

Chemistry 237, Fall 2009

MWF 8:30-9:20 pm, Kane 120

My view of organic chemistry: (for the *student* view of my course, read “advice from past students” at the end) If you listen to some students organic chemistry is a cruel hurdle placed in your path to test your tolerance for pain. Consistent with this view, many students start the course with a simple goal: survive with a decent grade. I encourage you to expect more from this course for two reasons:

1. I have found that students are more successful at organic chemistry when they enjoy it, so I have worked hard to create a course that students can enjoy, but you must keep up to enjoy it.
2. This organic chemistry course is an opportunity to hone skills like data analysis, problem solving, and working effectively as part of a group. If you invest the time and energy you will learn skills in this course that will make you more effective in your other courses and in whatever career you choose.

This course is not a hurdle; it is a staircase to a new and powerful way of thinking—like a scientist. That is why, more than any other course, admissions committees and employers care about your grade in organic chemistry.

Instructor: Professor Andrei Straumanis

e-mail: Andrei2@u.washington.edu

Mailbox: Bagley

Office Location: CHB 404J

Office Hours: M,W (and some Fridays) 9:20-10:20; (outside our classroom, Kane 120)

or by appointment M or F at 10:30 outside Kane 120, or Tu 1-3pm, Herkimer Coffee (Univ. Ave & 56th)

Teach Assistants:

Thompson	Wally	melvyn@u.washington.edu	AA,AC,AH,AJ
Bollinger	James	jgb2@u.washington.edu	AB
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Brigham	Jennifer	brighamj@u.washington.edu	AI,AN
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Course Website: <http://faculty.washington.edu/andrei2>

Links to the syllabus, seating charts, discussion board (Go Post), and quiz and exam keys, and clicker presentations (posted after the class in which they were used).

Emailing the Professor: Please use CHEM 237 as the subject line in any correspondence. Only email the professor if you have a question that is personal in nature. All other questions should be directed to the Go Post. (Otherwise I end up answering the same question multiple times.)

Required Text: **Organic Chemistry: A Guided Inquiry, 2nd Edition**, Straumanis, Houghton Mifflin. (The Solutions Manual for the homework Exercises found in Organic Chemistry: A Guided Inquiry, 2^e is not required, but is available in the bookstore. I am allowed to post only the first three chapters on the website.)

Required Equipment: Turning Technologies Rf response card. (This is the UW sanctioned clicker that is used in GenChem, Biology and other UW courses). **Bring your clicker to class every day!!** You are responsible for keeping your clicker working. I will drop the lowest clicker quiz and the lowest participation grade so you will not be penalized the first time you forget your clicker, miss class, or your clicker does not work.

Recommended Texts: **Organic Chemistry, 6th or 7th Edition**, Carey, McGraw-Hill, and the accompanying solutions manual. This book will be the primary text for subsequent organic courses in the department.

Recommended Equipment: To do well in organic chemistry you **MUST** have access to a molecular model set. This is mostly for use outside of class, but it is **REQUIRED** that your group **BRING A MODEL SET TO CLASS** for ChemActivities 6 & 7 (see schedule).

Grading:	Quiz Section Quizzes	90 pts, 9%
	Clicker Quizzes (CQ) <u>one at start of most lectures</u>	125 pts, 12.5%
	Clicker Participation (CP) during each lecture	20 pts, 2%
	Take Home Exam 1 (TH1)	20 pts, 2%
	Take Home Exam 2 (TH2)	45 pts, 4.5%
	Midterm 1 (MT1)	200 pts, 20%
	Midterm 2 (MT2)	200 pts, 20%
	Final Exam	300 pts, 30%

Notes on Quizzes and Exams: All quizzes and in-class exams will be taken individually. For exams, and on the first day of class, students will have assigned seats. The seating chart will be posted on the course website. Please know the location of your seat before coming to class. On exam days, please be able to provide the name of your TA and your quiz section.

Quiz Section Quizzes (QSQ): 15 pts each. Taken individually at the start of some quiz sections (see schedule).

Clicker Quizzes (CQ): At the start of each lecture there will be a 5 point CQ (clicker quiz) over the material covered in the previous class period. Clicker quizzes will be taken individually. Please remain quiet until time is called. Your lowest clicker quiz score will be dropped. This means you will not be penalized the first time you miss class, forget your clicker, or your clicker malfunctions. (Note: other than dropping a clicker quiz, there are no excused absences from clicker quizzes. The reason for this policy is that the small number of points associated with class attendance does not justify the staff time that would be required to verify excused absences.)

Swine Flu: If H1N1 flu ends up causing large numbers of absences, I will drop more than one clicker quiz (number to be determined based on average campus wide absence rates). You will not need a doctor's note or other documentation. If you are out for an extended period, please consult the syllabus and do your best to keep up by continuing to do the ChemActivities at home.

Clicker Participation (CP): After the clicker quiz and during each lecture there will be several clicker questions. Unlike the clicker quizzes, you are encouraged to work with your group to answer these clicker questions. When you have arrived at an answer you must each individually key in your response. 2% of your grade is determined by your answers to these clicker questions according the following scheme: full credit for a correct response, 90% credit for a response of "Not Sure" or "Need more time" and 80% credit for an incorrect response, 0% for no response.

Group Take Home Exams (TH1 & TH2): Take home exams are to be completed collectively by your group. Here are the rules.

- Take Home Exam Groups are the same as your in-class groups
- You may consult with the instructor, TA's assigned to this section, or any student in your group
- You may use any published resource (e.g. your textbook or workbook but not the notes of a person outside your group)
- You may NOT consult with or receive aid from any other person (especially TA's not in this sections or students outside your group).

Midterm Exams (MT1 & MT2): Each midterm will be worth 200 points, and be cumulative, but focus on the most recent material.

Final Exam (FE): The cumulative final will be worth 300 points

Makeup Exams: There will be no makeup exams or rescheduled exams for any reason. In the event of an unavoidable absence, the reason for the absence must be approved by Dr. Tracy Harvey (Bagley 294), preferably in advance. The proper procedure that you should adopt in such cases is as follows:

- 1) Personally report your absence from an hourly exam within 72 hours to Dr. Tracy Harvey in Bagley 294.
- 2) Bring proof of your unavoidable cause such as a doctor's note, an accident report, a memorial folder, or similar documentation, when you visit her office. The documentation must include a contact name, a telephone number, and an e-mail address.
- 3) Dr. Tracy Harvey will notify me regarding the status of your absence. If the absence is determined to be excusable, then the weight of your final exam will be increased proportionately towards calculating the course grade. If your absence does not meet the above criteria and is determined inexcusable, you will be given a zero for that exam.

Re-grades: Requests for re-grades must be submitted no later than one week from the first day exams are available for pickup. Submissions after the deadline will not be considered regardless of their merit. Your request must be made through your TA and it should include your name, the page number in which an error was made, and an explanation of the grading error. The entire exam will then be re-graded (you may lose points if your final score is lower than your original score). To minimize meaningless re-grades, only re-grades that result in a change of at least 5 points will be accepted. **A percentage of all exams will be photocopied prior to being returned to you and any exams submitted for re-grade that have been altered in any way will be given a zero.**

Academic Honesty: Please do not cheat! Cheating of any sort, including communicating during the clicker quizzes, will not be tolerated. The policy of the college on academic misconduct will be strictly enforced. This is a collaborative course, but the guidelines on when you can and cannot collaborate are clearly defined in this document.

Homework: After each class period you must do the following (though homework is not collected or graded)

- **Complete the ChemActivity if your group did not finish in class (including Exercises)**
- **Do any assigned homework problems in Carey**
- **Make a list of sticking points or questions for your group, TA, or instructor**
- **Read any assigned sections in Carey** (this should be your final preparation for the clicker quiz)
- **READ AT LEAST THE FIRST TWO PAGES OF THE NEXT ACTIVITY.** This will help you keep up in class AND can give you a huge advantage on the clicker quiz (since clicker quizzes often focus on the most important concept in an activity, and this concept often forms the basis of the next activity).

Preparing for the quiz will be most effective if you do it in the context of a regular and productive study group, or with a study partner. Just as you would for a successful exercise routine, it is best to set up standing weekly dates with your study partner(s). **This is the single most important thing you can do to make yourself successful in this course!!**

Group Work in Class

- The bulk of class time will be spent actively thinking, drawing structures, working with models etc. as part of a self-managed team of three or four students.
- Group work will not be graded. The purpose of group work is to learn the material, dispel misconceptions, and ask questions.

Group Membership and Team Management

- Each team may appoint a manager, or may choose to collectively ensure there is agreement on each question before moving on, that no one is going ahead or falling behind, no one dominates the discussion, and everyone feels comfortable speaking up, especially if they are frustrated, confused or behind.
- The instructor will assign the group membership for week 1 & then reshuffle group membership for week 2. (Please check the website for your assigned seat before coming to class).
- By the end of week 2 you will be asked to form your own groups, and choose a block of 3-4 seats in the classroom using the Go Post (course discussion board). These seats/groups will remain for the rest of the quarter. (If you have a conflict in your group, I am happy to help you resolve it. If this does not work, a change can be made.) **The more active you are in the process of choosing a group that fits your needs, the more likely you are to be satisfied with your group and have a positive experience in this course.**

Useful Websites

The most important website is the course website found at <http://faculty.washington.edu>

<http://www.acdlabs.com/download/chemsketch/> Download a free copy of a molecule drawing program – ChemSketch. The “Generate Name for Structure” button is particularly useful.

<http://depts.washington.edu/woodmand/webExHome.html> Tutorials offered by the UW Chem Dept.

<http://treefrog.fullerton.edu/chem/> Reaction Animations from Cal State Fullerton

Special Needs

The University of Washington is committed to providing access, equal opportunity, and reasonable accommodation in its services, programs, activities, education, and employment for individuals with disabilities. To request disability accommodations contact the Disability Services Office at least ten day in advance at: (206) 543-6450/V, (206) 543-6452/TTY, (206) 685-7264 (FAX), or dso@u.washington.edu.

Schedule for Chemistry 237A, Winter 2009, Straumanis

Monday	Wednesday	Thursday (quiz section)	Friday
	<p>Sept 30 <i>In class: do</i> ChemActivity 1 <i>Homework (to complete before start of class Friday):</i> Straumanis: Exercises for CA 1 on pp. 13-14; Carey: Read section 1.9; Do problems 1.42a,b Also Read at least the first page of ChemActivity 2 and jot down possible answers in the margins.</p> <p>Tip: Class will be more productive for you if you preview the upcoming activity before each class.</p>	<p>Oct 1 No quiz section this first week</p> <p>Tip: Register your clicker by going to the course website (http://faculty.washington.edu/andrei2) and clicking on the clicker registration link. (You can do this any time until the last day of the quarter, but you might as well do it today.)</p>	<p>Oct 2 Starting today each class will begin with a clicker quiz over the previous ChemActivity (e.g. CA 1). <i>During class your group will do...</i> ChemActivity 2</p> <p><i>Homework (to complete before Mon):</i> Straumanis: Exercises for ChemActivity 2; Carey: Read sections 1.3, 1.4, 1.7; Do prob's 1.40, 1.43-1.45, 1.46b-i, 1.47, 1.51 Attempt first pages of ChemActivity 3</p>
<p>Oct 5 <i>During class your group will do...</i> ChemActivity 3 <i>Homework (to complete before Wed):</i> Straumanis: Exercises for ChemActivity 3; Carey: Read sections 1.1, 2.2-2.7, 2.20-2.23; Do prob's 2.2, 2.18, 2.19, 2.45</p> <p>Attempt first pages of ChemActivity 4A</p> <p>Tip: As the activities get more complicated, it becomes more important to preview the activity before class.</p>	<p>Oct 7 <i>During class your group will do...</i> CA 4A <i>Homework: Straumanis:</i> Exercises for ChemActivity 4A; Carey: Read sections 1.2, 1.5, 1.10, 2.17, 4.5-4.6; Do prob's 1.55, 1.57, 2.37</p> <p>Tip: If you lose your clicker or change clickers for some reason, send an email to the instructor with your student number and new Device ID.</p>	<p>Oct 8 Start with Quiz 1 covering ChcmActivity 4A <i>During Quiz Section do...</i> ChemActivity 4B</p> <p><i>Homework for Friday:</i> Straumanis: Exercises for CA 4B; Carey: Read sections 1.11-1.12; Do prob's 1.22-1.26</p> <p>Tip: Work hard to form a group with people you like.</p>	<p>Oct 9 Start with clicker quiz over CA 4B. <i>During class ...</i> CA 4C</p> <p><i>Homework for Monday:</i> Straumanis: Exercises for CA 4C; Carey: Read 1.13-1.16; Prob's 1.63-1.71</p> <p>Tip: Memorize the seven pK_a values listed in Table 4.6, and know that all strong acids have a very low pK_a (assume it is zero for now)</p>
<p>Oct 12 CA 5A <i>Homework (complete before Tues)</i> Straumanis: Exercises for ChemActivity 5A; Carey: Read (none); Prob's 1.46a, 1.48-1.50</p> <p>IMPORTANT!! Seat/Group Registration Starts: click on the link called "group registration" on course website</p>	<p>Oct 14 CA 5B Straumanis: Exercises CA 5B; Carey: Read 1.8, 1.18; Prob's 1.72, 1.73</p> <p>Tip: Buy or borrow a model set. Your group must bring at least one model of butane for CA 6A.</p>	<p>Oct 15 Quiz 2 covering CA 5 <i>During Quiz Section do...</i> Nomenclature Wksht 1 <i>THROUGH MODEL 3! (you are not responsible for Model 4)</i></p> <p><i>Homework: Straumanis:</i> Exercises for Nomenclature Worksheet 1 (except Exercise 2g,h,j; and the first structure on the second row of Exercise 3) Carey: Read 2.1, 2.11-2.15; Do prob's 2.23-2.25, 2.27-2.28</p>	<p>Oct 16 CA 6A Straumanis: Exercises CA 6A; Carey: Read 3.1-3.3; Prob's 3.17-3.22, 3.29a</p> <p>IMPORTANT!! You will be penalized if your group does not have a model of butane today.</p>
<p>Oct 19 Sit in your self-selected groups/seats starting today!</p> <p>CA 6B Straumanis: Exercises for CA 6B; Carey: Read 1.6, 2.8-2.10; Prob's 1.52-1.54, 1.58, 2.20-2.22</p>	<p>Oct 21 CA 6C Straumanis: Exercises for CA 6C; Carey: Read 5.2-5.4; Prob's 5.2-5.7</p> <p>TH1 posted</p> <p>Tip: If your group doesn't always finish the activity in class, do the first few pages of the activity before class.</p>	<p>Oct 22 Quiz 3 covering CA 6 <i>During Quiz Section do...</i> Nomenclature Wksht 2 (except CTQ 7c & 8d) <i>Homework: Straumanis:</i> Exercises for Nomenclature Worksheet 2 (Exercise 1 – skip parts d,e,k, & l, Exercise 2: skip 2nd and 5th structures in the second row) Carey: Read 9.2; Prob's 9.16, 9.18</p>	<p>Oct 23 CA 7A Straumanis: Exercises CA 7A. Carey: Read 3.11; Prob's 3.25, 3.26, 5.29</p> <p>Reminder: Your group must have a model of cyclohexane on Monday.</p>
<p>Oct 26 CA 7B Straumanis: Exercises CA 7B; Carey: Read 3.4-3.12, and 4.1-4.3, 5.1; Prob's 3.30-3.32, 4.26; and 4.21, 4.22, 4.24, 5.25, 5.27</p> <p>IMPORTANT!! You will be penalized if your group does not have a model of cyclohexane today.</p>	<p>Oct 28 Turn in TH1 CA 8A Straumanis: Exercises for CA 8A; Carey: Read 4.10, 6.4-6.8; Prob's 4.46</p>	<p>Oct 29 Quiz 4 covering CA 8A <i>During Quiz Section do...</i> CA 8B Straumanis: Exercises for CA 8B; Carey: Read 6.10-6.11; Prob's 6.47</p>	<p>Oct 30 CA 9A Straumanis: Exercises for CA 9A; Carey: Read 6.15-6.19; Prob's 6.49</p>

Nov 2 CA 9B Straumanis: Exercises for CA 9B; Carey: Read 1 6.1-16.13; Prob's 16.25 (except problem 16.25i)	Nov 4 CA 10A (Parts 1 & 2) Straumanis: Exercises for CA 10A; Carey: Read 1.7, 6.12-6.14 (A1), and 2.18, 2.19; 6.1-6.3, 9.9-9.10 (A2); Prob's 2.42, 2.43 (A1); and 6.30, 6.31, 6.32a,b,d,e,g; 6.34a, c-g, 9.20 (A2)	Nov 5 No Quiz Review for Midterm 1 <i>No ChemActivity during Quiz Section</i>	Nov 6 Midterm 1 Covering CA's 1-10A, NW1 & NW2
Nov 9 CA 10B Straumanis: Exercises for CA 10B; Carey: Read 4.4, 6.20; Prob's 2.26-6.28 only a, b, d-h, k, l; 6.37b-f	Nov 11 Veteran's Day No Classes	Nov 12 Quiz 5 covering CA 10B <i>During Quiz Section do...</i> CA 11 Straumanis: Exercises for CA 11; Carey: Read 9.3-9.6, 9.11-9.13; Prob's 9.25a-d, g-k; 9.26a-h, 9.27	Nov 13 CA 12A Straumanis: Exercises for CA 12A; Carey: Read 7.1-7.4, 7.8; Prob's 7.26-7.29
Nov 16 CA 12B Straumanis: Exercises for CA 12B; Carey: Read 7.5-7.7, 7.9-7.14, 7.16, 7.17; Prob's 7.30-7.41, 7.44b, c, f, g, 7.46, 7.48	Nov 18 CA 13A Straumanis: Exercises for CA 13A; Carey: Read 8.1-8.3; Prob's 8.19, 8.21, 8.22, 8.30	Nov 19 Quiz 6 covering CA 13A <i>During Quiz Section do...</i> CA 13B Straumanis: Exercises for CA 13B; Carey: Read 4.12, 8.5, 8.12-8.14; Prob's 4.37, 8.27	Nov 20 CA 13C Straumanis: Exercises for CA 13C; Carey: Read 4.7-4.9, 8.4, 8.6-8.9; Prob's 4.40, 4.43, 8.23-8.25, 8.31, 8.34-8.36
Nov 23 CA 13D Straumanis: Exercises for CA 13D; Carey: Read 4.11, 8.11; Prob's 4.38a-d, 4.39, 4.42, 8.40, 8.46	Nov 25 CA 14A Straumanis: Exercises for CA 14A; Carey: Read 5.5-5.7; Prob's 5.8-5.13	Nov 26 Thanksgiving Day No quiz section	Nov 27 Thanksgiving Holiday No Classes
Nov 30 CA 14B Straumanis: Exercises for CA 14B; Carey: Read 5.8-5.15, 5.18, 8.11, 9.7; Prob's 5.33-5.41, 8.20, 8.32, 8.39, 8.42, 8.44	Dec 2 CA 14C Straumanis: Exercises for CA 14C; Carey: Read 5.16, 5.19; Prob's 5.42-5.44	Dec 3 No Quiz Review for Midterm 2 <i>No ChemActivity during Quiz Section</i>	Dec 4 Midterm 2 Covering CA 1-14; NW1, NW2 TH2 posted
Dec 7 CA 15A Straumanis: Exercises for CA 15A; Carey: Read 4.14-4.19, 7.9, Prob's 4.44-4.46, 4.48-4.52, 8.33	Dec 9 CA 15B Straumanis: Exercises for CA 15B; Carey: Reading and Prob's TBA	Dec 10 No Quiz Review for Final <i>No ChemActivity during Quiz Section</i>	Dec 11 Turn in TH2 CA 16A Straumanis: Exercises for CA 16A Carey: Read Section 14.8
Final Exam – <u>Tuesday Dec. 15th</u> 8:30-10:20, Kane 120			

Advice from Past Students

I know you also care about your grade. Who better to give advice about how to be successful in this course than students who have been through it? The following are student answers to the question: What advice do you wish someone had given you at the start?

- Do the upcoming activity before class. Otherwise you will feel rushed and not know what's going on.
- You may think (like I did) that group work in organic chemistry is a bad idea. (I thought it would be the blind leading the blind.) But it really does work. I experienced both. I had lecture for Organic 1, and I have really enjoyed the group work in Organic 2.
- If I was starting out I would want someone to tell me that 1) there are no stupid questions and you should always ask your group because their thoughts will help, 2) get in a group with people you work well with because if you don't interact well learning is harder, and 3) use your in class study groups for studying outside of class. Good luck!
- Don't fall behind. Playing catch up is not fun. Don't be afraid to ask questions and argue in your group. That is the way learning is done in this class.

- Give yourself some time to settle into group learning. Lots of us did not think we would like it or that it would work. It does.
- I really didn't want to do group work at first because I have been successful taking notes and studying by myself. But it works. Do not hesitate to talk and meet other students in and out of class. They understand things you don't, and vice versa.
- Learn the reactions and read the textbook (Carey).
- Working together is the most important asset you have. Teaching others is an awesome way to reinforce what you have learned.
- Don't be afraid to share your opinions with your group.
- Do the (homework) Exercises before the quiz.
- Keep up. Do the homework and go to quiz section.
- If you sit passively in your group, you don't help anyone (especially yourself).
- Find people you work well with in and out of class. It helped me to find a study partner who I could meet with twice a week outside of class.
- Do not be afraid to get involved with your group. Everyone is interested in doing well and will be very willing to help you out.
- I wish I had asked more questions and been more engaged in group discussions from the start.
- Do not let yourself feel discouraged. The teacher and your classmates can and will help you.
- Feel free to ask a question in group even if you think it is a stupid question.
- I was intimidated at first. Don't be afraid to ask questions.
- This format is much more fun and less intimidating than a lecture.
- You actually learn in class. In my lecture classes it was always about going home and trying to figure it out later.
- This method helped me learn more and remember more than I thought possible.
- Don't be afraid to express your misconceptions from gen chem. We all have them.
- Make note cards.
- Get to know your group.
- It seems strange at first, but get to know your classmates. The faster you meet people and become comfortable the better the class will be.
- Finish each activity before the quiz. Meet with your group outside of class.
- Don't sit quietly in your group. The more you talk about organic chemistry the more you will understand.
- Find a study group ASAP and meet regularly every week. I wish I had done this sooner.
- At the start, I didn't think I would like it. I usually like to work and study individually. But I really liked the group work.
- If you think you are right, speak up to your group. You might be, but in any case your whole group will learn from it.
- I wish I had started with a more positive attitude, and that I had got to know more people at the start who I could study with outside of class.
- Get comfortable with your group as soon as possible and do not be afraid or embarrassed to ask questions of them.

- Finish the exercises each time.
- I loved the way this class was taught. It really helped me learn the material in a way that would make it stay with me. If I had been in a lecture section I wouldn't have done so well.
- Come to class expecting to learn a new concept, not just scribbling notes for an hour and a quarter.
- Set aside a little time to study organic every day. If you do this you will not be so overwhelmed come exam time.
- Don't be afraid to ask questions. Everyone is in the same position as you.
- I liked the idea of group work, but was afraid it would not prepare me for the final exam. My advice to future students: Don't worry. Fall into the format and it will carry you through.
- Don't let yourself take the course lightly just because class is fun and relaxed. Do the homework and reading.

Frequently Asked Questions

Do I need my own copy of the workbook?

I post copies of the activity for the first two days. No further ChemActivities can be posted. If you plan to stay in the course, you must obtain your own copy of the workbook (Organic Chemistry: A Guided Inquiry, second edition) available at the bookstore. At the start of each quarter, some students try to not write in the workbook, hoping to perhaps sell the workbook at the end of the course. All of these students find that writing in the workbook is necessary for keeping their answers matched up with the questions and figures.

Do I need to register my clicker to get credit for my answers?

You must register your clicker by the end of the quarter to get credit for your responses, but you should go ahead and do it soon.

When you register your clicker it links your student number to your clicker ID, and gives you credit for all clicker questions and clicker quizzes that you have taken, even those you took before you registered your clicker.

What should I do if I lose my clicker or change clickers?

The clicker registration page has two blanks for Device ID numbers. If you lose your clicker or change clickers for some reason, enter your new device ID in the SECOND blank. BE SURE TO LEAVE YOUR OLD CLICKER ID IN THE FIRST BLANK OR YOU MAY LOSE POINTS EARNED WITH YOUR OLD CLICKER.

How do I know if my clicker working and if my clicker submission was received?

The receiver will record your response even if you have not registered your clicker yet.

If your response was received, your clicker will give you some number of green blinks.

The two most common problems are...

- 1) dead battery (no LED light when you push a button)
- 2) wrong channel (indicated by yellow blinks when you submit your answer)

If you get red blinks during class, you pushed a button that did not correspond to a possible answer (e.g. you pressed 8, but there were only 7 choices).

How do I change my clicker channel?

Clickers should already be set to channel 41. But you can do this just in case...

To set your clicker to channel 41, press GO...4...1...GO at any time.

How do I know if my answers to in-class Critical Thinking Questions are correct?

Many students understandably ask, "How do I know if my answers to the in-class Critical Thinking Questions are correct?"

Some practical answers to this are given in the FAQ on page 2 of your workbook.

Here are some more answers to that question.

You do have access to the answers to the homework Exercises, so, if you don't get the homework Exercises right, there is a good chance you need to go back over the in-class CTQ's with a friend, TA, or an extra critical eye, and perhaps compile a list of specific questions for office hours.

A student may then ask "Wouldn't it be easier for us to learn the 'right' answers if you posted the right answers?"

Of course it would be easier if my goal was simply to have you memorize the answers to the CTQs. However, the CTQs are far too easy to put on an exam. (They are designed to be your introduction to a topic). It turns out that memorizing answers to simple questions does not help you answer harder, more conceptual questions (it simply prepares you to answer similar simple questions). HOWEVER, wrestling with simple questions and coming up with your own answers is a fantastic entry into a topic, and the best preparation for your further study via homework, the teacher's mini-lectures, and quiz and exam questions.

A key skill in this and every challenging course you will take going forward is what is called "self assessment". Self assessment is the ability to know when you are right. (Another way of thinking about it is... being able to assign a confidence level to each of your answers.) The goal with the CTQ's is to both answer the questions AND ESTABLISH A HIGH LEVEL OF CONFIDENCE THAT YOU ARE RIGHT using the textbook, other students, the Models, and questions asked of TAs or the professor (in your own words).

[In fact, development of self-assessment skills may be THE MAIN REASON HEALTH SCIENCE SCHOOLS REQUIRE THIS COURSE, and care how you do in it. What good is a doctor who recommends a treatment without knowing if this is a good course of action. IN THE REAL WORLD, THERE IS NO ANSWER KEY!]

Since every student must work to understand each new concept, you cannot skip this self-assessment part and simply look at the answer key to see if you are right. Think of it this way, if you answer a question and you are not sure you are right, this is little more than a guess. Every question I ask you in an activity CAN be answered using the information in the Model or previous Models, but most students find that some kind of extra work is required to convince themselves that they are definitely right. If you feel like you are guessing you are skipping this critical self assessment phase of the learning process, and you will find yourself guessing on exams.

Another way of saying this is: When a student reads a question and doesn't immediately know the answer, the tendency is to immediately look at the answer key if it's available. This hurts the learning process since most learning takes place as you try to figure out the answer to a question by talking to others, reading the textbook, revisiting the ChemActivity, etc.

In summary, wrestling with the CTQs is an important part of the learning process in this class, and giving out the answers short circuits this process.

Where can I find solutions to Homework Exercises?

At the end of each chapter in the workbook (Organic Chemistry: A Guided Inquiry, Second Edition) you will find homework Exercises. Answers to these exercises are published in a small volume entitled "Student Solutions Manual for Organic Chemistry: A Guided Inquiry, Second Edition", which is available at the bookstore.