Student Syllabus for Chemistry 336
Physical Chemistry II
Spring 2018

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Lecture: Tue., Thur., Fri. 3:00 PM -3:50 PM **Location:** Science Building A112

Text: **Required:** Atkins and de Paula, **"Physical Chemsitry: Thermodynamics, Structure, and Change", 10th ed.**

- *ISBN-13: 978-1429290197*
- *ISBN-10: 1429290196*
- This is available for rental at the University Bookstore

Suggested: McQuarrie, **"Mathematics for Physical Chemistry: Opening Doors"** University Science Books.

Scientific calculator (required)

Office hours:

Wed. 2:00PM-3:00 PM
Fri. 11:00AM-12:00 PM

By appointment

COURSE DESCRIPTIONS (CHEM 336: Physical Chemistry II)

Description:

3 credits (Three hours of lecture per week.

- PHYSICAL CHEMISTRY Continuation of Chemistry 335. Laws and principles of physical chemistry including atomic and molecular structure, atomic and molecular spectroscopy.

Prerequisites:

CHEM 335 (Chemistry 248 and 326; Mathematics 222; Physics 250).

COURSE OBJECTIVES

Course Learning Outcomes

Students completing Chemistry 336 will be able to:

(a) Explain the historical development of quantum mechanics

(b) Apply quantum mechanics to exactly solvable systems and use those solutions to understand chemical systems.

(c) Apply quantum mechanics to chemical systems that are not exactly solvable by using various approximation methods

(d) Use group theory and symmetry to explain the electronic structure of simple molecules, assign vibrations of polyatomic molecules, and explain spectroscopic selection rules.

(e) Analyze spectra of molecules using quantum mechanical models and obtain molecular constants from those analyses.

METHODOLOGY: The class is composed of three lectures per week. The lecture itself will primarily be lecture-based, although students may 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.

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.
Due to the difficult nature and fast pace of this course, attendance is mandatory. Because of the small class size, I will not officially take attendance, as any absence will be easily spotted. If you must miss a class due to unavoidable circumstances, make sure to get lecture notes from a classmate—you will be held responsible for any missed material. Absences will be factored into your final grade in cases of borderline scores.

Exams: There will be three hourly exams will be given on Tuesday, February 20, Friday, March 23, and Friday, May 4. **The *cumulative* final is on Wednesday, May 16 in Science Building A112, 12:30PM-2:30PM.**

D2L: Course information (homework and exam solution sets, course grades, other course material) will be posted daily on D2L. It is your responsibility to visit the site daily. You can log into D2L at:

http://www.uwsp.edu/d2l/Pages/default.aspx

Homework: Mandatory homework is assigned for each chapter, and is due approximately one week after it is assigned. There are a total of 7assignments for a total of 350 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.

Make-up policy: There will be **NO** unexcused make-ups of homework or exams. Any excused makeups must be performed within 48 hours of the original date.

Final Exam: Note that the final exam is cumulative, covering Ch. 7-13. It is scheduled for Wednesday, 5/16, 12:30-2:30PM in Science Building A112

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

Hourly exams:	3×150 points	=	450 points	(45.0%)
Final exam:	1×200 points	=	200 points	(20.0%)
Homework:	7×50 points	=	350 points	(35%)
Total:	450+200+350 points	=	1000 points	(100%)

You will be graded on the following scale:

% Total Points	Grade	% Total Points	Grade
≥ 90 %	A	≥ 63%	C
≥ 88%	A-	≥ 61%	C-
≥ 86%	B+	≥ 59%	D+
≥ 77%	B	≥ 50%	D
≥ 75 %	B-	< 50 %	F
≥ 73%	C+		

Lecture policies:
You are expected to be at class on time.

Attendance is covered in the Methodology section above.

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.

Homework keys and exam keys will be posted on D2L.

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

Working in groups is encouraged, but any submitted work *must be your own*. **Copying work for homework assignments is unacceptable. Any such assignments will not be accepted and will receive a score of zero points.**

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 Physical 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 problems from the textas 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 at least 12 hours per week outside class for study, and homework. 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	Due
1	T	23-Jan	Introductions/§7A.1	----
	Th	25-Jan	§7A.1-§7A.2	----
	F	26-Jan	§7B.1-§7B.2	----
2	T	30-Jan	§7B.3-§7C.1	----
	Th	1-Feb	§7C.1-§7C.2	----
	F	2-Feb	§7C.3-§7C.4	----
3	T	6-Feb	§8A.1-§8A.2	HW #1
	Th	8-Feb	§8A.3-§8A.4	----
	Fr	9-Feb	§8B.1-§8B.2	----
4	T	13-Feb	§8B.2-§8C.2	----
	Th	15-Feb	§8C.2/§9A.1	----
	F	16-Feb	§9A.1-§9A.2	HW #2
5	T	20-Feb	**Exam 1 Ch. 7-8**	----
	Th	22-Feb	§9A.2-§9B.1	----
	F	23-Feb	§9B.1-§9B.2	----
6	T	27-Feb	§9B.2-§9B.3	----
	Th	1-Mar	§9C.1-§9C.2	----
	F	2-Mar	§9C.2	----
7	T	6-Mar	§10A.1-§10A.2	HW #3
	Th	8-Mar	§10A.2-§10B.1	----
	F	9-Mar	§10B.2-§10C.1	----
8	T	13-Mar	§10C.2-§10D.1	----
	Th	15-Mar	§10D.2-§10E.1	----
	F	16-Mar	[§10E.2-§10E.3]	----
9	T	20-Mar	[§10E.3]/ §11A.1-§11A.2	----
	Th	22-Mar	§11A.2-§11A.3	HW #4
	F	23-Mar	**Exam 2 Ch. 9-10**	----
10	T	27-Mar	**SPRING BREAK**	----
	Th	29-Mar	**SPRING BREAK**	----
	F	30-Mar	**SPRING BREAK**	----
11	T	3-Apr	§11B.1-§11B.2	----
	Th	5-Apr	§11B.3-§11C.1	----
	F	6-Apr	§11C.1-§11C.2	----
12	T	10-Apr	§11C.3/§12A.1	----
	Th	12-Apr	§12B.1-§12B.2	HW #5
	F	13-Apr	§12B.2-§12C.1	**----**
13	T	17-Apr	§12C.1-§12C.2	----
	Th	19-Apr	§12C.3-§12D.1	----
	F	20-Apr	§12D.2-§12D.3	----
14	T	24-Apr	§12D.4-§12D.5	----
	Th	26-Apr	§12E.1-§12E.2	----
	F	27-Apr	§12E.2-§12E.3	
15	T	1-May	§12E.3-§12E.4	----
	Th	3-May	§13A.1	HW #6
	F	4-May	**Exam 3 Ch. 11-12**	----
16	T	8-May	§13A.2	**----**
	Th	10-May	§13B.1	----
	F	11-May	§13B.2	HW #7
17	W	16-May	**FINAL EXAM**	

Please note, the last day to drop without a grade is Wed., Jan. 31, and the last day to drop with a "W" is Fri., April 6.

Important Dates

Date		Event
W	31-Jan	Last day to drop without a grade
T	20-Feb	Exam #1 (Ch. 7-8)
F	23-Mar	Exam #2 (Ch. 9-10)
T	27-30/Mar	Spring Break
F	6-Apr	Last day to drop with a "W"
F	4-May	Exam 3 Ch. 11-12
W	16-May	Cumulative Final Exam

Homework Due Dates

Due Date		Homework	Chapter
T	6-Feb	1	7
F	16-Feb	2	8
T	6-Mar	3	9
Th	22-Mar	4	10
Th	12-Apr	5	11
Th	3-May	6	12
F	11-May	7	13