

Organic Chemistry: What to Expect, Dr. Laurie S. Starkey, Cal Poly Pomona

Welcome to the World of Organic Chemistry! O-Chem has quite a reputation, and some of you may be embarking on this journey with more than just a bit of anxiety. I don't think this is a class that should be feared, but I do promise that it will be a tremendous amount of work for you. That is the real shock organic chemistry causes. It's not that the concepts are unusually difficult, it's that you have to dedicate a huge amount of time and effort to be able to solve problems on your own. You may have experienced that some college courses are easy to breeze through, and you can easily pass with a minimal amount of studying and/or with rote memorization. Organic Chemistry is not one of these courses. This is typically the first truly challenging course that most students encounter in their college careers; thus it has earned its reputation as a "weed-out" class. Well, we have a full year of progressive and cumulative chemistry ahead of us. **The sooner you understand and appreciate what it takes to succeed in Organic Chemistry, the easier your journey is going to be.** Here's O-chem's big secret:

The most important things you will learn by taking Organic Chemistry:

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| 1) Problem Solving | 3) Self-Motivation |
| 2) Time Management | 4) Good Study Habits |

Yes, you will also learn some o-chem along the way! However, you cannot succeed (or even pass) Organic Chemistry without mastering the skills listed above. Once you have developed these skills, you will be prepared for any challenges that lie ahead. Why do medical schools want to see good grades in Organic Chemistry? Not because they want you to know the details of Organic Chemistry, but because a good grade indicates that you've mastered these underlying skills and, therefore, that you have a good chance of succeeding in medical school. I will do my best to teach you both Organic Chemistry and how to be a better student, but you are the one that has to commit to learning both.

What does it take to succeed in Organic Chemistry? Time and effort. Lots of both. In addition to the three hours you spend in class, you should spend at least nine hours studying o-chem per week. That means every week, not just when you have an exam coming up. Ideally, you should devote some study time every day so you can "digest" the material more slowly.

- Come to class! If you can't make it, get the notes from someone in your study group. (my what?)
- Read and work through the textbook. Take notes, try problems, be an active participant.
- Work on all the textbook problems. "Work on" does not mean copy down the problems and then copy down the answers. It means solve the problem, write down your answer and check it (answers are at the back of the book or in the Study Guide). This is the only way you can get practical experience; working problems is essential for exam preparation.
- Review your notes often, ideally before each class. Work through your notes, ask questions.
- Come to office hours. Ask questions about the lecture, your notes, the book, your exam...

How should I study for an exam? Start studying now! If you wait until a few days before each exam, it'll be too late. Try flashcards to help organize the material and to sneak in some studying when you have short chunks of free time, like before lecture. The majority of your studying time should be spent on working textbook problems. To prepare yourself for an exam situation, and to minimize test-taking anxiety, try solving randomly selected problems and try timing yourself to put on a little pressure. If you can't come up with your answers without looking at the solution manual, you aren't ready for the test. Finally, review my past exams (see my website) so you have an idea of the format, length and types of questions to expect. There are no solutions posted to the sample exams so don't spend any time working on the old exams, unless you've already mastered all the textbook problems and you're bored. In that case, turn to your study group to check your answers because I won't "grade" my sample exams.

If you are repeating this class, expect the exact same grade...unless you do something drastically different the second time around. Just showing up for another ten weeks of classes and putting in the same effort as before is not going to magically improve your grade. Treat the class as if you were starting from scratch and improve those study habits! Remember, Organic Chemistry is cumulative so if you barely squeak by CHM 314 with a C- or D, you're setting yourself up for disaster in CHM 315. *Do the smart thing: repeat CHM 314 and build a solid foundation for the subsequent quarters.*

Student Testimonials: How to Survive Organic Chemistry

Dr. Laurie S. Starkey, Cal Poly Pomona

Here is some feedback I received about the benefits of the Organic Learning Communities (OLC)

- Overall, I had a great time with OLC. It was nice to connect with my classmates outside the lectures and would recommend to continue using it for future classes.
- This was a great experience for a hard class like this because having people you know and can text for help and notes if you missed a class.
- I definitely did benefit from having a group - I had my work done on time, homework was easier to do, and understanding difficult problems became simpler.
- I realized that talking out problems with other people helps me understand the material as well as catch simple mistakes that I could potentially make on an exam.
- I think the fact that we did become friends was also a positive because it can be very difficult to make friends at a school that uses the quarter schedule.
- I found that I was more willing to ask questions and be unsure about topics in my study group than I was with asking during class or even going to office hours (i'm just that type of person).
- A study group ended up being extremely helpful because even if not one of us understood something, we all felt a bit less overwhelmed since we knew that we were not alone.
- We actually suffered together which was okay because that boosted our confidence towards this class.
- I have never been a part of a study group before! I really enjoyed it.
- Also we were able to help one another understand difficult topics because we could look at the problems from multiple perspectives rather than relying solely on our own perspective.
- It was very convenient knowing that if I had any questions about what was going on in class, that I could jot them down and ask the group at our next session.
- This created a level of support that reduced stress in other areas and allowed me to focus more on my coursework.
- One of the biggest advantage of meeting in a group was being able to ask questions that we weren't able to ask in class. It truly felt like teamwork and the work [we] did not seem as bad when all our brains were combined.
- For the second midterm, I knew how to study better thanks to the learning community group.
- I got to meet more people, and it was a great experience for me, as I never enjoyed studying with friends or in public areas.
- When I taught my classmates, I gained a deeper understanding of what I was teaching. In fact, there is proof that one shows a deep understanding of the material if they know how to teach it properly.
- I did better than I thought I would do and frankly I believe it was due to the study group. The study group served to reinforce topics and also helped me to longer remember the material.
- We quickly found out that putting our heads together and piecing together our knowledge was the only way we were all going to be able to succeed in organic chemistry.
- [The OLC] has changed my opinion about working in groups. It let me see that working in groups is not always a bad thing.
- It is sometimes hard to study and understand every detail of the lecture when studying alone. Study partners could point out notes that I missed, and vice versa.
- I believe that this also teaches students the value and meaning of teamwork by working together on problems to reach a solution. Teamwork is a valuable aspect that they can carry with them on to their future careers.
- Overall I would say that group work was exceedingly helpful. For topics that I did not understand, I had the help of others who did understand it. For topics that I did understand, I was able to explain it to everyone else and it enforced the knowledge that I did have of the material.
- I came to realization that working with a group of students working on the same thing as you, makes it more relatable and fun.

I asked my CHM 316 students to offer some advice to students who will be starting Organic Chemistry. Here's a representative sampling of what they had to say.

- “If you study for 314, then 315 and 316 will be easier!” (Jr., Chemistry)
- “O-chem has great teachers, so take advantage of their help and their office hours...it helps!” (5th, Chm)
- “GO TO CLASS and take notes and study them very well!” (Jr., Biology)
- “Use solutions manual but don't depend on it” (Jr., Microbiology)
- “Get a study group, really!” (Jr., Chemistry)
- “Read the book, do all the problems for each chapter. It really helps.” (4th yr Sr., Biology)
- “DO NOT wait for the last minute to study. You can not cram and do well.” (Sr., Pre-vet)
- “Pay attention in class. Re-work examples given in class.” (Jr., Biology)
- “MAKE FLASHCARDS!! I found flash cards to be the most helpful thing in the world! Work through your notes, the book and your flashcards simultaneously. Good luck!” (Jr., Biology)
- “If you miss class, get the notes from someone else. Gaps make future notes confusing.” (Sr., Pre-vet)
- “Start studying for the test at least a week before.” (Jr., Pre-vet)
- “Do every problem assigned. Do the homework and turn it in.” (Sr., Pre-vet)
- “Read the book! Take notes as you read. Understand concepts, don't just memorize.” (Jr., Microbiology)
- “Keep up with homework! If you get behind, it starts to add up and you're screwed.” (Jr., Animal Sci)
- “Work through the problems over and over again until you can do them without even thinking.” (Jr, Bio)
- “Organic chem is not like general chem. I would study the night before the exam for general chem and ace the exam. I tried the same method for CHM 314 and realized quickly it doesn't work! You must keep up on the reading and practice problems! Very easy to fail the class if you don't keep up.” (Sr, CIS)
- “Do lots of practice problems (from book or stuff teacher gives you)!” (Jr., Pre-vet)
- “Do more problems in textbook, it will help you on the exam & you can check the answers” (So., Chem)
- “Do everything that is recommended on the syllabus. Know the material covered in class like the back of your hand. Don't wait until the last minute! It never works! Flashcards are a must.” (Sr., Microbio)
- “You need to go to class because some things are covered more in detail in class.” (5th year, Biology)
- “Get a couple phone #'s of people who want to form a study group.” (Jr., Animal Science)
- “Complete any and all homework [Dr. Starkey] gives. It will end up on the exam.” (Sr., Pre-vet)
- “Just because it makes sense in lecture doesn't mean it's easy material or that you don't need to read and study. I wish I had studied more, procrastinated less, & done way more homework problems.”(Jr, Micro)
- “Start studying at least a week before an exam. Cramming one night before doesn't work!” (Jr., An Sci)
- “A student would need over 9 hours a week of studying to get a good grade.” (Jr., Biology)
- “Read the book and do the problems! Many of the questions are very similar to what will be on the exams. Make sure you look at past exams so you will know the format, it really helps.” (Sr., Biology)
- “Try to draw all mechanisms that teacher gave (Practice! Practice! Practice!)” (Soph., Microbiology)
- “Study a week before the test. This way you can ask prof. any question you may have.” (Jr., Biology)
- “Don't be late. Don't miss class. Take notes!!!” (Soph., Chem. Engineering)
- “Followup the homework problems with the class. Don't leave all for the midterm & final, because even if you are an A student you will be screwed. Study gradually & enjoy the sweet O-chem.” (So, CHE)
- “Go to class. Class is an absolute must. There is a whole lot of material to go over. Do the problems in the book. You have no idea how many times I found problems in the book on the exam.” (Jr., Biology)
- “To keep up with material, review 15 minutes before class with every new concept.” (Microbiology)
- “Practice makes perfect. It will be a lot harder for one to study for chemistry if he or she hates chemistry. So, to all new organic chemistry students, you better start loving it.” (Soph., Chemistry)
- “Also, thank you for making the ACS test our final because it really helps prepare students for the organic chemistry part of the MCAT/PCAT.” (Sr., Biology)