

Chemistry 531 – Physical Chemistry I (3 cr., Spring 2016)

Mon/Wed/Fri (9:10-10am)

Fulmer 225

Instructor: Dr. Kirk A. Peterson Fulmer 104B (335-7867)
Office Hours: By appointment
Email: kipeters@wsu.edu
Class web page: <http://tyr0.chem.wsu.edu/~kipeters/Chem531/>
Required Text: Molecular Thermodynamics, by Donald A. McQuarrie and John D. Simon (Univ. Science Press, 1999)

Point Distribution:

Hour Exams (2 x 275 pts)	550
Final Exam (cumulative)	300
Homework (~11 total)	150
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TOTAL	1000

Grading:

850 – 1000 A
801 – 849 B+/A-
650 – 800 B
600 – 649 C+/B-
< 600 C

Topics to be covered

1. Basic Quantum Mechanical Concepts (Ch. 1)
2. Properties of Gases (Ch. 2)
3. Partition Functions (Ch. 3)
4. Partition Functions and Ideal Gases (Ch. 4)
5. The First Law of Thermodynamics (Ch. 5)
6. Entropy and the Second Law of Thermodynamics (Ch. 6)
7. Entropy and the Third Law of Thermodynamics (Ch. 7)
8. Helmholtz and Gibbs Free Energy (Ch. 8)
9. Phase Equilibria (Ch. 9)
10. Liquid-Liquid Solution Equilibria (Ch. 10)
11. Solid-Liquid Solution Equilibria (Ch. 11)
12. Chemical Equilibria (Ch. 12)

Homework: Homework will be assigned weekly, except for the weeks of an exam, and will consist of about 8-10 problems taken from the textbook and/or written by the instructor. Working (or struggling) through the homework is essential for a successful (and even rewarding) passage through any PChem course and this is certainly no exception. You are encouraged to work with others on these assignments, but in the end what you hand-in to the instructor must be your own work.

Exams: There will be two in-class hour exams and a cumulative Final. There will be no make-up exams, but if you have to miss an exam for extreme reasons beyond your control please notify the instructor as soon as possible so that special arrangements can perhaps be made.

Class Website: All homework assignments, solutions, weekly lecture topics, etc. will be posted on the class website given above.

Learning Outcomes

Student Learning Outcomes At the end of this course, students should be able to:	Course Topics/Dates The following topic(s)/dates(s) will address this outcome:	Evaluation of Outcome: This outcome will be evaluated primarily by:
Define basic terms and concepts in statistical and classical thermodynamics	Throughout course	Homework and Exams
Use a solid foundation in molecular thermodynamics in solving practical problems in Physical Chemistry	Weeks 1-15	Homework and Exams

Academic Integrity:

I encourage you to work with classmates on homework assignments. However, each student must turn in original work. No copying will be accepted (including from textbooks or homework assignments from earlier semesters). Students who violate WSU's Standards of Conduct for Students will receive an F as a final grade in this course, will not have the option to withdraw from the course and will be reported to the Office Student Standards and Accountability. Cheating is defined in the Standards for Student Conduct WAC 504-26-010 (3). It is strongly suggested that you read and understand these definitions.

Reasonable Accommodation Statement:

Students with Disabilities: Reasonable accommodations are available for students with a documented disability. If you have a disability and need accommodations to fully participate in this class, please either visit or call the Access Center (Washington Building 217; 509-335-3417) to schedule an appointment with an Access Advisor. All accommodations MUST be approved through the Access Center. For more information contact a Disability Specialist on your home campus:

Pullman or WSU Online: 509-335-3417

<http://accesscenter.wsu.edu>, Access.Center@wsu.edu

Spokane: <http://spokane.wsu.edu/students/current/studentaffairs/disability/>

Tri-Cities: <http://www.tricity.wsu.edu/disability/>

Vancouver: 360-546-9138 <http://studentaffairs.vancouver.wsu.edu/student-resource-center/disability-services>

Safety and Emergency Notification:

Washington State University is committed to enhancing the safety of the students, faculty, staff, and visitors. It is highly recommended that you review the Campus Safety Plan (<http://safetyplan.wsu.edu/>) and visit the Office of Emergency Management web site (<http://oem.wsu.edu/>) for a comprehensive listing of university policies, procedures, statistics, and information related to campus safety, emergency management, and the health and welfare of the campus community.