COURSE SYLLABUS: CH3520, PHYSICAL CHEMISTRY II
SPRING, 2012

INSTRUCTOR: Prof. Bahne C. Cornilsen
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Office Hours: by Appointment (arrange via email)

TEXT: David W. Ball, Physical Chemistry, 1st Edn.,

Physical Chemistry II, CH3520, covers the fundamental theories and experiments underlying modern chemistry (at the atomic and molecular levels), in particular, electronic structure, bonding, modern spectroscopy, and structural analyses. A major part of this course is the development of problem solving skills. This chemistry and these problem solving skills underlie all science and engineering disciplines. Thus, a large component of this course is problem oriented, beginning in your pre-lecture reading of your text (with worked examples) and the assigned homework problems. The interplay of experiment and theory is emphasized. Lecture will guide your study through the important material and help with difficult concepts. You will apply and learn principles discussed via problem solving. Your problem solving skills are further exercised and perfected as you work the assigned, end-of-chapter problems. Finally, these skills are tested on the quizzes, the mid-term exams and the final exam.

TENTATIVE COURSE OUTLINE:

1. Pre-Quantum Mechanics (Chapters 9)
2. Introduction to Quantum Mechanics (Chapter 10)
3. Quantum Mechanics: Model Systems and the Hydrogen Atom (Chapter 11)
4. Atoms and Molecules (Chapter 12)
5. Introduction to Symmetry in Quantum Mechanics (Chapter 13)
6. Rotational and Vibrational Spectroscopy (Chapter 14)
7. Introduction to Electronic Spectroscopy and Structure (Chapter 15)
8. Statistical Thermodynamics: Introduction (Chapter 17) (if there is time)
CH3520 SYLLABUS: Outline (continued)

GRADING:

- Hour Exam I  100 points
- Hour Exam II  100 points
- Quizzes 50 points (estimated at 5-10 pts. each)
- Final Exam 200 points
- Total 450 points

Evening Exams: On exam weeks, there will be class the day of the exam, but no class on a designated day after the example, sometimes a Friday. There is no predefined scale for the grades on exams. After each exam, the break-points for the grades will be given. Re-grades for any exam must be requested within one week after the return of the exam. All students will be required to take the final exam.

Home Work Problems: Practice homework problems (HWP) from the textbook will be assigned in class. Although these will not be collected or graded, it is recommended that you solve them as an integral part of the learning process and to test your understanding of theory and how it is applied. You will also gain experience with the kind of problems that will be on the exams.

EXAM POLICIES

Preparing for the Exam

- No make-ups for missed exams. Plan on taking the exam at the assigned times.
- If you have a valid reason to be absent from an exam (for a field trip, job interview, athletic event, etc.), notify the instructor prior to the exam. If an unanticipated problem makes it impossible to attend an exam, notify the instructor as soon as possible. An extended delay will be considered to be an unexcused absence. An unexcused absence will be an automatic zero for that exam. Excused absences result in the average of your other midterm exams being awarded for the missed exam.

Excused/Unexcused Absences:

- Granted by the Office of Student Affairs. If you know that you will have an official university excused absence on exam day (university athletic event or religious holiday), you are required to make arrangements as early as possible in advance of the exam date.
- Examples of excused absences granted in the past include serious illness (medical excuse required) or a death in the family. Excuses may be documented through the Office of Student Affairs.
- Examples that are NOT excused: travel home or to attend a social event.

Taking the Exam:

- One 3x5 equation card (on Final – three 3x5 equation cards)
- Come on-time and seat yourself promptly in proper test seating arrangement.
- Bring only allowed items. Do NOT bring cell phones, Blackberries, CD players, iPods, PDAs, earphones, or any other electronic devices. Calculators on other devices are strictly prohibited.
CH3520 SYLLABUS: Grading (continued)

After Exam – Tracking Your Score
- **Exam Scores** (individual and cumulative) will be posted on Blackboard.
- **Answer Keys** will be provided after each exam.

Blackboard Information
The Blackboard site for CH3520 can be accessed at [http://courses.mtu.edu/](http://courses.mtu.edu/). Click on “MTU ISO Log In.” Enter your MTU Login ID and your MTU ISO password. In the list of courses for which you are enrolled, click on CH3520.

Within Blackboard there is a course **Grade Book** where you may track your grades. Periodically examine this grade book for accuracy, and please report any discrepancies to me.

Academic Dishonesty
Academic integrity is expected. Any violations will result in a 0 for the course and a recommendation of expulsion from MTU. Policies and procedures are in “Academic Integrity at MTU – A Guide for Students and Faculty.” Specific violations include: copying from another’s work or exam, allowing copying from your work or an exam, or facilitation of any academic dishonesty. Cell phones, Blackberries, iPods, PDAs, or any other electronic devices are not to be used in the classroom. Information exchanges on these devices (or calculators) during class are also prohibited and violate the Academic Integrity Code of Michigan Tech.

Refer to: [http://www.studentaffairs.mtu.edu/dean/judicial/policies/academic_integrity.html](http://www.studentaffairs.mtu.edu/dean/judicial/policies/academic_integrity.html)

University Policies: MTU ADA Statement and Affirmative Action
If you have a disability that could affect your performance in this class or that requires an accommodation under the Americans with Disabilities Act (ADA), please see me as soon as possible so that we can make appropriate arrangements. The Affirmative Action Office ([http://www.admin.mtu.edu/aa/](http://www.admin.mtu.edu/aa/)) has asked that you be made aware of the following:

*MTU complies with all federal and state laws and regulations regarding discrimination, including the Americans with Disabilities Act of 1990. If you have a disability and need a reasonable accommodation for equal access to education or services at MTU, please call the Dean of Students Office, at 487-2212. For other concerns about discrimination, you may contact your advisor, department head or the Affirmative Action Office, at 487-3310.*

Disability Services: [http://www.admin.mtu.edu/urel/studenthandbook/student_services.html#disability](http://www.admin.mtu.edu/urel/studenthandbook/student_services.html#disability)