CALIFORNIA STATE POLYTECHNIC UNIVERSITY, POMONA

Organic Chemistry II, CHM 3150 - Course Syllabus – Spring 2024

TuTh 8:30 – 9:45 am Room 24D-1220 Section 05, CRN 40619
Homepage: https://www.chemistryconnected.com/courses

QR code for Monday office hours Zoom ID lsstarkey

Instructor: Dr. Laurie S. Starkey

Building 4, Room 1-428 e-mail: lsstarkey@cpp.edu
Zoom office hours: https://cpp.zoom.us/my/lsstarkey Google Voice: 714.855.170

Office Hours:

Mon. (Zoom)	Tue. (4-1-428)	Thu. (4-1-428)
2 – 3:30 pm	1:30 – 2:45 pm	1:30 – 2:45 pm

My office hours on Monday will take place in my personal Zoom room: https://cpp.zoom.us/my/lsstarkey I am on campus Tuesdays and Thursdays, so Tu/Th office hours will be f2f in my office, (on the first floor of Building 4, across the hall from the General Chemistry stockroom). I am also happy to make an appointment with you (or your study group) at a time that works for you, on campus or via Zoom. In addition to my scheduled office hours, I will provide evening review sessions before each exam, via Zoom.

How will we communicate?

QR code for CHM 3150 homepage

Announcements will be made through **Canvas**, so please check your @cpp email regularly (or forward them). Course materials will be available on my **CHM 3150** homepage (https://www.chemistryconnected.com/courses/CHM3150 or QR code), so please visit the website for worksheets/clicker questions, handouts, links to animations/videos, and to see sample exams. To reach me you can send an e-mail (lsstarkey@cpp.edu and please include "CHM 3150" in Subject) or you can send me a direct message @LaurieStarkey through Discord (https://discord.gg/m84U5he). The Discord server is the best place to post questions, and I hope it facilitates communication between you and me, and between students. When you send me a message (DM or email), I typically respond the same day, so feel free to reach out again if you haven't heard from me. Discord questions may be answered more quickly by your peers!

What will you learn in this course?

You've already had an introduction to the fascinating subject that is Organic Chemistry in CHM 3140. As you know, nearly everything you eat, taste and smell is an organic molecule. Other examples of organic compounds and materials include the vitamins and pharmaceuticals that keep us healthy, the personal care products that keep us looking good and feeling clean, the clothes we wear, the fuels that cook our food and make our cars go, everything we use that is made from plastic or with plastic components, the sporting equipment that improves performance and keeps us safe, and so much more! As you progress through this course, I hope you will come to appreciate how organic chemistry is important to your major, career field, and quality of life. You've already learned about stereochemistry, organic acids and bases, predicting relative stability, and many types of organic compounds (alkanes, cycloalkanes, alkyl halides, alkenes and alkynes)...how to draw them, name them, synthesize them and explain their reactivity. Together in this course, we will explore many new types of organic compounds - too many functional groups to name here. By the end of the semester, you will learn how to predict ANY organic molecule's function and reactivity, based on its structure, and even design a multistep synthesis of ANY organic target molecule!

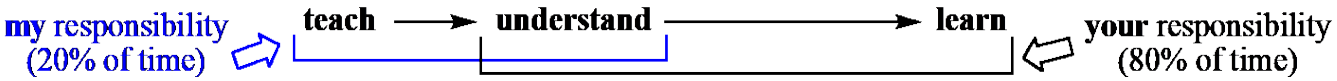
How will this course be taught?

The only way to learn Organic Chemistry is to practice, practice, practice! Therefore, this course will utilize a "flipped classroom" model, where we use our time together working on organic chemistry problems. In order to prepare for these sessions, you will watch a video prior to class that introduces the material we will be working with. All of my lectures are already recorded and I will provide a code for free access to Educator (http://www.educator.com/chemistry/organic-chemistry/starkey/), so the **course content lectures are ready when you are, for asynchronous delivery**. In Canvas, you can find a listing of the relevant videos to watch AND sections of the textbook to read, and you can work on these at any time that best fits your schedule. **Our face-to-face class meeting times will be used for problem-solving sessions**. These hands-on sessions will involve group work and "clicker" questions. **I do not take attendance in class, but it will be highly beneficial to attend class and actively participate!** Engagement with the material – *especially with other human beings doing the same* – is critical to learning organic chemistry. Therefore, I will be doing everything possible to help you make those connections (during class and in study groups) to build a robust CHM 3150 community.

How will you learn to solve Organic Chemistry problems?

I have designed this course around your learning, and I will do everything I can to help you succeed! If you share in the commitment to doing well in this class, then you must commit to the items on the following "To Do List." If you want to earn an A or B in this course, joining Organic Learning Community study group can further help you achieve your goal. I offer credit as incentive for the OLC because students have reported that they were extremely helpful, and I want to encourage you to give them a try.

QR code
How to earn an A



breakdown of your time and our responsibilities

Work Required to Succeed in CHM 3150:

- ***Flipped Lectures/Problem-Solving Sessions*** **–** I will provide handouts of partial/skeleton notes for each chapter and you can work through these during the Educator lectures. **The lecture must be watched BEFORE attending the synchronous problem-solving session**, as I will not be repeating the lecture material. Instead, we will jump directly into working on lots of problems, using examples at various levels of difficulty. Come ready to be engaged every day!

- ***Read the Book & Work on Textbook Problems*** **–** Here is where you should be spending most of your time outside of class, ideally 1-2 hours *every day*! This is a fast-paced class so working on it a little bit every day means you won't fall behind – trying to "cram" study and memorize material is NOT a successful strategy for organic chemistry! Much like learning to play an instrument or a sport, mastery of Organic Chemistry develops over time, with time set aside for regularly, daily practice. Working textbook problems is the only way you can get practical experience and be prepared for exams. *Approximately 90% of exam questions are tied directly to the textbook problems!* Try the in-chapter problems (SkillBuilders and Conceptual Checkpoints) as you read the chapter and then continue to work on the end-of-chapter problems (**detailed answers are provided in Solutions Manual – be sure to download the VitalSource eBook!**). Working on problems means *doing* the problem in WileyPLUS – or write down your answer and then check to see if it's right – and then work on more problems.

- ***Textbook/Online Homework (WileyPLUS*****) –** In WileyPLUS, each chapter of the Klein textbook is laid out by section, with the relevant in-chapter problems provided as an assignment for each section. As we move through the material in lecture, you need to do the same on your own: **READ** the section, **STUDY** the instructions and examples in the SkillBuilders and our lecture notes, and **PRACTICE** by attempting the problems. After completing all the SkillBuilders, then you can move to the suggested end-of-chapter

(EOC) problems, in order to have maximum preparation for the exam. Your work in WileyPLUS will earn homework credit for each chapter (less than 20% complete will earn no homework credit for that chapter). **You do not have to do all problems in a given chapter!** I suggest working on all SkillBuilders and a sampling of EOC problems. Hand-written textbook homework problems will also be accepted for a given assignment (in addition to WileyPLUS, or as a replacement). Please note that we will have **three *written* midterm exams** this semester, so having some amount of *written* homework is quite beneficial, especially to provide practice drawing mechanisms. Students who work on WileyPLUS (with a minimum score to ensure an honest effort has been put forth), or submit handwritten textbook problems, before each midterm will earn homework credit for that chapter. https://learn.wileyplus.com/

- ***"Free Red Ink" Homework*** **–** Every 1-2 weeks additional homework assignments will be given. All students who turn it in will receive credit, so I describe these assignments as "free red ink" because you will get feedback on your work without your mistakes hurting your grade.

- ***Friday 5-Minute Reflection*** **–** Thinking about the way you learn, called "metacognition," can help you study better and improve your grades! To encourage reflective thinking, a weekly Gradescope assignment is due every Friday. The "Friday Five" assignments should only take 5-10 minutes, and the weekly prompts will help you plan and hold yourself accountable for the work that needs to be done. Additional opportunities for reflection include an "exam wrapper" survey and submission of test corrections after each midterm.

- ***Organic Learning Community (OLC)*** **–** Research shows that students who work with other students can achieve more and earn higher grades. To encourage student-to-student teaching and learning, course credit is earned by students who join a study group that meets weekly for at least one hour (OLC details are provided below).

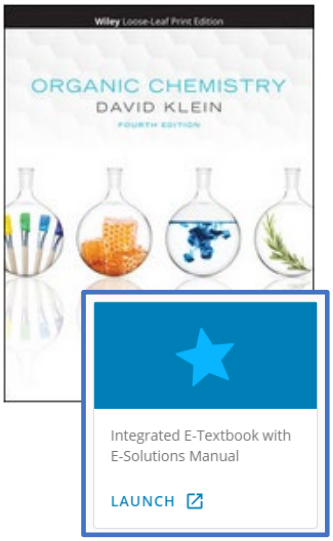
- ***Stay Organized*** **–** Start studying now. If you wait until a few days before each exam, it'll be too late. **Try flashcards!** Review your notes often, ideally before each problem-solving session. Actively work through your notes, ask questions, and retry problems and mechanisms worked on in class.

- ***Communicate*** **–** Please check your @cpp.edu email regularly so you won't miss important course announcements made through Canvas (did you know you can forward it to another email account?). Post a quick question on the Discord server – @LaurieStarkey to direct message me – or schedule time during office hours to ask questions about the lecture, your notes, homework, the book, your exam, etc. If you are struggling – ask for help! Reach out to me and/or your study group, come to office hours, find a tutor at the LRC…don't go it alone, and don't wait until it's too late.

How will I help you learn?

I recognize that Organic Chemistry sometimes has a scary reputation as a "weed-out" course, but I promise that you are capable of meeting, and even mastering, the challenge ahead. We are about to embark on a journey together, and I am fully committed to your success! As I guide your learning, I will wear many hats: organized lecturer, demanding coach, enthusiastic cheerleader, wise elder, patient tutor, career counselor and well-prepared Sherpa. I invite you to visit office hours where we can discuss lecture notes, textbook problems, homework assignments, midterm results, strategies for studying, and even extracurricular activities. I serve as Advisor to two student clubs: Chemistry (SMACS) and Pre-Dental, and most students who visit my office find that our discussions usually extend beyond Organic Chemistry! I am continuously exploring new methods and tools to make my teaching more effective and to improve student learning, and I welcome your feedback about what works and what doesn't. In addition to recommending relevant textbook problems, I will provide additional assignments and activities that will help you learn the material while developing essential problem-solving skills.

What textbook and materials are needed?



Students must earn a C- or better in CHM 3140 before taking CHM 3150. CHM 3150L lab is NOT a co-requisite. **The textbook (with Solutions Manual) and WileyPLUS is required, and is included with CPP Instant Access ($50/semester).** *A code to unlock the SSM will be emailed to each student.* The textbook can be accessed through WileyPLUS (under Wiley Course Resources link) and an eTextbook can be downloaded onto multiple devices for offline use as well (VitalSource Bookshelf app). **The VitalSource e-text has perfect formatting and an integrated Solutions Manual.** A binder-ready hard copy is also available (extra charge).
(Req = Required and Rec = Recommended)

Req: **David. Klein, "Organic Chemistry," Wiley, 4th edition**
***Req*:** **David Klein, "Solutions Manual" for above text**
Req: **WileyPLUS** online system is bundled with the textbook
Rec: Molecular model set (*e.g.*, Kit #3 https://www.darlingmodels.com).

How will your learning be measured?

Course grades are based on textbook-based homework (SkillBuilders and/or EOC), possible quizzes, brief weekly assignments, three written midterm exams, and a final exam. *Each exam is cumulative but will emphasize the immediately preceding chapters.* Exams must be taken as scheduled, **in person** and NO make-up exams will be given, but **the lowest midterm grade will be dropped**. If more than one midterm is missed, a grade of zero will be assigned for the missing midterm exam(s).

Homework problems		125 pts	(25%)	Textbook problems/WileyPLUS/"Free-red-ink"
Weekly study/reflection		75 pts	(15%)	Friday Fives, OLC Study Group, Exam Wrapper
Ch. 11, 12, 13	Exam I	100 pts	(40%)	Thursday, 2/22 (60 min. during class time)
Ch. 19, 20	Exam II	100 pts		Tuesday, 3/19 (60 min. during class time)
Ch. 21, 17, 18	Exam III	100 pts		Tuesday, 4/30 (60 min. during class time)
Ch. 1-22 (!)	Final Exam	100 pts	(20%)	**Thursday 5/16 7 am – 8:50 am**

QR code
CHM 3150 Course Points

How will grades be assigned?

As described above, there is a total of **500 points** to be earned. All points are awarded via **Gradescope** ("*grades" in Canvas are not weighted and should be disregarded*). Completion of weekly activities and submitted homework assignments will earn points, and your level of participation in the course will also be used in the event of borderline grades. Your assigned course grade will be based on your total points earned and how the total relates to the class average. The class average will be used as the break between C and C+ and it will be scaled up to 75% (375 points) if it falls below that. Grades will not be scaled down if the class average is above 75%! An example of the grade breakdown:

A/A- (90–100%) B+/B/B- (80–89%) C+/C/C- (70–79%) D (65–69%) [if Average = 75 = C/C+ cutoff]

What happens if life gets complicated?

There are many excellent resources available at Cal Poly Pomona if you need help: Disability Resource Center (DRC), Counseling Center, Learning Resource Center (LRC), Veteran's Resource Center, Women's Resource Center, Pride Center, Cultural Centers, etc. If for some reason you are unable to complete the course, come see me to discuss withdrawing (W) or possibly taking an Incomplete grade (to have "I" grade assigned, you must be passing the course with a C or better and have a university-recognized excuse). Otherwise, a grade of WU (unauthorized withdrawal) will be issued if the course is not completed (*e.g.*, if the final exam is not taken). If you are struggling to keep up, come speak to me asap.

If you don't do your own homework, you will not pass this course! If you are tempted to copy someone else's homework, or turning to Chegg for answers, I suggest you rethink your strategy! Besides jeopardizing your future by cheating, you are also missing the point of why you are at Cal Poly Pomona and taking this class. Cheating on an exam (*e.g.*, posting/receiving answers online, using notes,

providing/accepting answers from another student, working with another student) results in a zero grade that cannot be dropped, and you will be reported to CPP office of Student Conduct & Integrity. My homework assignments are designed to help you learn the material, develop problem-solving skills, and offer helpful feedback so you can improve and do well on the midterms and final exam. I accept late homework, so get it done and turn it in when you can (but no later than the day of the exam). Please note that copying homework (from the solutions manual, another student or the posted answer key) is NOT "doing your homework," and it will NOT improve your performance on exams. If you are struggling, turn to your study group, and I can work with you on your homework during office hours!

What happens if you or I have to quarantine?

It is highly unlikely that the campus will shut down again, but it is important that we all remain flexible. I am expecting that our class will meet face-to-face for the entire semester, utilizing all possible safety measures (everyone is vaccinated, boosted, and wearing masks). **If you are sick, or if you test positive for COVID-19, PLEASE STAY HOME!** Instead of coming to class, you can work with the recording of each problem-solving session (pause recording while you try each problem). If I have to quarantine, then the TuTh problem-solving sessions will take place synchronously via Zoom, rather than in a classroom, at the usual class time. https://cpp.zoom.us/j/86727348111 **We got this!!**

The CHM 3150 O-Chem Learning Community (OLC)

There is a unique opportunity to earn 10 points in the course, and the sooner you get started, the more helpful it will be. To form an Organic Learning Community (OLC), you will join up with other students taking CHM 3150 this semester for a group of at least 3 people; 4-5 is better. Your group spends at least one hour outside of class and lab together each week, working on class material such as homework or textbook problems. The meetings must be synchronous; they can be held in person, or by conference call, using Zoom, Google Hangouts, Skype, Discord, etc. You must submit a weekly report (Gradescope), and you can't claim credit if your group didn't meet or you didn't participate. Many people find Organic Chemistry rather overwhelming and having company can help a lot. Please visit the "Testimonials" page (QR code) to read a representative sampling of student reactions to their OLC experience!

QR code for O-Chem: What to Expect and Student Testimonials

About me

I grew up in Connecticut and I was a Biology major when I started college at UConn, because I liked Marine Biology and I enjoyed dissecting things in high school. When I took Organic Chemistry, however, I was surprised at how interesting it was – I thought, "This is chemistry?!" My brain is not good at memorizing things, so I loved how there was an explanation for everything in Organic, and that I could work through every problem rather than just having to remember the answer. (By the way, my brain also has an embarrassing and nearly complete inability to remember names – so please don't take offense when I don't know your name!) I was also excited about the many career opportunities available to chemists, so I changed my major to Chemistry and after earning my B.S. degree I went to UCLA to earn my Ph.D. in Organic Chemistry. I focused on Organic Synthesis and planned on a career in pharmaceutical R&D, making new drug candidates. Luckily, my passion for teaching led me instead to the perfect job here at Cal Poly Pomona!

QR code for Welcome video

On-Campus COVID-19 Policies

Masks & Face Coverings are strongly recommended. Before coming to campus, you must assess your health and screen for possible signs of illness. Fill out the **Self-Reporting Form** if you have a close contact, experience COVID symptoms, test positive or are required to quarantine/isolate **(**click on the Safer Return to Campus link on Cal Poly Pomona's homepage).

CHM 3150 Organic Chemistry II, Dr. Laurie S. Starkey, Spring 2024 Tentative Schedule (Chapter and *Worksheet/Step #* given for each day)					
Week	**Mon**	**Tues**	**Wed**	**Thurs**	**Fri**
1	1/22	1/23 Review 7-11 ***#1***	1/24	1/25 Review 7-11 ***#2***	
2	1/29	1/30 Ch. 12 ***#1***	1/31	2/1 Ch. 12 ***#2***	2/2
3	2/5	2/6 Ch. 12 ***#3***	2/7	2/8 Ch. 13 ***#1***	2/9
4	2/12	2/13 Ch. 13 ***#2***	2/14	2/15 Ch. 13 ***#3***	2/16
5	2/19	2/20 Ch. 19 ***#1***	2/21	2/22 **Exam I**	2/23
6	2/26	2/27 Ch. 19 ***#2***	2/28	2/29 Ch. 19 ***#3***	3/1
7	3/4	3/5 Ch. 19/20 ***#1***	3/6	3/7 Ch. 20 ***#2***	3/8
8	3/11	3/12 Ch. 20 ***#3***	3/13	3/14 Ch. 20 ***#4***	3/15
9	3/18	3/19 **Exam II**	3/20	3/21 Ch. 21 ***#1***	3/22
10	3/25	3/26 Ch. 21 ***#2***	3/27	3/28 Ch. 21 ***#3***	3/29
SPRING BREAK 4/1 – 4/5					
11	4/8	4/9 Ch. 21 ***#4***	4/10	4/11 Ch. 17 ***#1***	4/12
12	4/15	4/16 Ch. 17/18 ***#2***	4/17	4/18 Ch. 18 ***#2***	4/19
13	4/22	4/23 Ch. 18 ***#3***	4/24	4/25 Ch. 22.10, 22.11***#4***	4/26
14	4/29	4/30 **Exam III**	5/1	5/2 Ch. 16 ***#1***	5/3
15	5/6	5/7 Ch. 16 ***#2***	5/8	5/9 Ch. 22 ***#1***	5/10
Finals	5/13	5/14	5/15	**Thurs. 5/16** 7:00–8:50 am	5/17

Organic Chemistry II, CHM 3150 Material Covered (Klein Text):

Ch. 11 **Synthesis** (review of Chapters 7-10)
Ch. 12 **Alcohols & Phenols**
Ch. 13 **Ethers & Epoxides** Exam I

Ch. 19 **Aldehydes & Ketones**
Ch. 20 **Carboxylic Acids & Derivatives** Exam II

Ch. 21 **Enols & Enolates**
Ch. 17 **Aromatic Compounds**
Ch. 18 **Reactions of Aromatic Compounds** Exam III

Ch. 16 **Conjugated Systems**
Ch. 22 **Amines**

Suggested textbook problems: SkillBuilders & EOC – see "Textbook Problems Cover Sheet" for each chapter.