Course Title/Number	**Physical Chemistry II / CHM 358**
Semester/Year	Spring 2015
Days/Time	11:00-11:50 AM MWF; lab time TBA
Location	405 Science Hall, lab location TBA
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 9:00-9:50 and 1:00-2:00; 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.

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.	• lectures and readings on thermodynamics • recitations • homework	• tests and quizzes
Students will understand how statistics and the energy of a system govern the rate and extent of chemical reactions.	• lectures and readings on statistical mechanics, equilibrium, and reaction kinetics • recitations • homework	• tests and quizzes
Students will apply calculus to solving problems of chemical and thermodynamic significance.	• recitations • homework	• tests and quizzes

Students will understand, interpret and discuss scientific literature.	• journal clubs	• students will lead journal club sessions at the end of the course (Apr. 3-10)
Students will enhance writing skills and strategies.	• low-stakes short essays in homeworks, quizzes, and journal clubs • peer-editing of lab reports • editing conferences with Dr. McCunn	• graded lab reports • lab notebook • tests and quizzes • student-led journal club
Students will refine oral communication skills.	• journal clubs • recitations	• student-led journal club

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 relative 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 clubs	100 points
lab reports	200 points
lab notebook	50 points
final exam	200 points
	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

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
1/12	27.1-6, 16	properties of gases	no lab
1/19	no class on 1/19; 16, 17	gases, partition functions	journal club
1/26	17, 18.1	partition functions	ideal gases
2/2	19	energy: heat, work and enthalpy	adiabatic expansion
2/9	19, 20	enthalpy	adiabatic expansion
2/16	20, 21	entropy	bomb calorimetry
2/23	21, TEST 1 on 2/27	entropy	bomb calorimetry
3/2	22	Helmholtz & Gibbs energies	journal club

3/9	23	phase equilibria	computational chem.
3/16	Spring Break		
3/23	26	chemical equilibrium	computational chem.
3/30	26, 28	equilibrium, kinetics	journal club
4/6	28, 27.7	kinetics	clock reactions
4/13	29	mechanisms	clock reactions
4/20	29, TEST 2 on 4/24	mechanisms	clock reactions
4/27	journal club presentations	special topics	course review
5/5, Tuesday, 10:15 AM FINAL EXAM			