

How Do I Use This Thinkbook?

You hold a learning supplement that is not just a "reader", as it will require more than just reading from you. It is not just a "workbook" as "work" implies a task that is undertaken for money or other reasons that are often less than satisfying. You hold a **Thinkbook**, which will guide and support your **thinking** as you explore and master organic chemistry.

This Thinkbook is organized by lecture topic. Each lecture topic section includes suggested reading and exercises from course texts and ancillaries. Some topics include Lecture Supplement pages that will be used in lecture, so **bring your Thinkbook to lecture every day**. Each lecture topic also includes OWLS problem sets, Concept Focus Questions, and Practice Problems (plus their solutions). These will serve as your main vehicle for exploring and thinking about organic chemistry outside of lecture.

- **Lecture Supplements** are copies of overheads ("handouts") that will be used in lecture. *Bring your Thinkbook to lecture every day.*
- **Concept Focus Questions (CFQ)** serve to guide your reading, study, and lecture note taking, helping you identify and focus on the most important fundamental concepts. They provide a framework upon which more detail can be integrated into an appropriate perspective. They allow you to practice stating concepts in your own words. For exam review, they provide a list of absolute minimum knowledge that must be mastered, rather than a comprehensive list of all exam concepts.
- **OWLS (Organic Workshop for Learning Success)** problems will be used in discussion by your TA as he/she sees fit, to illustrate and expand on lecture material. The solutions are not given in the Thinkbook, in order to encourage you to give serious thought to these problems before discussion. Solutions will be posted on the course web site approximately the time when all the TAs are done with a given set of OWLS. *Bring your Thinkbook to discussion every day.*
- **Practice Problems (PP)** are meant to provide additional practice in organic chemistry problem solving, and give you an idea of the style or format of questions that might be asked on typical organic exams. Many of the PPs are drawn from past exams in this course. The selection of PP styles and topics is intended to be illustrative, not comprehensive. That a style or topic is or is not included in this Thinkbook should not be construed to mean it will or will not be on an exam. *It is not necessary to do every problem, but there is a direct relationship between the number of problems worked and understood with exam scores.*
- **Give each problem serious effort before looking at the answer.** Think the problem through and write down the answer just as if you are taking an exam. However, don't spend more than ten minutes on any one aspect of the problem. If you don't have a good idea about it by then, you need to study the subject more. Read the solutions only after you have given significant thought and written out the answer. Review your lecture notes and read the text if necessary to understand the

concepts. (Make copious use of the text index!) Looking at the key before you have put in a good effort with will reduce the learning value of your efforts.

- **"Briefly explain"** usually means no more than 4 or 5 logical, concise sentences. Answers provided in the Thinkbook (and on the course web site) are often longer than this, as they are intended to be more comprehensive than concise. Because exam answers must stand for themselves, you cannot attempt to explain an answer after the exam is over. Therefore practice developing a writing style in which "briefly explain" answers say exactly what you want them to say. Also be sure that you have provided the exact information requested in the question. Consider the CFQ and PP to be exam practice!
- **The CFQ and PP answers are sometimes significantly longer than expected from a student taking the exam.** These longer answers serve not only to reveal what would have been expected had the question appeared on an exam, but to serve as an instructional archive for future organic chemistry students as well.
- **CFQ and PP are written assuming you have a text in front of you.** Exam questions are written assuming you have mastered all the CFQ and PP, and that you don't have a text in front of you.
- **The CFQ and PP are meant to supplement - not replace - the text, lecture, and discussion section activities.** The text presents many important ideas and basic problems not covered in lecture, discussion, or this Thinkbook. Do not neglect the text, lecture, or discussion sections!
- **Use the CFQ to focus your thoughts on the most important concepts in a unit or chapter, the use the OWLS and PP to practice with the concepts and topics.** Here is what students have found to work best.

Before Lecture *Preparation before lecture helps you focus on details instead of scrambling to understand just the main concepts.*

- Read as much of the assigned text reading as possible before the lecture. When you attend lecture, less of the material will be new to you, and so you can focus more on capturing details and nuances than frantically scribbling down every word and every structure. *The assigned text pages are listed with each lecture topic's CFQ.*
- Read the CFQ for that unit. This will help you identify key concepts during lecture.

During Lecture

- Arrive on time and be courteous to other students and the instructor.
- Take *copious and detailed* notes.
- Do not focus solely on what is written on the board or displayed on the screen. Listen and copy down key verbal points as well.

After Lecture

- Read the CFQ again. Write down the solution to each CFQ as it is encountered, even if you know it well. Writing an answer helps you remember the concept, probably by strengthening the connections between the neurons your brain has assigned to the knowledge. Stronger neuronal connections = longer memory.
- Carefully read (or reread) the assigned reading. *Think about it as you read it.*
- Expand and clarify your lecture notes based on the text reading. Listen to lecture recordings, available at the course web site. Discuss points that are unclear with study group. (Form a study group via the course discussion board). Attend discussion sections **every week** or more frequently if necessary.
- Do all of the assigned text problems, OWLS, and PP.
- Make copious use of office hours, discussion section, and course discussion board. **Go to more than one discussion section if necessary.**
- Make flash cards for new concepts and reactions as encountered. Go through the “I Don’t Know This” portion of your flash card stack **every day**.
- **Study organic chemistry every night, including Saturday and Sunday, for at least one hour.** One hour every night is better than one ten hour session once a week. Studying every night keeps the material fresh in your mind. If you study wisely and efficiently, the night before an exam will not be much different than any other night. Every day of the week whose name ends in “day” is an organic chemistry study day.

Error Bounty Extra Credit Points

This Thinkbook and the web site contain hundreds of pages of text and thousands of molecular structures. There are bound to be a few errors. If you think you have found an error, first consult the Known Typographical Errors web site (<http://web.chem.ucla.edu/~harding/errors.html>). If the error is not posted here, please submit it by email to Dr H (harding@chem.ucla.edu). The first person to report an error might receive an error bounty extra credit point. These points are applied to your grade after the final course curve is set. You can earn at most six error bounty points per quarter. The error must be chemically significant to earn extra credit. While I urge you to point out errors in spelling and grammar, these cannot be awarded extra credit.

These extra credit points are a reward for critical and analytical reading.

An error must be in an assigned course text, the course web site or this thinkbook to be eligible for credit. Course notes archives are not eligible for error bounty points.