CHEMISTRY 360-002 MWF 9:05 - 9:55
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SPRING 2006 SYLLABUS

DATES OF EXAMINATIONS

Exam I	(20%)	Friday, February 10
Exam II	(20%)	Friday, March 10
Exam III	(20%)	Friday, April 7
Final Exam	(40%)	Friday, May 5, 8:00-10:00

RULES FOR MISSED EXAMINATIONS

EXAMS I-III: If you must miss one of the hour exams, you must have a legitimate and verifiable excuse. Your excuse must be presented to me, in person or by phone, no later than 24 hours after the examination has been given. If your justification is valid, you will be excused from the exam and you will be assigned a grade based on how you do (relative to the class average) on the other two exams. If you do not notify me in time or if your excuse is not valid, you will be assigned a zero on the exam. **You cannot miss two exams and still get credit for the course.**

FINAL: As above, you must have a legitimate and verifiable excuse, presented to me no later than 24 hours after the exam. If your excuse is accepted **and if you are passing the course**, you will receive a grade of "I". **If you are not passing the course** (even if your excuse is valid), you will be assigned a grade of "F".

UNIVERSITY RULES (2005/2006 Undergraduate Catalog, p. 44); OFFICE OF DISABILITY SERVICES (p. 33)

(1) A course may not be taken more than three times. If you have taken Chem. 360 three times already, you will not be allowed to enroll. Grades of WP and WF count toward this "rule of three."

(2) A course in which a "C" or better is made may not be repeated. If you have already earned a "C" or better in Chem. 360, you will not be allowed to enroll.

(3) Students who have a **disability** that requires accommodation should make an appointment with the Office of Disability Services (974-6087) to discuss their specific needs.

GRADING POLICIES

I try to write exams that are of comparable difficulty from year to year. If I judge that the exams in this Chem. 360 class are similar to those in the past, I'll use the same cut-offs in making letter grade assignments: about 3-4 points below the standard 90, 80, 70, 60. If a student's term average is near a cut-off and if one exam score is dramatically different (either lower or higher) from the other three, I'll move that student to the next letter grade (either up or down).

GRADES OF W, WF, AND WP (2005/2006 Undergraduate Catalog, pp 44 and 45)

You should read, carefully, the rules for withdrawing from courses. Of special importance is the period between the 42nd and 84th calendar days of the semester (February 21 and April 4) when a student who withdraws will receive a grade of **WP** or **WF**. If, at the time of withdrawal, your average on exams taken is **55 or higher**, you will receive a **WP**; if it is **54 or lower**, you will receive a **WF**. **THIS CUTOFF IS NON-NEGOTIABLE**.

BLUE BOOKS

Well in advance of EXAM I, please bring me **FOUR** blue examination books. Put your name in the **upper right-hand corner** of the front cover of each book. The blue books will be distributed at random for each exam.

SNOW POLICY

If it should snow on the day of an exam, the exam will be given unless the university is officially closed. In the event that the university is closed, the exam will be given at the next class meeting. If the university is not closed but the snow is preventing you from coming to the exam, call me that day to explain your difficulty.

READING AND PRACTICE PROBLEM ASSIGNMENTS

Loudon, "Organic Chemistry," 4th edition R. Magid Chem. 360-002 Spring 2006

Approx. Date*	Reading Assignment	Practice Problems**
Jan. 11	Chapter 15: omit Sections 15.2; 15.5	1 - 3, 11 - 18, 20, 21, 27 - 29, 31 - 33, 35, 38, 39, 47, 52, 60, 62
Jan. 25	Chapter 16: omit Sections 16.3A,C,D; 16.7	2, 11 - 15, 17, 18, 21 - 23, 27 - 29, 31, 32, 38, 39, 41, 53(omit e), 58
Feb. 1	Chapter 17: omit Section 17.6	3 - 6, 9 - 11, 15, 16, 19 - 23, 31, 32, 42#, 43#
Feb. 6	***Chapter 18: omit Sections 18.4, 18.7, 18.10	1, 3, 8 - 13, 15 -18, 20, 22, 23, 30, 31, 36 (a-c), 37(a-g), 40 - 42, 56(a-g), 64
Feb. 15	Chapter 19: omit Sections 19.3A,C-E; 19.15	1, 11, 13 - 19, 21 - 23, 26 - 30, 33, 34, 37, 38, 40, 43, 47, 54, 55, 57
Feb. 22	Chapter 20: omit Sections 20.3A; 20.5; 20.11	1, 7 - 9, 11 - 13, 16, 18, 20, 24, 25, 28, 31, 36, 37, 40, 44, 45
Feb. 24	Chapter 21: omit Sections 21.4A; 21.12	1, 4, 9 - 12, 14 - 17, 19, 20, 23, 24, 26, 31, 32, 36, 40, 41, 50, 52(a-j)
Mar. 3	Chapter 22: omit Section 22.6 Chapter 20: read Section 20.11	1, 3, 5, 7, 11 - 14, 17, 19, 20, 22, 24 - 27, 29, 33, 37, 38, 40, 42 - 45, 47 - 49, 53 - 55, 63, 65, 66, 68, 73, 81, 83, 84; also Chapter 20: 21, 23
Mar. 17	Chapter 23: omit Sections 23.4A,C; 23.12	1, 8, 9, 14, 15, 17 - 22, 26, 27, 31 - 33, 38 - 40, 49, 50, 55, 60(a-e), 72, 73
Apr. 3	Chapter 27: omit Sections 27.11; 27.12 Review: Sections 6.1, 6.6, 6.7, 6.11 Review: Sections 7.1 to 7.4 Review: Section 19.10	1 - 3, 5, 6, 9, 13, 14, 17, 18, 22 - 25, 27, 34, 35, 38, 39, 41, 44, 47, 55
Apr. 21	Chapter 26: omit Sections 26.10; 26.11	1 - 3, 5, 12 - 14, 18 - 22, 25, 36 - 38, 44, 45, 63

*Because this is our second spring semester using the 4th edition of Loudon's textbook, these dates are only approximate.

****Complete answers** to all problems are in the *Study Guide and Solutions Manual*. Although not specifically listed, above, you should work all of the Study Problems when they appear in the text (e.g., pp 650, 671 (two), 678, etc.)

***There are 42 MWF class meetings this semester; prior to 2002, MWF classes met 43 times. Because of this and because I had a broken arm last spring semester, I was unable to cover Section 18.5. This was a shame because the 4th edition of Loudon is the first organic text to treat transition-metal-catalysis in a serious way. If I do decide to omit Section 18.5 again (along with practice problems 8 - 13, 15 -18, 20, 22, 64), it's quite likely that I'll restore Section 18.4 to the syllabus (along with practice problems 4 - 6, 65). You'll be given ample notice if I make such a change.

#These two problems are optional. They are included because the second one is based on research published by one of my grad students and me. A little self-aggrandizement never hurt anybody. Right? Right!

HOW TO STUDY ORGANIC CHEMISTRY

When you **read the text**, do so *carefully*, *critically*, and *interactively*. By this I mean: take extensive notes; make a list of questions to ask me; go back to earlier sections when the author suggests that you review something; answer questions that are posed within the chapter. The worst thing that you can do is to read the text rapidly, using a highlighter pen to illuminate sentences and paragraphs -- this is much too passive an activity and it is detrimental to your learning and retaining the material. (See, also, the helpful suggestions in the preface to the textbook, pp xxv - xxxi; and read Study Guide Link 5.4 (pp 122-126 in the "Study Guide and Solutions Manual").

The only way for you to know whether you are **understanding** the material (prior to the day of the exam, by which time it's obviously too late to make adjustments) is by asking questions frequently, either in class or in my office. It's also helpful to study with another student or group of students and to bounce ideas back and forth -- but be careful: this can have the unintended consequence of reinforcing incorrect notions. You also need to be aware that simply reading the text and the lecture notes is not the same thing as understanding the material that you've read. Understanding is achieved only when you can apply the ideas to new situations and when you can actually explain or teach these ideas to another student. This is another reason for studying in groups, whether large or small. (Joining a study group is not for everyone - you may well be a person who prefers to work alone. Nevertheless, be aware that many organic chemistry students report that forming a study group is a key to success in the course.)

Problem-solving is another of the keys to mastering organic chemistry. Be sure to work out all of the *assigned* problems (plus any others that you care to do). You should also work all of the Study Problems within each chapter (e.g., pp 650, 671, etc.) - these should be worked before looking at the solution. Even though the assigned problems are answered in the Solutions Manual, you must avoid the temptation of looking at the answers too early! You ruin the problem for yourself if you give up on it too soon. If your answer disagrees with that in the answer book, don't automatically assume that you are wrong - some problems have more than one correct answer; a few others may be incorrectly answered.* Check with me to resolve any discrepancies.

You should work out the **old Chem. 360 exams** that I make available. I'll post the answers on a bulletin board **opposite Room 416** a few days before your exam is scheduled; I'll also have a set of answers in my office that you may borrow if the crowd at the bulletin board is too large. *These practice exams will be of no use at all if you look at the posted answers before trying to answer the questions*. Benefit will be obtained only by struggling through these old exams under exam conditions (closed book, closed notes, time limit) and testing your knowledge and understanding. Then, if you can't do a problem or if you don't understand the posted answer, be sure to check with me. (I'll also translate my illegible scribble on the posted answers for $2.00 per word.)

The practice exams may be borrowed from me in my office, 601 Bu, for the purpose of photocopying. **For a variety of reasons, I will not answer questions from exams that I have not provided, nor will I permit photocopies to be made of the answers**. **Please - do NOT remove the answer sheets or any other materials from the bulletin boards!!** There is no longer a coin-operated **photocopier** in this building, so you'll have to make your photocopies elsewhere (e.g., University Center or Hodges Library); please return the originals to me as soon as possible. For those of you who made use of the Tutorial Center (513 Bu) last year, the graduate students are there to answer questions for general chemistry students only; your questions about organic chemistry course material should be directed to me. Also, you should take advantage of the resources in The Chemistry Reading Room, 653 Bu, where a variety of pertinent reference works are stored; of particular interest to students in Chem. 360 is the aisle labeled "O" (Organic). Once the hours for the Reading Room are set, they'll be posted outside 653. This is not a lending library

Oxford University Press has a web site devoted to this textbook: http://www.loudon4e.com/ but Marc Loudon warned me that some of the animations you'll find there do not work well; furthermore, there are additional animations that are not even listed. He recommends going to his own web site if you want to use the animations: http://people.pharmacy.purdue.edu/~loudonm/animations/ Whether you choose to use these animations to help you learn the material is up to you - try a few and see what you think of them. They not only show pictures of molecules in motion (during rotation, during reactions) but often have tutorials in which pertinent questions are asked.

Bottom line: there is nothing wrong in being a nerd or doofus or geek (or whatever pejorative is in vogue this year)! In fact, that's what attending university ought to be about! Don't be embarrassed to admit that you love learning and that you actually enjoy organic chemistry. Feel sorry for your classmates who don't find joy in their intellectual pursuits.

*Loudon recommends going to the errata pages at his own web site, rather than those that you'll find at Oxford's site. There is one for errors in the textbook, another for errors in the Study Guide. Both lists will be updated before the Spring semester begins. My advice is that you go through the textbook and Study Guide early in the semester and that you make the corrections noted; don't be surprised if some of them have already been taken care of - this just means that you've bought a more recent printing. If you find additional errors (as I'm sure the eagle-eyed among you will), please let me know so that I can forward them to the author. You'll note that he gives credit to the students who find errors, so if you like to see your name in print, do report errors to me.
http://people.pharmacy.purdue.edu/~loudonm/pdf/Errata_Text4E.pdf
http://people.pharmacy.purdue.edu/~loudonm/pdf/Study_Guide_4E_Errors.pdf

WARNING - DO NOT GO TO THE NEXT PAGE UNLESS YOU WANT TO PASS THIS COURSE!!!

WARNING WARNING WARNING WARNING WARNING WARNING WARNING WARNING

THIS PAGE CONTAINS **SECRET INFORMATION**. ONLY THOSE PEOPLE WHO WANT A HIGH GRADE IN CHEM. 360 SHOULD READ IT. IF YOU ARE CONTENT TO RECEIVE A D OR AN F IN THE COURSE, THIS PAGE IS NOT FOR YOU - DON'T EVEN THINK ABOUT WASTING YOUR TIME BY READING IT.

What is the **secret** to success in organic chemistry? ***THERE IS NO SECRET!!***

Do you really expect us to believe that? ***SURE!***

Oh, come on - only a "brain" can do well in organic. Right? ***Wrong!!*** *Students who succeed in this course are those who have self-discipline, who can maintain a steady pace of study, who are not afraid to ask questions, who like challenges and problem-solving. They are people who get excited about new ideas and theories. They are people who get a thrill out of devising an elegant solution to a difficult problem. Organic chemistry does* ***NOT*** *require the intellectual ability that physics and mathematics courses do. Ordinary people, such as you and I, can do well in this course!*

Well, if that's the case, why do so many students have trouble? *Because they haven't heeded all of the warnings they've received from faculty, from advisors, from friends.*

Which warnings are you referring to? *There are several: (1) Organic chemistry is a totally* ***cumulative*** *course; what you learn each day is applied the next day and so on; and what you learned in Chem. 350 is used in Chem. 360. (2) It is* ***impossible*** *to cram for an examination; you must prepare for exams via a day-by-day regimen of class-notes-studying, textbook-reading, problem-solving, and question-asking.*

What did you mean by "a day-by-day regimen"? *Because organic chemistry is unlike almost any other course you've taken, those "tricks" that worked in other courses will* ***not*** *work here. On the other hand, there are some techniques that your predecessors in Chem. 360 have found useful - whether these are the best for you depends on your individual make-up and on your approach to learning. Here are a few of these techniques - I encourage you to use them or to devise your own: (1) write like mad during lecture, getting down every word and grunt; then re-copy the notes at night, making them neat, adding gloss, making cross-references to things learned earlier in lecture or in the text; (2) read the textbook before we get to the material in lecture - this will aid enormously in note-taking; (3) get to class on time, sit near the front of the room (if at all possible), and try to stay alert for the full period; (4) make it a point to ask questions during lecture or at the end of lecture or in my office - do this on a regular basis, not just on the days immediately before an exam; since I set no specific office hours, you are welcome to come with questions* ***at any time*** *- you'd have to have rocks in your head not to take advantage of this; (5) form small study groups (up to 6 students) with people with whom you are compatible; use these groups to get questions answered and to answer your friends' questions; frequently, the act of explaining something to another student results in your understanding the material far better than you would have otherwise.*

Do you really expect me to believe that the horror stories I've heard aren't true? *Well, of course they're true! That is, there certainly are students who have had a terrible time in this course, either with me or with other faculty. But this is not true of all students. As mentioned at the outset, ordinary people (just like you) can do well and can get enjoyment out of the pursuit.* ***DON'T BELIEVE EVERY RUMOR THAT YOU HEAR!*** *It's human nature for people who do badly to make excuses and to blame others for their failures. You are mature enough to form your own judgment about this course.*

HOW TO ORGANIZE THE COURSE MATERIAL ..... STUDY GUIDE LINKS

In Chapter 4 ("Introduction to Alkenes"), you saw your first organic reactions. As you progressed from one chapter to another, the number of reactions grew at a phenomenal rate. The **bad news** is that you need to retain a working knowledge of reactions from earlier chapters and from Chem. 350 so that you can solve problems in the synthesis of molecules in later chapters. The **good news** is that if you begin early you can organize this material in a manner that will be useful later.

One of the ways to do this organization is to take advantage of the *Study Guide and Solutions Manual.* If you'll look at the Table of Contents (beginning on p vii), you'll note that most chapters are divided into sections called TERMS, CONCEPTS, REACTIONS, SCIENTISTS, STUDY GUIDE LINKS, and SOLUTIONS TO PROBLEMS. For Chapter 4, the REACTIONS section begins on p 79; there is an analogous section for each of the remaining chapters. All of the reactions of the course are organized a different way in Appendices V and VI at the end of the textbook itself.

One of the strongest features of the textbook is its **Study Guide Links**. These are denoted by an open-book icon in the margin (e.g., pp 7, 10, 14, etc.) Those links that also have a **check mark** (e.g., SGL 1.1 on p 7), "provide extra suggestions or shortcuts that can help you master the material more easily"; those without a check (e.g., SGL 1.2 on p 10) "cover the subject in greater depth." I urge that you make it a point to read every one of the checked SGLs; reading the unchecked SGLs is also recommended.

As I suggested on p. 3 of this handout, SGL 5.4 (p 172 in the text, pp 122-126 in the "Study Guide") is especially important. The only contrary recommendation that I would make is that the "Be Organized" section on pp 124-5 might be replaced by the following (modified from Loudon's language in the Study Guide):

> There are many organizational methods from which you might choose. Here is one that you may find satisfactory.
>
> Begin by preparing several sheets of paper. On one set of sheets, write at the top of each page **"Reactions of ... "** Have a separate sheet for every functional group studied: "Reactions of Alkanes"; "Reactions of Alkenes"; etc. Then on another set of sheets write the headings **"Preparations of ... "** and again have a separate sheet corresponding to every functional group whose preparation you've seen. Then, as you learn a new reaction put it (in its most general terms) on the appropriate sheet(s). Most new reactions will appear on two (or even more) sheets. For example, the oxymercuration/reduction of Section 5.3A and the hydroboration/oxidation of Section 5.3B will be entered on both "Reactions of Alkenes" and "Preparations of Alcohols." Keep it simple - put down enough information that the nature of the reaction and its subtleties are covered (e.g., regiochemistry, stereochemistry, rearrangement possibilities, perhaps a page number for reference, etc.) but not so much that the page becomes cluttered. [Several words in the preceding two sentences are unfamiliar at this time; they will become very familiar as we proceed through the chapters.] You may also think it strange (and excessive) that we have two methods of converting alkenes into alcohols. In fact, there is a third method (Section 4.9B). What we'll learn is that these methods have pluses and minuses, and that they are complementary in the sense that they produce products with different constitutions or different three-dimensional structures. If you started this (or something like it), last semester, when the number of reactions was relatively small, you've got a good beginning for what's to come this semester. Now all that you have to do is to add new reactions as we learn them in Chem. 360. Some of these will be added to the already-prepared pages, but others will require that you make new pages (e.g, "Reactions of Ketones", "Preparation of Amides", etc.). If you keep adding reactions as you encounter them, the task is not burdensome. Rather, it becomes an excellent learning device [the process of simultaneously cataloging and thinking and writing fosters retention of knowledge] and it provides a useful set of study notes that you can consult throughout the year, especially just before an exam. (A former student has suggested that you should go over your lists daily, not just the night before an exam. She writes "Reading through them regularly seems to create a visual picture that lasts.") As new functional groups are encountered throughout the year, new lists will, of course, need to be started.
>
> It matters very little whether you adopt my technique or Loudon's or one of your own invention. What does matter is that you do something **now** to help you organize this vast body of material that is unfolding before you. If you do this *every time you read* and *if you understand what you have read*, then what you are doing here is *not* memorizing the reactions, because you will have already learned them by careful study. Rather, you are cataloging them for use as a future study tool.

Some other Study Guide Links that I strongly recommend for their scientific and philosophical content are "The Curved-Arrow Notation" (SGL 3.1), "Rules for the Use of the Curved-Arrow Notation" (SGL 3.2), "Solving Mechanistic Problems" (SGL 4.9), "Diagnosing Reactivity Patterns in Substitution and Elimination" (SGL 9.6), and "More NMR Problem-Solving Hints" (SGL 13.3) for Chem. 350; "Resonance Structures" (SGL 15.3), "Why Nucleophiles React at the Carbonyl Carbon" (SGL 19.2), and "Acids and Bases in Reaction Mechanisms" (SGL 19.4) for Chem. 360.

COMMENTS AND QUESTIONS FROM STUDENT COURSE EVALUATIONS

Toward the end of the semester, you will be asked to fill out an evaluation for this course (as you've done for other courses that you've taken). When I've read my course evaluations over the years, I've been frustrated that I've never had the chance to answer some of the questions raised and to explain why I do things one way rather than some other way. What I'm going to do on these final three pages is to answer some of the more frequently raised comments and questions, things that might occur to you during of the semester.

Why don't we have a weekly quiz and discussion, as we did in general chemistry? As I explained during the introductory lecture, it is up to you to be mature enough and disciplined enough that you don't need the weekly prod of a quiz as motivation. In most of your advanced courses, you will not have weekly quizzes. And in your various careers, it will almost always be up to you to do the job, not because someone is forcing you but because it's the right thing to do.

Why won't they give you a TA to help grade the exams? This is a misconception. The Chemistry Department would give me a TA if I wanted one. In fact, I don't. Throughout my career, I have always graded my own exams. Why? There are several reasons: (1) Only by doing my own grading can I discover what students are grasping and what is causing trouble. (2) A graduate student TA is exactly that: a *student*, just a little more advanced than you are, and not possessing the knowledge or judgment or commitment that I have. (3) TA's tend to grade much harder and to deny partial credit, not because they're unfeeling, but because they don't recognize how a "wrong" answer can have elements of "truth" in it.

Why don't you hold a study session prior to each exam? It's been my experience that these sessions do very little good. A small number of students ask nearly all of the questions: these questions tend to be either at too high or too low a level for the rest of the audience. Many students who would like to ask questions are intimidated by the more vocal members present. Although it is much more time-consuming for me, I prefer that you come to my office, singly or in very small groups, to ask your questions. Real teaching occurs not in Buehler 415 when I'm lecturing at you, but in my office when I can talk with you individually.

Why don't you give multiple-choice or true-false exams? I hated those kinds of exams when I was a student and I'm not about to use them in my own courses. Such exams reward the student who is guessing or who hasn't studied in depth. Even worse, they punish the excellent student who realizes that there is often not a simple answer to a complex question, that more than one of the choices has an element of truth. Furthermore, such questions give no opportunity for partial credit. Please recognize - it would be a huge time-saving for me if I were to give such exams; the fact that I don't do so should raise (rather than lower) me in your estimation. I have too much respect for you and your abilities than to treat you like children.

Why do you make this a flunk-out course? I don't! In fact, many students do extremely well in Chem. 350-360. As I suggested on p. 4 of this handout, ordinary people do succeed in organic chemistry. The reason that the course has its reputation is that the "tricks" that many students have acquired to get them through courses in other departments do not work when the exams require knowledge and thought and reasoning ability. Here are some recent statistics: among the students who completed my Chem. 360 class in Spring 2005, 38% got an A, 23% a B or B+, 30% a C or C+, 5% a D, and 3% an F. In the preceding years, the corresponding numbers were: Spring 2004: 29%, 20%, 27%, 16%, and 8%; Spring 2003: 40%, 8%, 29%, 12%, and 11%; Spring 2002: 30%, 9%, 36%, 11%, and 13%; Spring 2001: 30%, 16%, 15%, 18%, and 22%; Spring 2000: 31%, 25%, 17%, 18%, and 9%. I think that these data belie the notion that nobody can do well in my organic chemistry courses.

Why don't you teach this class in the afternoon? Why don't you teach it on Tuesday-Thursday?
The truth of the matter is that I have no choice of what or when I teach. During those semesters when I am assigned to teach organic in the morning on MWF, students invariably ask why I don't teach it in the afternoon on TR. Thus, unlike you (who, for whatever reason, chose this section), I have no say.

Why don't you go back to kindergarten and develop better handwriting? Boys and girls, I can't tell you how unhappy I am that I have indecipherable handwriting. I wish it were otherwise, but it's not. Probably, it results from my trying to write so fast that I don't take time to form my letters clearly. The fact is that a return to kindergarten would not solve the problem - I ought to show you my report cards from elementary school on which a succession of exasperated teachers gave me horrible grades for penmanship.

Why don't you provide a typed copy of your class notes? Why don't you provide a typed copy of the lists of reactions that you urged us to make? There is something about the hand-eye-brain-coordination involved in taking notes in class that fosters understanding and retention of information. Having a set of neatly typed notes, provided by me, is no better than having an extra textbook. Similarly, it is your active involvement in preparing the lists of reactions that makes such list-making a useful learning device.

Why won't you let us photocopy the answers to the practice exams? I doubt that you'll agree with this, but here's my reasoning. Keeping in mind the sports adage "No pain, no gain," a student cannot derive value from the practice exams if it's "too easy" to see the answers. I advised earlier (p. 3) that "*These practice exams will be of no use at all if you look at the posted answers before trying to answer the questions*. Benefit will be obtained only by struggling through these old exams under exam conditions (closed book, closed notes, time limit) and testing your knowledge and understanding." Some of you will choose to ignore this advice and run to the bulletin board as soon as the answers are posted. You will then stand in front of the glass window, laboriously copying down formulas and words and ideas that make absolutely no sense at your present level of study. Good! I want to make it as hard as possible for you, if you refuse to do it the right way. The right way, of course, is for you to have answered the questions already and, only then, to look at the bulletin board in order to confirm or correct your answers.

Why do you give only three exams and a final? Why does the final count 40% of the grade? Why don't you require that we turn in homework for a grade? As stated earlier, I don't give more frequent exams or quizzes nor do I require you to do the practice problems for a grade - I want the burden of keeping up with the material to be on your shoulders. As for the 40% weight for the final, given that it is two hours long and consists of about 50% new material (really a 4th hour exam) and 50% cumulative material, it seems reasonable that it should carry double the point value of one hour exam.

Why do you assign [so many/so few] practice problems? Some students think that the burden is excessive while others think it is too light. If you are in the former group, remember that you are not required to do the assigned problems (although doing them is highly advised); if you are in the latter group, you should feel free to work out as many additional problems as you'd like. The problems that I've chosen fall into either of two categories: some are simple tests (often involving rote memorization) of new ideas and skills learned in the chapter while others require considerable thought and reasoning ability (in devising a mechanism, elucidating a structure, etc.) Both types of problems are important for your development.

Why don't you form the study groups for us? As I explained earlier, these study groups are not for everyone. If you think that you will benefit by being in one, it's far better for you to find people whose schedules mesh with yours and with whom you are compatible in terms of academic ability and personality.

Why are our exams much harder than the practice exams? They're not! It's only natural that students think that they are being treated unfairly, relative to their predecessors. The practice exams seem easier only because you have the luxury of working them under stress-free conditions. They may also seem easier because you've done what I warned you not to do - that is, you've tried to answer the practice exams before you have studied sufficiently, and you have approached them without a time limit and with your lecture notes and textbook nearby.

Why did you make me take this course? I'll never need this material. Me? I made you take this course? Get serious! I'm well aware that nobody in his/her right mind takes organic chemistry as an elective. Each of you is here because the course is required by your major or curriculum. The people who designed the

various biology majors thought that it might be a good idea for their students to know the structures of biologically important molecules and the reactions that simpler molecules with the same functional groups undergo. The people who set the requirements for admission to medical school wanted their students to know something about metabolism, about drug interaction, about enzyme catalysts, about poisons, and so on - and although these topics may not be explicitly addressed in Chem. 350-360, a knowledge of organic chemistry is the key to developing an understanding of them.

Why is there so much <u>new</u> material in this course? I had never seen most of this stuff before.

Well, DUH! What did you expect? Of course the material is new to you. If it weren't, we'd rename the course General Chemistry and renumber it Chem. 120-130.

Why do you always finish the material for an exam one or two lectures early? Why do you start a new chapter before we've had our exam on the earlier one(s)?

This is a recurring question on evaluations. It is also one of the weirdest questions that I can imagine. I would think that it's to your advantage for me to stop the exam's coverage one or more lectures early so as to give you ample time to prepare. Obviously, I could go right up to the last minute of the period just before the exam, but then you'd have only two days to study, to work the problems, to do the old exam, and to ask questions. So, given that I deliberately finish the coverage early, there remains the second question about what I should do in the intervening lecture period (or two)? Many of you might prefer that I cancel class. But think about it - is that a realistic solution? In a typical MWF class, we have 42 class meetings of which three are already devoted to exams; in a TR class, the corresponding numbers are 28 or 29 and three. If I were also to cancel three more class periods, it would be impossible to cover the material for the semester.

Is that the only reason for stopping the coverage one or two periods before the exam?

OK, you caught me - there's actually another reason. I like to write the exams a week or more before they're going to be given. This way, I can devote sufficient time to writing the questions, drawing the structures, preparing the answer sheets, etc. Because I prepare the exams so early, I'd have to be a miracle man to judge, <u>precisely</u>, how far I'd get by the end of the class period preceding the exam. Sometimes I cover material more rapidly than in the past, sometimes more slowly. Almost never do I get to exactly the same stopping point as in an earlier semester.

Why do you cover so much material in two semesters? Why do you go so fast?

If you'll check the syllabus, you'll see that we don't try to cover the entire textbook in two semesters. This is especially true in Chem. 360 where many chapters are omitted. In fact, what we cover in two semesters of Chem. 350-360 is nearly identical to what colleges across the country cover in their own organic courses, no matter what textbook is being used. As for my going too fast, you should compare, from time to time, where our section of the course is relative to the other section(s). I think that you'll find that we are <u>behind</u> the other(s), mainly because I tend to cover things in greater detail <u>and</u> because my promise (from day one of the course) is that you can prepare for the exams entirely on the basis of what is done in lecture.

Why do you have a time limit on the exams?

If you can figure out a way for me to give you unlimited-time exams, I would do it. Fact is, the students in this class have such a variety of different schedules that we are restricted to the time period (50 or 75 minutes) given in the timetable. Because people do work at different rates, I wish that it were possible to give extra time (lots of extra time), but this is just not practical. You may wonder why I don't give open-book take-home exams (as I do in my graduate course). The answer is very simple - <u>you</u> may be the most honest person in the world, but you know very well that a large number of your classmates would cheat.

Why don't you give weekly quizzes?

Why don't <u>you</u> pay attention? I already answered this question at the top of p. 6! So why do I re-introduce it on p. 8? Because it's the most commonly asked question/comment/complaint on the course evaluations.