

GENERAL INFORMATION: Chemistry 3A represents the first semester of a two-semester survey of organic chemistry. The prerequisites for taking this course are a grade of C– or better in Chemistry 1A, or a score of 4 or 5 on the Chemistry AP test. Students must take Chemistry 3A either concurrently or prior to Chemistry 3AL. If taken concurrently, students may not drop Chemistry 3A and remain in Chemistry 3AL. If taken separately, students may not take Chemistry 3AL before passing Chemistry 3A with a grade of C– or better. If you are not taking Chemistry 3AL, you are nevertheless entitled to visit (any) TA office hour (to be posted). Note: An early drop deadline (midnight on Friday of the second week of instruction) applies.

INSTRUCTORS: Professor Peter Vollhardt (635 Latimer Hall) will lecture twice on Tuesdays and Thursdays in 1 Pimentel, first at 8:00–9:30 a.m. and then at 2–3:30 pm (webcast on bcourses). A collection of ppt slides for Chem 3 are available on Professor Vollhardt's website <<http://www.cchem.berkeley.edu/kpvgrp/research.html>> (under teaching). A collection of the animations shown in class is available at http://media.saplinglearning.com/priv/he/vollhardt/Animated_Mechanisms/css/Vollhardt_Animated_Mechanism_Index.html. New slides will be posted on bCourses (<https://bcourses.berkeley.edu/>) ahead of individual lectures. Professor Michelle Chang (125 Lewis Hall, 642-8545, mcchang@berkeley.edu) is in charge of Chemistry 3AL, laboratory, for those of you who are enrolled in it. A head graduate student instructor, John Lee, johnsl@berkeley.edu, will give regular review sessions Wednesdays from 7-8:30pm usually in 10 Evans Hall, beginning on January 25. Exceptions are 2.22. and 3.22., when the venue will be Hearst Field Annex A1.

ADMINISTRATION: The administrative coordinator for the course is Ms. Lucia Briggs (332 Latimer Hall, 643-9939, luciab@berkeley.edu, and questions about prerequisites, add/drops, enrollment, section switches, wait lists, etc. should be directed to her.

LECTURE ATTENDANCE AND OFFICE HOURS:

“YOU JUST NEED TO BE WILLING TO BE CONFUSED FOR A WHILE, TO SIT DOWN AND THINK VERY HARD, AND UNCONFUSE YOURSELF.”

VIJAY BALASUBRAMANIAN

PROFESSOR OF PHYSICS

UNIVERSITY OF PENNSYLVANIA, 2005

Organic chemistry is a concentrated and fast-moving subject. There is nothing inherently difficult about it, but you will probably find it different from anything you have studied previously. There is a fairly rigid hierarchy, with each new topic building upon the previous one. *Therefore, the single factor that gives students the most trouble is falling behind.* To avoid this problem, **come to lecture regularly**, replay the webcast, keep up with your reading, and work problems. The experiences in the past have shown that, the availability of the webcast notwithstanding, **attending the live lecture is important and correlates with the students' performance in the course.**

Seeking help and advice from the instructors during their office hours can make a great difference. In our experience, too few students take advantage of this opportunity. Do not hesitate to do so regularly. You are entitled to visit any of the laboratory TAs during their office hours, *even if you are not enrolled in the laboratory.* The TAs and professors *specifically set aside* this time to be at your service; therefore you are *not* imposing on them when using some of it. When you encounter something you do not

understand, first attempt to figure it out for yourself. If you cannot, *never* assume that it is just a trivial or unimportant point and leave it at that. Ask for an explanation from one of us. Try to have specific questions or problems in mind, but please do not attempt to preview topics not yet covered. A schedule of TA office hours will be posted on the course website. Do not try to see your TA or one of the instructors *outside* the allotted time slots, *unless* you have made a specific appointment. Under **no** circumstances should you visit your TA in her/his laboratory. Apart from the safety hazard, your TA is a *full-time* researcher when he/she is not teaching and cannot be at your disposal at all times.

In addition, the Student Learning Center is providing you with the option of joining a study group led by trained tutorial staff. Those interested should sign up during the first week of classes.

OFFICE HOURS AND LOCATIONS		
John Lee Chemistry Library Room 100E	Thursday	5:00 p.m.–7:00 p.m.
Professor Peter Vollhardt Chemistry Library Room 100E (beginning Tues, 1/24/2017)	Tuesday Thursday	4:00 p.m.–5:00 p.m. 4:00 p.m.–5:00 p.m.
Teaching Assistants	Schedule to be posted on bCourses	

DROP-IN COUNSELING: Dr. Yu Bi, a psychologist with the University Health Services, is available for drop-in counseling in B-52 Hildebrand Hall (just off the breezeway):
Tuesdays 2:00 p.m.–4:00 p.m.
Fridays 10:00 a.m.–12:00 p.m.
No appointment is needed.

E-MAILING: This course has a large enrollment and it is impossible for Professor Vollhardt to deal with routine e-mails. If you have procedural and other questions, e-mail or see your TA or Anjum Sareshwala. If you have chemistry questions, come to office hours. Any emergencies relating to exams should be directed to John Lee, johnsl@berkeley.edu.

TEXTBOOK, STUDY AIDS, AND QUIZZES: The required lecture texts are K. P. C. Vollhardt, N. Schore, *Organic Chemistry*, 7th Edition, W. H. Freeman, New York, 2014; and N. E. Schore, *Study Guide*, W. H. Freeman, New York, 2014. Extensive Web resources are available on the book's site <http://bcs.whfreeman.com/organic7e>.

You should enroll in Sapling Learning (<http://www2.saplinglearning.com/>; included in the packages below). Bundled packages are available at a substantially discounted price at the UC Berkeley bookstore:

Package 1:
Hardcover Textbook
Study Guide/Solutions Manual
Molecular Model Kit
Sapling 6-month access

ISBN-10: 1319123201
ISBN-13: 9781319123208

Package 2:
Loose-leaf Textbook
Study Guide/Solutions Manual
Molecular Model Kit
Sapling 6-month access
ISBN-10: 1319123198
ISBN-13: 9781319123192

BACON: Biology and Chemistry Online Notes and Tutorials

50 points of your final course grade can be very easily earned by completing 'BACON' tutorials, a handy resource created by students and faculty at UCLA. BACON is an online tutorial designed to help connect the wonders of organic chemistry to medicine, other aspects of real life, and even pop culture.

You will have 6 BACON tutorials available this term.

Each time you complete a BACON tutorial, you will also complete a brief multiple choice post-BACON quiz (*the quiz will be built into the tutorials*).

We will drop your lowest post-BACON quiz score, and then your remaining 5 post-BACON quiz scores will be averaged together and weighted to 50 points.

To Sign up:

1. Visit learnbacon.com and click 'Sign Up' to create your account.
2. Follow the instructions and then register for the appropriate course. The Course Pin number is PV3A\$

The BACON system is simple and automated. You will receive emails when tutorials become available, in addition to reminders if you have not completed a tutorial as a deadline approaches.

If you encounter any problems related to BACON during the term, please email support@learnbacon.com for help.

BACON has been made available to you at no charge!, thanks to a generous grant from the College of Chemistry.

PROBLEMS: A list of suggested end of chapter problems has been posted on bcourses, but you are advised to work as many exercises as possible in the course text and online. If you do not understand a problem and/or its solution, see your TA or one of the instructors. Equally importantly, if you *do* understand a problem and its solution, but *could not work it without looking up the answer*, see your TA or one of the instructors to learn about the logic of problem solving.

SUGGESTIONS ON HOW TO STUDY:

1. Organize your life, all 7 days of the week, including your "time off".
2. Read the book ahead of lecture.
3. Print the ppt slides and bring them to class for note taking.
4. "Work up" the lecture by studying (not just reading) the book in conjunction with your notes and the webcast. If you don't understand any material, come to office hours.
5. Do problems immediately as they come up. If you could not solve any, come to office hours.
6. Do not cram, especially before an exam. Instead keep at it daily; ~ 1 hour should do.

EXAMINATIONS: It is your responsibility to check that you have no conflict with the scheduled midterm and final exam times. There will be no accommodations for such conflicts. If you enroll in a course that features exam times coinciding with those of Chem 3B, make arrangements with the corresponding instructor during the first week of classes.

There will be **no make-up examinations**, should you be absent during one of them. If you present Prof. Vollhardt with a *documented* medical excuse, he may elect to assess your final grade based solely on your performance in the remainder of the course. Failure to attend the final exam will result in a grade of F, unless there is a legitimate excuse and **your standing in the course is at a passing level**. When these conditions are met, you may receive an I grade (see also "**GRADING**" below).

A collection of previous exams is posted on bCourses. Note: Ignore the spectroscopy questions in these exams, as this topic is covered in the laboratory part of the course.

EXAMINATIONS:

Weekly Sapling quizzes are tentatively scheduled for 1.19. ("how to use Sapling" activity), 1.26., 2.2., 2.9., 2.23., 3.2., 3.9., 3.16., 4.6., 4.13., 4.20., and 4.27. They will be released via Sapling on these dates (all Thursdays) at 6 p.m., to be completed before 6 p.m. on the following Mondays. You will be prompted to complete **BACON quizzes** on 2.10., 3.3., 3.17., 3.24., 4.14., and 5.5.

Midterm examinations are scheduled for:

Tuesday, February 28	7:00–8:30 p.m.
Tuesday, April 11	8:00–9:30 p.m.

Note: **90 min** exams.

Comprehensive final examination will take place on:

Wednesday, May 10	8:00 a.m.–11:00 a.m. (Exam Group 9)
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GRADING: The course grade is based on your ranking in the class by *adding up all your scores* in the exams. There are no assigned grades for midterms, but you will be

able to see your standing in the class from the exam histogram. The total of 1230 points is divided up as follows:

Sapling Quizzes (best 9 out of 12)	180
BACON Quizzes (best 5 out of 6)	50
Midterm exams (2 x 250)	500
Final exam	500
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Total	1230

Incomplete grades will be given only when the student has *satisfactorily completed* almost all of the required work, but is unable to complete the course because of circumstances beyond his or her control. In practice, the latter is usually illness at the time of the final exam. Students who receive a grade of incomplete have to make up the missing work by the first day of instruction of the spring semester of 2018. It should be emphasized that make-up exams are not offered. Thus, when a final examination is missed, resulting in an I-grade, this grade can be removed only by taking this examination in connection with Chemistry 3B during the summer 2016 or fall 2016 sessions.

CHEATING AND PLAGIARISM: Any cheating in examinations and any other unethical conduct will result in an automatic grade of F, a report to the committee on student conduct, and procedures designed to alert past and future professors about any such incidence. **Don't do it!** *If you have a problem of any sort that impinges on your performance*, see Professor Vollhardt, rather than resorting to ill-informed and poorly conceived measures.

LETTERS OF RECOMMENDATION: These will be written by your TAs and, if required or possible, co-signed by your professor. **Make sure that you arrange with your TA for a letter towards the end of the semester**, as many of your lab instructors will graduate in due course and leave.

COURSE OUTLINE: Lectures will follow the order of topics below (approximately two lectures each), as in your textbook. The only deviation from the content will be spectroscopy, which is covered in the laboratory part of the course. Therefore, there will be no testing for it in exams and quizzes.

1. Structure and Bonding in Organic Molecules
2. Structure and Reactivity
3. Reactions of Alkanes
4. Cyclic Alkanes
5. Stereoisomers
6. Properties and Reactions of Haloalkanes
7. Further Reactions of Haloalkanes
8. Hydroxy Functional Group
9. Further Reactions of Alcohols and the Chemistry of Ethers
10. Introduction to Alkenes

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11. Reactions of Alkenes
 12. Alkynes

For What It's Worth–

“You are not engaged so much in acquiring knowledge as in making mental efforts under criticism. A certain amount of knowledge you can indeed with average faculties acquire so as to retain; nor need you regret the hours spent on much that is forgotten, for the shadow of lost knowledge at least protects you from many illusions. But you, go to school not for knowledge as much as for arts and habits; for the habit of attention, for the art of expression, for the art of assuming at a moment's notice a new intellectual posture, for the art of entering quickly into a person's thoughts, for the habit of submitting to censure and refutation, for the art of indicating assent or dissent in graduated terms, for the habit of regarding minute points of accuracy, for the habit of what is possible in a given time, for taste, for discrimination, for mental courage and mental soberness. Above all, you go to school for self-knowledge.”

William Cory – Master at Eton College – 1861