Instructor: Dr. Ryan Sweeder
Office: W-33 Holmes Hall
Office phone: 432-0884
AOL IM screenname: DrSweeder
email: sweeder@msu.edu

Class meetings: M, W, F 9:10-10:00am; Room C-106 Holmes (Section 1-5)
M, W, F 11:40-12:30; Room C-106 Holmes (Section 6-10)
Recitation sections on Thursdays; Room Akers 134, 135, 136, 138 or 141 (see schedule)

Office hours: Thurs 1:00-3:00 pm; WF 10-11am, other hours by appointment

Chemistry Help Room: 4th floor east Holmes Hall; hours approx 6-11 Sun-Thur (location of office hours for LAs)

Available at iChapters.com
also required: a calculator that can handle scientific notation and exponents.
CPS-rf Response Pad (class key is: L25068E926 (Section 1-5), K25069K575 (Section 6-10)) register at www.einstruction.com [Note: you should NOT enter your MSU PID]

My Course Goals:
• You learn the basic concepts of Chemistry
• You are able to visualize the connections between science and your daily life
• We build a learning community

Class Objectives:
• understanding the properties of gases, liquids, and technologically relevant solids
• understanding the types of intermolecular forces and their effect on physical properties
• discerning the difference in physical properties between pure liquids and solutions, and using these properties in chemical analysis
• probing the factors that affect the rate of chemical reactions, and how these factors allow us to examine the underlying mechanism by which a reaction occurs
• understanding the relationship of chemical equilibrium to kinetics and thermodynamics
• being able to predict whether precipitation reactions will occur, towards toxic/valuable ion separation
• utilizing chemical equilibrium concepts for more in-depth analysis of acid-base chemistry, buffer solutions, and solubility
• gaining a deeper understanding of thermodynamics via the concepts of entropy and free energy
• learning how to balance reduction/oxidation ("redox") reactions
• gaining a basic working familiarity with electrochemistry, nuclear chemistry, and inorganic coordination chemistry
• grasping the deep relevance of chemistry to modern medical and technological issues

Grading Policy: Points will be assigned according to the following scheme:

<table>
<thead>
<tr>
<th>Grading Category</th>
<th>Points Breakdown</th>
<th>Total Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problem Sets</td>
<td>12 @ 15 pts</td>
<td>180 pts</td>
</tr>
<tr>
<td>Group Activity</td>
<td>1 @ 50 pts</td>
<td>50 pts</td>
</tr>
<tr>
<td>Symposium</td>
<td>1 @ 50 pts</td>
<td>50 pts</td>
</tr>
<tr>
<td>Participation</td>
<td>(based on CPS system)</td>
<td>50 pts</td>
</tr>
<tr>
<td>Quizzes</td>
<td>7 @ 10 pts</td>
<td>70 pts</td>
</tr>
<tr>
<td>Prelim. Exams</td>
<td>3 @ 100 pts</td>
<td>300 pts</td>
</tr>
<tr>
<td>Final Exam</td>
<td>1 @ 200 pts</td>
<td>200 pts</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>900</strong></td>
</tr>
</tbody>
</table>

Note that the total number of points may change during the semester if assignments are added or removed.

Grade scale: For your final course average, the percentage of total points will be translated to grades as follows:

- 90% or above – 4.0
- 85 to 90 – 3.5
- 80 to 85 – 3.0
- 75 to 80 – 2.5
- 70 to 75 – 2.0
- 65 to 70 – 1.5
- 60 to 65 – 1.0
- Below 60 – 0.0

The grading scale is designed specifically so that you are NOT IN COMPETITION with your fellow classmates for a grade. There will be no curve for the individual exams or the whole class. I do reserve the right to rescale an exam score (e.g. by adding a couple of points if a question seemed unfair) if (when) I write a real killer. Thus, assisting someone else so that they end up doing well will not diminish your own ability to get a good grade. In fact it will probably help you, as teaching someone else how to approach a problem is really the best way to ensure that you understand it!

Earning a 4.0 will require a consistent superior effort and mastery of the course material as well as regular participation. Although everyone in theory could receive this grade (and I would love to have to explain to the administration that you all deserve it), this is will require a very high level of understanding. A 3.0 indicates good understanding, but falling short of mastery. A 2.0 denotes satisfactory performance, but some deficiencies are evident. A 1.0 represents a bare minimum level of understanding. Below that is…well…not good.

Class format:
The Monday/Wednesday/Friday sessions classes will be “lecture”-type, but there will be significant discussion/problem solving/group work/demonstrations. Every Thursday's class will be a recitation, where you can ask questions about the assigned problems or general class concepts. Your L.A. will go over any assigned problems that were causing you to pull your hair out. They may also provide additional more challenging problems to work on. There will be periodic quizzes and small group projects in the recitation
sections as well.

**Homework problem sets:**

The problem sets will be assigned online about 4-5 days before the due date. (If they are slow to appear, email me.) They will be collected at the beginning of recitation on the due date. One of the goals of this course is to develop your problem solving skills as part of a team. In order to further enhance these skills, you are encouraged to work on your homework assignments with your classmates and particularly on the “more challenging problems” indicated in the book. Assignments may be handed in for a group (with each person's name on the assignment). However, each person is responsible for having a complete handwritten copy that they will show the LA when turning in the group work. Keep in mind that copying someone else's work won't help you prepare for exams. Also, if it appears that this policy is being abused, individual copies will be collected from each student.

Problem sets will be graded primarily on your effort, so turning in a sheet showing only numerically correct answers won't get you much credit. You should focus as much on the thought process as in simply getting the correct answer. Each problem set is worth 15 points. Late assignment MAY receive some partial credit, but expect to lose 5 points per day late. If you have to miss a class for unavoidable reasons please turn in the assignment ahead of time, or have a classmate submit it. Extra practice problems are available at [http://msu.lon-capa.org](http://msu.lon-capa.org).

**Group Activity:**

A Group Activity will be assigned during the term. This assignment will be completed in groups and will be presented in your recitation section. The task will give you the opportunity to be creative in presenting or discussing some aspect of chemistry and perhaps give you the opportunity to use other talents. More info will be given before they are due.

**Symposium:**

LBS will be holding a spring research symposium during the final week of classes. You will be expected to both attend and present at the symposium as a part of the class. Your presentation portion will likely be as a part of a poster session. You may present your poster from the in-class project this semester, from last semester, or present the results from one of your chemistry lab research projects (the phosphate lab, biodiesel lab, or acid/base lab.)

**Quizzes:**

Quizzes will be fifteen minutes long, worth 10 points each, and be given at the end of a recitation period. You will not have quizzes in the recitation periods immediately preceding an exam. If you miss a quiz due to illness or family emergency, please bring the matter to your L.A.'s or my attention via phone or voice mail before the quiz occurs. There are no make-up quizzes in the event of an unexcused absence. In the case of an excused absence, you will be given the average of your other quiz grades as the grade for the missed quiz.

**Exams:**

Attendance at exams is mandatory. If you have an extremely compelling reason (death in the family, your own death etc.) why you need to miss an exam, please bring it to my attention beforehand so arrangements can be made. Missing an exam may result in a zero on the exam. Missing multiple exams may result in failure of the course.

**Attendance Policy:**

I am not going to waste time taking a roll call at each class meeting. The CPS response systems will be used to monitor your regular response to in-class questions. Although you need not respond to questions on all days to receive a full participation score, answering more will help (approximately an 80% daily participation rate gives the full participation points). Please note that frequent absences will dramatically impair your class
I'm also sure your folks (or you) will be pleased knowing you blew about $30 of their (or your own) hard-earned money by skipping a class.

**Academic Integrity:**

The undergraduate academic community, like all communities, functions best when its members treat one another with honesty, fairness, respect, and trust. This honesty implies that your work should always be your own. I expect that all students understand how to properly document sources and will do so on all work. One may not plead ignorance on this topic. Work done within groups should cite all group members involved in completing the work. The penalty for cheating or plagiarism will be a failing grade of 0.0 for the course. I expect you to have read [MSU's policies on academic integrity](http://www.msu.edu/course/lbs/172/Sweeder/Syllabus.htm) and the Briggs honor code (see below.)

**Lyman Briggs Honor Code**

"As a member of the Lyman Briggs School community, I vow to hold myself and my peers to the highest measures of honesty and integrity. I understand that this benchmark is set forth to advance the credibility and pride associated with our School. I will neither give nor receive any unauthorized assistance in completing my work, which includes, but is not limited to: papers, reports, exams, group-work, and classroom conduct."

If you are caught entering answers on more than one CPS clicker, any CPS clickers in your possession will be confiscated. Both you and your absent friend(s) will face sanctions for academic dishonesty.

Please note that we have had issues in the past with students programming calculators with inappropriate information before examinations, and with students using Wi-Fi equipped calculators to communicate during examinations. As a result we use standard single-number display TI calculators for exams. You will get practice using these during CPS clicker questions in lecture. You may provide your own similar calculator during exams if you wish.

If you ever have a question about if something would be considered legit or not, please ask beforehand.

**Hints for success:**

**Make the decision to succeed.** My job is to do my best to present the concepts of chemistry in an interesting, engaging, and perhaps sometimes entertaining fashion. But all I can do is teach ... you have to do the thinking and learning. I can aid the process, but I cannot make you learn. Making the decision to succeed will require both time and effort on your part. Chemistry (and many of the other sciences) are difficult due to the fact that you have to learn many new terms (some researchers estimate that you will learn as many new words as if you would in a foreign language class) and chemical principles that we will ask you to be able to apply to new situations. Ultimately though, you are the one responsible for your own education. Attitude will go a long way in determining your level of success.

**ASK QUESTIONS** if you have difficulties/misunderstandings/mental blocks/panic attacks/nightmares/homicidal feelings towards the instructor. In addition to myself, you can also ask help from the Teaching Assistants (TAs), Learning Assistants (LAs) [both can be found in the Chemistry Help room; 4th floor East Holmes] and most especially your classmates!

*The only stupid questions are the ones that aren't asked.* Remember that if you are confused about something, it is quite likely that other people are too.

**DO NOT GET BEHIND.** You learn chemistry by building up knowledge from what you've previously learned. You need to keep up to be able to understand the material being presented. If you fall behind, it's exceedingly difficult to catch up. If your high school chemistry course was weak or non-existent,
this is especially applicable to you.

**PRACTICE.** Do not simply assume that if you once did a problem right that you have it down. Like anything else, it is helpful to repeat the process until you are SURE you can do it. (Remember that there are lots of good problems in each chapter that are NOT assigned. They make good practice fodder.) You should not rely inappropriately on your high school/AP chemistry class. We often go into more depth and expect you to not only be able to do a quantitative problem, but to be able to apply the concepts. Also keep in mind that doing problems is much like hitting a golf ball. Just because you once hit the ball perfectly, doesn't mean that you can consistently repeat it.

**DO NOT BLOW OFF PROBLEM SETS.** Each missed problem set costs you points as well as the opportunity to learn how to apply the chemical ideas you are learning. These are easy points to be earned. Simply by showing up, participating and completing all of the assorted homework assignments you can earn 1/3 of the total class points! Conversely, if you do none of these things you cannot get above a 1.5.

**PAY ATTENTION to the demonstrations.** Yes they are fun, but they do contain real information. If you can understand a demonstration you are well on your way to understanding the concept behind it.

You are **expected** to .....[gasp]....[shudder]...... THINK!!!!

**DEALING WITH SETBACKS.** One item that most people learn in college is how to deal with setbacks. If you get an exam back on which you did "terrible," how will you react? You can either give up or take it as a challenge to do better. If you realize that you need to work harder, then it is important to evaluate how you prepared for the exam. If you studied for 20 hours the week before the exam, then probably studying for 25 will not make the difference for the next. Instead you may need to change how you study for an exam. Perhaps you need to use the LA office hours, perhaps you need to study with a group, perhaps you need to study each week instead of cramming before the exam. Statistically, those students who study smarter (are more able to adjust their study habits to the demands of each course) perform far better than those who simply study hard (assuming more of the same ineffective method will help.)

**For students with disabilities:** All students who have an assessed learning disability or physical disability should meet with me during the first week of class to arrange any necessary accommodations.