LECTURE
MWF 12:00 – 12:50 PM    SBDG 325

OFFICE HOURS
MWF 10:30 – 11:30AM & 2:00 – 3:00PM    T 11:00 – Noon    Th 12:30 – 1:30PM
All other times are subject to my availability. Please see my posted schedule on my office door. If you have questions at any time, ask if I have time to help— I generally do unless I am preparing for a class or lab. Do not hesitate to contact me with your PChem questions.

REQUIRED TEXTS


SUGGESTED TEXTS

WEEKLY QUIZ
Each week on Friday, if it is not an exam week, there will be a five minute quiz. Each quiz will have straightforward questions taken from text examples or lecture notes from that week. The idea is that if you are keeping up with lecture notes and their review, working on homework, reviewing and studying the text, and satisfying your curiosity about the topic then you will be in excellent shape for the quiz. If you are not keeping up, then the quizzes may not go well.

HOMEWORK PROBLEM SETS
Homework exercise/problem sets will be distributed for each exam period and a due date will be assigned as was done first semester. The exercises and problems will come from other texts and will cover appropriate topics. The required Student Solutions Manual contains worked out solutions to the problems at the end of each chapter. The solutions in the manual as well as the examples throughout each chapter provide a guide for homework solutions. You will need to use whatever skills you have acquired from the exercises and any information necessary from your text to design solutions to the assigned exercises. The homework assignments are considered small take-home exams and your work with other students will be limited to initial consultation, only. Any evidence of greater interaction and no credit will be received for that homework set by each of the collaborators. The graded homework set will be returned to you as quickly as possible for study purposes. After the answer key is posted on the web site at the appropriate time, no further homework sets will be accepted. So it is in your interest to turn in what you have completed rather than delay and get no points for your homework efforts.

The suggested text Survival Guide for Physical Chemistry has a nice review of the mathematics required for all aspects of chemistry, not just this course. As I said last semester, if you can, buy it and add it to your reference book collection.

WORKBOOK EXERCISES
Once again, we will be using Mathcad to explore aspects of physical chemistry. Recall that the introductory chapter in the workbook is a very solid users manual for Mathcad. Several workbook exercises will be assigned per topic and are to be turned in with the homework problems for that section. Mathcad should continue to develop into a very useful tool for all chemistry and physics calculations in any of your classes. I encourage you to use this program as an integral part of homework. The purpose here is to provide you with a powerful tool for your use.

To provide the encouragement to use Mathcad, several regular homework exercises are to be done using Mathcad. These special exercises will be designated on the assignment.
EXAMS

I am planning four midterm exams throughout the semester. See the lab calendar for details. The exams will consist of questions similar to the assigned homework exercises, problems, and examples. I will supply the data tables and figures needed for each exam. There will also be brief discussion questions that cover the assigned reading and lecture material. Exams are scheduled during lab periods to provide sufficient time for completion. **A 3” x 5” notecard containing equations only may be brought with you to use during midterm exams.** Again this semester, I will initial the card at the start of the exam and you must turn in the card with the exam.

The final exam will be given at the scheduled time of Friday, May 1, 2009 at 11:00 AM in our regular class room. The Final Exam is comprehensive. A portion, worth 100 points, is the nationally standardized, full-year Examination of Physical Chemistry provided by the American Chemical Society. This well-written multiple choice exam is thorough and covers topics from both ACHM 541 and ACHM 542. The other 75 points of the final will cover the final topics of spectroscopy and statistical mechanics that were covered at the end of the semester. **A notecard is not be allowed for the ACS portion of the final. Once the multiple-choice ACS exam is turned in, a notecard can be used for the remainder.**

LECTURE TOPICS

I plan to finish covering Chapter 9 and then cover Chapter 10 (these chapters discuss kinetics). After that I plan to cover topics in Chapter 11 (Quantum Mechanics and Atomic Structure), Chapter 12 (Chemical Bonding and Symmetry), and I will conclude the semester with Chapter 15 (Statistical Mechanics). Chapters 13 and 14 (Spectroscopy) will be covered during pre-lab lecture. An exam will be given at the conclusion of each major topic—four during lecture and one during the lab final period on April 30 at 2PM. These chapters are full of specific information and details that time will not allow me to address. Lectures will once again be designed to enhance understanding of the material we cover, not simply to follow what is stated in the text. I expect you to read the chapters in the text and ask questions over any topic. Because these chapters deal with some very difficult topics, it is very important that you read the text for understanding and stay ahead of my lectures. At the beginning of each chapter discussion, I will inform you about which material I plan to skip, if any. For planning purposes, I am targeting an average of seven pages of text material per lecture. Based on my experience, this lecture schedule is entirely possible but will require commitment on your part to keep up. For the topics of quantum mechanics, atomic and molecular electronic structure, spectroscopy, and statistical mechanics, the lecture is the centerpiece of the material. Sections of the text will be referenced for reading as appropriate.

You must be, and I expect you to be, an active participant in PChem. This class attempts to provide the physical basis for all chemical phenomena and observations, and as such, becomes a fundamental and important course. As chemistry majors, I expect you to have an active interest in the subjects of this course, a curiosity that leads to questions, and a desire to obtain understanding. Physical chemistry in general has a national reputation of being a very difficult and incomprehensible subject for the beginner. I feel that this reputation is due in part to the usual teaching approach which is to cover as many topics as possible in as much detail as possible from the instructor’s perspective, without regard to how many students are staying with the material. This is not my approach. I try to provide enough in depth coverage of the essential topics so that you can build from them later in your careers as the need arises. However, you must do your work sincerely and honestly if this approach is to be successful. In a small class, your participation and activity do influence the other students. If you seriously attempt all work without relying on outside intervention, stay with your questions until they are answered either through your efforts or by talking with me, and commit yourself to the job of being a real student, then the class will pay off.

GRADING FORMAT

An "A" student in this class is expected to perform well in all test areas including the homework problems and workbook exercises. The average student will be able to perform basic physical chemical calculations and make basic chemical judgments based on their experience and familiarity with the text, lectures, and problems. The point breakdown for each performance area is given on the next page.
Homework Exercises (Approx. 50 @ average 2 pts) 100 pts
Quizzes (10 @ 5 pts) 50 pts
Midterm Exams (4 @ 100 pts) 400 pts
Final Exam (100 pts ACS + 75 pts) 175 pts
Total 725 pts

The course grade will be based on the percentage of total points received. A reasonable guideline for grades is 85% and above is an “A”, 72% - 84% is a “B”, 60% - 71% is a “C”, etc. Approximately 14% of the points are from homework. This small but still important homework weighting makes sure this outside work remains a learning device and yet not so important as to distract from your goal of really understanding the material. If you get in a bind, it is better to turn in an incomplete homework set and sacrifice a few points rather than stay up late, stressing out, and interfering with your ability to understand. You are not excused from the material you didn’t complete. You are simply managing your time in a productive way.

TENTATIVE SCHEDULE AND STUDENT RESPONSIBILITIES

For purposes of a tentative schedule, we will have a midterm exam every three weeks or so for each topic area. Tentatively, Exam 1 will be 2/5, Exam 2 will be 3/5, Exam 3 will be 4/2, and Exam 4 will be 4/23. The Final Exam is scheduled for Friday, May 1, 2009 at 11:00AM in our usual classroom. See the lab calendar for details.

Lectures will begin promptly and you are responsible for the material covered in lecture. During the presentation of the topic areas, your presence in class is very important. This text is fairly rigorous but many formula derivations may still appear in class. Many data interpretation ideas covered in lecture are not presented in this or any text. Should you need help with problem-solving skills, time management, basic chemistry, etc. please see me during office hours, or by appointment, or by my availability.

In total, your responsibilities are 1) the assigned homework exercises/problems and workbook exercises turned in on time, 2) the text material, 3) the lecture material, and 4) any other suggested exercises, problems, and readings assigned for review. If learning is your goal, then all of your questions must be answered ahead of time and you must keep delving into the subject. Anything short of that will show up as a lack of confidence, which will translate into lower grades.

HAVE A GOOD SEMESTER!!!!!!

NOTE: If you have a learning or physical disability that might affect your performance in this class or lab, please inform me and the Office of Disabled Student Services in the Student Activities Center as soon as possible in order to verify your status and provide you with appropriate assistance. Thanks

URL for Course Web Site: http://www.usca.edu/chemistry/pchem
Email:
montyf@usca.edu
cobbetterolf@gforcecable.com

Phone:
  Work  803/641-3378  Cell  803/640-5679
  Home  803/642-7125 (Please call after 7AM or before 10PM. Thanks.)