University Chemistry II (CH1120)
Spring Semester, 2005

Instructor: Dr. Paul Charlesworth  402C Chemical Sciences Bldg  Email: pcharles@mtu.edu
TA: Matthew Seguin  Chemical Sciences Bldg  Email: mjseguin@mtu.edu
Learning Center: Ms. Lois Blau  206 Chemical Sciences Bldg  Email: lablau@mtu.edu
Office Hours: Monday and Wednesday from 1:30pm to 3:30pm, or by appointment.

Role of Instructor:
Your instructor’s role will be to guide you through your studies in the Studio Laboratory by presenting some lecture-based content, maintaining safety, and supervising the preparation of chemicals. Your instructor will also assess your progress by providing challenges such as online and assigned homework, in-class quizzes, problem sets, and examinations.

Role of Student:
Your role as a student at Michigan Tech is to participate in class, show respect for others, and accept responsibility for your own learning. It is up to you, as the student, to decide how hard you want to work, and therefore how well you will perform when challenged by your instructor. The material you will cover in the studio laboratory is largely experiment-based, however, you are expected to maintain an understanding of the theories surrounding the experiments.

Class Schedule:
The Studio Laboratory meets on Tuesday and Thursday from 2:00pm to 5:00pm. You are expected to arrive on time. Late arrival may result in 10-point deductions for that day. Attendance in laboratory is mandatory. If you miss more than two laboratory sessions, you risk an automatic fail in this class.

Assignments and Grading:
Your examination dates are as follows:
- Exam 01: Wednesday, February 16th from 6:00pm to 7:00pm
- Exam 02: Wednesday, March 23rd from 6:00pm to 7:00pm
- Exam 03: Wednesday, April 13th from 6:00pm to 7:00pm
- Final: Tuesday, April 26th from 2:45 - 4:45 pm

You should plan to arrive for the exam at least 10 minutes before it is due to start. We reserve the right to refuse entry to the examination if you are more than 10 minutes late. No one arriving late to the exam will receive extra time. Persons who, for whatever reason, require extra time or isolation to take the exam should see me at the start of the semester so that need can be determined and arrangements can be made.

Grading will be based on a combination of WebCT homework (100pts), three one-hour exams (100pts each), laboratory Reports (500 pts), Laboratory Exam (200pts) and a comprehensive two-hour final
exam (200pts). Your grade will be based upon the percentage of the total points available that you accumulate as shown below. Improvements throughout the term may be taken into consideration when grades are assigned. Your score on the final exam plays a significant role in determining your final grade.

Select Tuesday and Thursday laboratory sessions (the longer ones) will be graded on a 50 point scale (10 points for the prelab, 15 points for performance during laboratory, and 25 points for your written laboratory report). The pre-laboratory assignment must be handed in to your laboratory instructor TA before the laboratory starts. Your written laboratory report will be graded based on 10 points for grammar, style and layout, and 15 points for data and data analysis.

Performance in class included compliance with safety regulations, manual dexterity, clean-up, and any other laboratory related issues that are determined to be important by your TA, Coordinator, or Instructor.

- Failure to wear safety glasses will cost you 5 points per infraction up to a maximum of 15 points, at which time you will be asked to leave the laboratory and will receive zero for the assignment.
- Failure to wear appropriate clothing will cost you 3 points
- Failure to maintain a clean work environment, or failure to keep personal belongings hidden will cost you 3 points per infraction up to a maximum of 6 points, at which time your belongings will be removed from the laboratory.

The grading scale is based on over 5 years of refinement and rewards effort. It is designed so that, in theory, it is possible for everyone to obtain a grade A in this class if you work hard enough! If you do not obtain the grade you desire, it is your fault. Excuses will not be accepted. The pass mark for this class is set at 60%, a grade C is set at 65%, a Grade B is set at 80%, a Grade A is set at 88%.

Handouts:
Several handouts on topics will be distributed during the course to complement the text. The class PowerPoint slides will be printed at a rate of four slides per page and sent to you through the campus email. It is hoped that we will have them ready during the week before the class you need them for, but this may not always be possible. It is assumed that you all have a computer or printer.

These notes are NOT designed to replace taking good notes, but they will reduce your need to copy everything from the slides and so allow you to pay more attention to classroom discussion. The lecture component of each studio lab session will be paced based on the assumption that you are using the RediNotes.

Chemistry Learning Center (CLC):
The CLC is a free service provided by the Department of Chemistry and the University to provide support for students enrolled in first year chemistry courses. The Center is located in room 208 of the chemical sciences building and staffed by upper level undergraduates (coaches), who have a good background in chemistry and are familiar with the courses. Services offered include weekly appointments; team learning groups, walk-in assistance, reference library, computer-assisted learning and a comfortable place to study chemistry. Stop by for more information.
CH0011 - Development of Chemistry Skills (1 credit): Students who would like to have a scheduled weekly appointment or participate in a team learning group must be enrolled in CH0011. Students enrolled in CH0011 should visit the CLC during the first week of class to sign up for a weekly appointment time with a coach or a Team Learning Group. You must attend your first weekly appointment or team meeting, which begins the second week of classes. Grades in CH0011 are satisfactory/unsatisfactory based on attendance. You are expected to attend every appointment or group meeting. However, you are allowed to miss one appointment or three team meetings and still receive a satisfactory grade.

Walk-in Hours
EVENING: Monday through Wednesday 6:00 p.m. - 8:00 p.m.
DAYTIME: Monday through Thursday 10:00 a.m. - 4:00 p.m.

Absence Policy and Academic Integrity:
There is no time available for students to make-up missed work. For excused absences, the missed experiment will not be used in calculating your grade. Usually these absences include only those due to university-sponsored field or athletic trips, or illness. In the event of a university-sponsored activity, the student is responsible for contacting the lab supervisor before the missed lab session. In case of illness, the student should contact the lab supervisor as soon as he or she knows the lab session will be missed. The student will be required to present written confirmation of the reason for the absence. If in doubt, see the lab instructor.

Again, you must notify the lab instructor as soon as you know you will miss a lab for any reason. Failure to do this may result in your absence being regarded as unexcused and may result in you failing CH1120. Please note that your lab coordinator and TA cannot excuse absences or arrange for a make up session.

In case of absence:

1. **To report an absence**, e-mail your lab instructor. Office locations and e-mail addresses are included on your experiment schedule and in the front of this manual.

2. Even if you receive an excused absence, you are still required to complete prelab and post lab assignments associated with that laboratory unless excused by your instructor.

3. If more than two experiments or one scheduled test is missed and not made up, you will automatically fail CH1120.

**NOTE:** You will be responsible for understanding the material contained in the missed experiment for the laboratory practical exams.

Both students and faculty are responsible for insuring the academic integrity of the University according to the procedures in “Academic Integrity at MTU - A Guide for Students and Faculty.” Specific violations in this course would be the intentional use of any unauthorized study aids, equipment, or another’s work during an examination (cheating) or allowing/helping another individual.
to cheat (facilitating academic dishonesty). Possible sanctions include an academic integrity warning, an "F*" grade indicating failure due to academic dishonesty, suspension or expulsion.

MTU complies with all federal and state laws and regulations regarding discrimination, including the Americans with Disabilities Act of 1990 (ADA). If you have a disability and need a reasonable accommodation for equal access to education or services at MTU, please call Dr. Gloria Melton, Associate Dean of Students at 2212.
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Proposed Studio Laboratory Experiments

**Week 01 – Thermodynamics:**
1. Check-in + Energy of Food
2. Hess’s Law Part 1

**Week 02 – Thermodynamics:**
1. Hess’s Law Part 2 – Heat of Reaction
2. Entropy of Reaction

**Week 03 – Redox and Electrochemistry:**
1. Balancing Equations and Redox Titrations (of bleach)
2. Activity Series

**Week 04 – Electrochemistry:**
1. Voltaic Cells
2. Electrolysis and/or Faraday’s Law – depends on equipment availability

**Week 05 – Electrochemistry and Kinetics:**
1. Kinetics 01-Rate and Order using UV-VIS
2. Winter Carnival

**Week 06 – Kinetics:**
1. Kinetics 02 –Rate Law and Activation Energy
2. Kinetics 03-Mechanisms

**Week 07 – Nuclear Chemistry:**
1. Alpha, Beta, Gamma
2. Shielding and Half-Lives

**Week 08 – Coordination Complexes:**
1. Synthesis and Analysis of Coordination Complex - Synthesis
2. Spring Break

**Week 09 – Structure and Bonding:**
1. Synthesis and Analysis of Coordination Complex - Analysis
2. Synthesis and Analysis of Alum

**Week 10 – Industrial/Analytical Chemistry:**
1. Analysis of Cations
2. Analysis of Anions
Week 11 - Organic:
1. Structure and Functional Groups
2. NMR and IR Training – Hopefully.

Week 12 - Organic:

Week 13 - Polymers:
1. Preparation and Properties of Polymers

Week 15 – Exams and Checkout: