 13 points each, except for the safety quiz, which accounts for 10 points. I will drop your two lowest lab scores (not including the safety quiz), giving a total of 10 + 13×11 = points/15.3% of grade. Prelabs (called "prelab quizzes" in LabFlow) are due the Monday on which the lab is to be performed. Prelabs will be worth 2 points of the total 13 points for each lab. You are also required to prepare your lab notebook for each upcoming lab. Lab notebook pages will be submitted to LabFlow and are worth 1 point. A lab notebook grading rubric is provided on the following page. All reports are submitted using LabFlow by midnight on the Friday of the week the lab is performed. You are not required to stay the entire lab period to work on your lab report, but you will forfeit your ability to ask questions on the lab report if you do indeed leave early. **There are no makeup labs. Missed labs will count as one of your dropped 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 two lowest 17-point labs will be dropped to compensate for this. All unexcused absences will result in a grade of zero.

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

Hourly exams:	3×125 pts	=	375 points	(37.5%)
Final exam:	1×200 pts	=	200 points	(20%)
Discussion Quizzes:	8×10 pts	=	80 points	(8%)
Homework:	8×20 pts	=	160 points	(16%)
9 lab notebooks and reports:	$10+11 \times 13$ pts	=	153 points	(15.3%)
Discussion group problem sets:	8×4 pts	=	32 points	(3.2%)
			1000 points	(100%)

You will be graded on the following scale:

% Total Points	Grade	% Total Points	Grade
$\geq$ 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.

You are responsible for checking your e-mail and Canvas 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/social media 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 Lecture Outline
(Subject to Change)

Week	Day	Date	Lecture
1	M	24-Jan	Ch. 11
	T	25-Jan	Ch. 11
	Th	27-Jan	Ch. 11
2	M	31-Jan	Ch. 11
	T	1- Feb	Ch. 11
	Th	3- Feb	Ch. 13
3	M	7- Feb	Ch. 13
	T	8- Feb	Ch. 13
	Th	10- Feb	Ch. 13
4	M	14- Feb	Ch. 13
	T	15- Feb	Ch. 13
	Th	17- Feb	Ch. 14
5	M	21- Feb	Exam #1 (Ch. 11,13)
	T	22- Feb	Ch. 14
	Th	24- Feb	Ch. 14
6	M	28- Feb	Ch. 14
	T	1-Mar	Ch. 14
	Th	3- Mar	Ch. 15
7	M	7- Mar	Ch. 15
	T	8- Mar	Ch. 15
	Th	10- Mar	Ch. 15
8	M	14- Mar	Ch. 15
	T	15- Mar	Ch. 16
	Th	17- Mar	Exam #2 (Ch. 14-15)
×	M	21- Mar	SPRING BREAK—NO CLASS
	T	22- Mar	
	Th	24- Mar	
9	M	28- Mar	Ch. 16
	T	29- Mar	Ch. 16
	Th	31- Mar	Ch. 16
10	M	4-Apr	Ch. 16
	T	5- Apr	Ch. 16
	Th	7- Apr	Ch. 17
11	M	11- Apr	Ch. 17
	T	12- Apr	Ch. 17
	Th	14- Apr	Ch. 17
12	M	18- Apr	Ch. 17
	T	19- Apr	Ch. 17
	Th	21- Apr	Ch. 18
13	M	25- Apr	Exam #3 (Ch. 16-17)
	T	26- Apr	Ch. 18
	Th	28- Apr	Ch. 18
14	M	2-May	Ch. 18
	T	3- May	Ch. 18
	Th	5- May	Ch. 19
15	M	9- May	Ch. 19
	T	10-May	Ch. 19
	Th	12-May	Review day
×	M	16-May	**FINAL EXAM**
	T	17-May	**----**
	Th	19-May	**----**

Please note, the last day to drop without a grade is Wed, Feb. 2, and the last day to drop a course is Fri., Apr. 8.

Tentative Discussion Outline
(Subject to Change)

Week	Day	Date	Discussion
1	M	24-Jan	No Discussion
2	M	31-Jan	Ch. 11 Group Problems
3	M	7-Feb	Quiz #1 (Ch. 11)/Ch. 13 Group Problems
4	M	14- Feb	Quiz #2 (Ch. 13)/Ch. 13 Group Problems
5	M	21- Feb	Group Problems/Exam preparation
6	M	28- Feb	Ch. 14 Group Problems
7	M	7-Mar	Quiz #3 (Ch. 14)/Ch. 15 Group Problems
8	M	14- Mar	Quiz #4 (Ch. 15)/Ch. 15 Group Problems
×	M	21- Mar	SPRING BREAK—NO CLASS
9	M	28- Mar	Ch. 16 Group Problems
10	M	4-Apr	Ch. 16 Group Problems
11	M	11- Apr	Quiz #5 (Ch. 16)/Ch. 17 Group Problems
12	M	18- Apr	Quiz #6 (Ch. 17)/Ch. 17 Group Problems
13	M	25- Apr	Exam preparation
14	M	2-May	Quiz #7 (Ch. 18)/Ch. 18 Group Problems
15	M	9-May	Quiz #8 (Ch. 19)/Ch. 19 Group Problems

Tentative Homework Due Dates
(Subject to Change)

Day	Date	Due
Mon.	7-Feb	HW #1 (Ch. 11)
Mon.	21-Feb	HW #2 (Ch. 13)
Mon.	7-Mar	HW #3 (Ch. 14)
Thur.	17-Mar	HW #4 (Ch. 15)
Mon.	11-Apr	HW #5 (Ch. 16)
Mon.	25-Apr	HW #6 (Ch. 17)
Mon.	9-May	HW #7 (Ch. 18)
Mon.	16-May	HW #8 (Ch. 19)

All homework assignments due at 11:59PM on the indicated date

Lab Schedule

Week	Dates	Lab
1	1/24-1/28	Check-in/Online Safety Lab
2	1/31-2/4	Lab #1: Modeling, Geometry, and Polarity
3	2/7-2/11	Lab #2: IMF Lab
4	2/14-2/18	Lab #3: Solutions, Electrolytes, and Concentrations
5	2/21-2/25	Lab #4: Molar Mass from Freezing Point Depression
6	2/28-3/4	Lab #5: Glassware, Techniques, and Measurement
7	3/7-3/11	Lab #6: Iodine Clock Reaction
8	3/14-3/18	Lab #7: Le Châtelier's Principle
×	3/21-3/25	Spring Break – No Lab
9	3/28-4/1	Lab #8: Volumetric Analysis
10	4/4-4/8	Lab #9: Amount of NaOCl in Bleach
11	4/11-4/15	Lab #10: Determination of K_{sp}
12	4/18-4/22	Lab #11: Titration of a Diprotic Acid
13	4/25-4/29	Lab #12: Buffers
14	5/2-5/6	Lab #13: Voltaic Cells
15	5/9-5/13	Check-out