

Course Title/Number	Physical Chemistry II / CHM 358
Semester/Year	Spring 2016
Days/Time	11:00-11:50 AM MWF; lab M 1:00-2:50
Location	405 Science Hall, lab S 470
Instructor	Dr. Laura McCunn-Jordan ***PLEASE CALL ME DR.MCCUNN
Office	466 Science Hall; research lab: 404 Science Hall
Phone	(304) 696-2319
E-Mail	mccunn@marshall.edu
Office Hours	MWF 10:00-10:50 and R 9:00-11:00; other times by appointment. I welcome drop-in visits but cannot guarantee availability outside of office hours. Simple questions can be answered via email.
University Policies	By enrolling in this course, you agree to the University Policies listed below. Please read the full text of each policy by going to www.marshall.edu/academic-affairs and clicking on "Marshall University Policies." Or, you can access the policies directly by going to www.marshall.edu/academic-affairs/policies/ . Academic Dishonesty/Excused Absence Policy for Undergraduates/Computing Services Acceptable Use/Inclement Weather/Dead Week/Students with Disabilities/Academic Forgiveness/Academic Probation and Suspension/Academic Rights and Responsibilities of Students/Affirmative Action/Sexual Harassment

Course Description:

A systematic study of physical chemistry, including the topics of energy transfer, statistical thermodynamics, equilibrium, and kinetics. 4.00 credits. Prerequisites: grade of C or higher in CHM 212, C or higher in 8 hours of physics, C or higher in MTH 230, or consent of instructor.
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Student Learning Outcomes	How students will practice each outcome in this course	How student achievement of each outcome will be assessed in this course
Students will use the laws of thermodynamics to understand energy transfer among matter and to derive relationships relating energy transfer and physical observables.	<ul style="list-style-type: none"> lectures and readings on thermodynamics recitations homework 	<ul style="list-style-type: none"> tests and quizzes
Students will understand how statistics and the energy of a system govern the rate and extent of chemical reactions.	<ul style="list-style-type: none"> lectures and readings on statistical mechanics, equilibrium, and reaction kinetics recitations homework 	<ul style="list-style-type: none"> tests and quizzes
Students will apply calculus to solving problems of chemical and thermodynamic significance.	<ul style="list-style-type: none"> recitations homework 	<ul style="list-style-type: none"> tests and quizzes

Students will understand, interpret and discuss scientific literature.	<ul style="list-style-type: none"> • journal clubs 	<ul style="list-style-type: none"> • discussion and worksheets
Students will enhance writing skills and strategies.	<ul style="list-style-type: none"> • low-stakes short essays in homeworks, quizzes, and journal clubs • peer-editing of lab reports • editing conferences with Dr. McCunn 	<ul style="list-style-type: none"> • graded lab reports • lab notebook • tests and quizzes • special project
Students will refine oral communication skills.	<ul style="list-style-type: none"> • journal clubs • recitations 	<ul style="list-style-type: none"> • special project

Required Texts, Additional Reading, and Other Materials

1. *Physical Chemistry: A Molecular Approach* by McQuarrie and Simon
2. composition notebook (not spiral-bound) for lab (you may reuse an old lab notebook)
3. indirectly vented chemical safety goggles for lab
4. calculator (graphing calculators are permitted)
5. ACS academic lab safety guide
http://portal.acs.org/portal/PublicWebSite/about/governance/committees/chemicalsafety/publications/WPCP_012294

Grading Policy

The following list shows course assignments and their respective values. In the case of class cancellations, the instructor may cancel one or more assignments, reducing the number of available points.

homework/quizzes	150 points
tests	300 points
journal club & special project	100 points
lab reports	200 points
lab notebook	50 points
<u>final exam</u>	<u>200 points</u>
	1000 TOTAL POINTS

Grading Scale	A 90-100%
	B 80-89%
	C 70-79%
	D 60-69%
	F 0-59%

Grades are rounded to the nearest whole percent.

Unexcused late assignments may be turned in up to 1 day past the deadline and will incur a penalty of 10% of the assignment's total points. The final grading scale may be adjusted in order to lower the percentage of points required to earn a particular letter grade. Any changes will work in the students' favor.

Writing-Across-the-Curriculum Designation

This course has been designated "WI," or writing-intensive. Throughout the course, students will develop the ability to comprehend the concepts of physical chemistry and interpret them for others through written communication. The following course activities are examples of how students will develop their writing skills this semester.

homeworks- each will include at least one qualitative, short-response question

tests- approximately 20% of test content will require written responses (without calculations)

lab notebook- standards of industry and academe will be reinforced

journal club- written responses to research literature

lab reports- written in the style of research manuscripts

oral presentations- powerpoint slides will be written to effectively complement the presentations

Students may be required to upload their formal lab reports and other writing samples to the university's General Education Assessment Repository at <http://www.marshall.edu/gear/>. Further directions will be provided by the instructor.

Attendance Policy

Class attendance is not required, but highly recommended. If you are absent, please contact Dr. McCunn ASAP to request missed assignments. In the case that class is cancelled due to inclement weather or an emergency on the day of a scheduled test, the test will be given in the next scheduled class period.

Lab Policies

Students must complete lab safety training (tentatively scheduled at MU Online). Goggles are required during any designated lab time. Proper attire is expected. Open-toed shoes, shorts, bare midriffs, etc. are forbidden. Disregard for safety in the lab may result in a failing grade or removal from the class.

Miscellaneous Policies

Please silence cell phone ringers during class or exams. Dr. McCunn reserves the right to answer any ringing cell phones during lecture, dismiss the offending student, or deduct points from the student's final grade. Use of cell phones / PDAs / MP3 players and similar devices during tests and exams will be considered as cheating. The only materials permitted during a test are a calculator, pen/pencil, and those provided by the instructor. Class announcements may occasionally be made via email to your university email address. Please check it on a regular basis.

Course Schedule (subject to change in the event of class cancellation)

Week of	Chapter	Topic	Lab
1/11	27.1-6, 16	properties of gases	no lab
1/18	no class on 1/18; 16, 17	gases, partition functions	no lab
1/25	17, 18.1	partition functions	2 nd virial coefficient
2/1	19	energy: heat, work and enthalpy	adiabatic expansion
2/8	19, 20	enthalpy	bomb calorimetry
2/15	20, 21	entropy	bomb calorimetry
2/22	21, TEST 1 on 2/27	entropy	make-up day
2/29	22	Helmholtz & Gibbs energies	journal club
3/7	23	phase equilibria	computational chem.
3/14	26	chemical equilibrium	journal club
	3/18 is last day to drop an individual course		
3/21	Spring Break		
3/28	26, 28	equilibrium, kinetics	journal club
4/4	28, 27.7	kinetics	clock reactions
4/11	29	mechanisms	clock reactions
4/18	29, TEST 2 on 4/24	mechanisms	make-up day
4/25	TBA	TBA	special project
5/3 Tuesday 10:15 AM FINAL EXAM			