Chem 21 Syllabus - Fall 2015 - Dr. Kline

Meeting Times
Lecture: MW 6:30-9 pm in Sci 157
Labs: Tu 2-6 pm or Th 6:15-10:15 pm in Sci 305

Office Hours
MW 4:30-6 pm and Th 4-5 pm; also online via eCompanion (access via Corsair Connect; will usually get a response within 24-36 hours)

Dr. Kline Contact Information
• Office: Sci 272
• E-mail: kline_peggy@gapps.smc.edu; kline_peggy@smc.edu (the second one forwards to the first one, so either is OK)
• Phone: 310-434-4745
• Web Site: homepage.smc.edu/kline_peggy/

Grading

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Points</th>
<th>Grade Standards (based on total points):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tests (3)</td>
<td>300</td>
<td>A ≥ 576 points (90%)</td>
</tr>
<tr>
<td>Quizzes (8/9)</td>
<td>80</td>
<td>B ≥ 512 points (80%)</td>
</tr>
<tr>
<td>Online Homework</td>
<td>0</td>
<td>C ≥ 416 points (65%)</td>
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<tr>
<td>Lab Reports (10/11)</td>
<td>100</td>
<td>D ≥ 320 points (50%)</td>
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<tr>
<td>Lab Citizenship</td>
<td>10</td>
<td>F &lt; 320 points</td>
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<tr>
<td>Lab Quizzes</td>
<td>30</td>
<td></td>
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<tr>
<td>Final Exam</td>
<td>120</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>640</td>
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No tests will be dropped; however, your percentage (possibly adjusted, but not percentile!) score on the ACS Test that covers the first semester of organic chemistry may be used to replace your lowest test score. There is no risk associated with taking the ACS Test as it will be dropped if it is the lowest score. Any student with 90% or more on the three tests plus all quizzes (so 351 points) and who gets 90% or more on the ACS exam is excused from the final and will get a guaranteed A in the course provided that their total points, including lab components, are in the A range. In other words, if their lab elements lower their score into the B range, they will get a B. A student who qualifies to take the ACS test for an A but does not get 90% or higher on the ACS test will then take the Final Exam and the ACS test may be used to replace a lower test score. Again, there is no risk associated with taking the ACS test. The ACS test cannot be used both for the final and to replace the lowest test score.

Course Materials
Books and Supplies - all items are required unless otherwise noted
• Organic Chemistry, 2nd ed., by David Klein. The package sold in the SMC Bookstore includes a loose-leaf text, solutions manual, and a registration code for WileyPLUS: unfortunately it may be presented as a mystery bundle in a plain wrapper with no indication of the contents. The bundle can be purchased online for less money than charged by the bookstore via a link on the Chem 21 web page. Advice on using other texts: The 1st edition of Klein seems similar with respect to the organization of topics and many of the problems are the same (albeit with different numbers) so you can probably make that work with some effort on your part. Using the Bruice text is going to require a lot of effort on your part as the organization is significantly different and
the problems are obviously different. The instructor will not provide book section numbers for tests and quizzes for anything but the 2nd edition of Klein. The instructor does have problem set suggestions from the last few editions of Bruice.

- **Study Guide and Solutions Manual** to accompany Klein text – optional, but highly recommended. In addition to solutions for all of the problems, including in-chapter ones it includes the following: the review information at the back of each chapter in a workbook format, mistakes to avoid, and lists of useful reagents.

- **WileyPLUS** - not sure if we’re going to use this (an alleged less kludgey, Java-free version is due out at the end of August 2015--stay tuned); if used, it will be for a nominal amount of extra credit

- **Molecular Model kit** – optional, but highly recommended. If you buy one on your own, either the ball and stick or “jacks” type (Darling models) are OK and each has its strengths and weaknesses. Both are also sold in the SMC bookstore. The ball and still version sold in the bookstore has more carbon atoms (15 vs 6) than the one linked here.

- **Lab Experiments (Procedures)** - available online: [http://homepage.smc.edu/kline_peggy/chem-21-lab/](http://homepage.smc.edu/kline_peggy/chem-21-lab/)

- **Lab Techniques** - Techniques in Organic Chemistry, 4th ed., by Mohrig, Alberg, Hormeister, Schatz, and Hammond - (the 2nd or 3rd editions will work if you put in some effort; the 1st edition won’t)

- **Lab Notebook** with NCR or Carbon pages- required; the spiral-bound one sold in the SMC Bookstore on the shelves with the course textbooks is highly recommended

- **Lab Goggles** (ANSI Z87.1)

- **Locker Card**

- **Nitrile or Neoprene Gloves**

- **Flame-Resistant Lab Coat** (Arc Rating ATPV 7.7cal/cm²)

### Internet Content


- **Copies of Old Tests and Quizzes**: [http://homepage.smc.edu/kline_peggy/Exam_Archive/Chem21/default.html](http://homepage.smc.edu/kline_peggy/Exam_Archive/Chem21/default.html)

- **Class Bulletin Board** - in eCompanion (via Corsair Connect) - threaded discussion for Q&A

- **WileyPLUS** for Klein book. The registration code sold in the bundled text in the SMC bookstore includes the online text (but not the solutions book), homework problems, study aids, and other items. This can also be purchased stand-alone. Online homework will be assigned for a nominal amount of extra credit; thus WileyPLUS is recommended, but not required. Note that you will need to create a WileyPLUS account, if you don’t already have one, first. The URL for the main WileyPLUS page is [https://www.wileyplus.com/WileyCDA/](https://www.wileyplus.com/WileyCDA/)

- **Mohrig Websites:** Techniques - [http://bcs.whfreeman.com/mohrig4e/default.asp#t_923302](http://bcs.whfreeman.com/mohrig4e/default.asp#t_923302)

### Course Information

- **Course material** will be posted on or linked from the class web site: homepage.smc.edu/kline_peggy/chem-21. The instructor will send out communications to students using their official SMC email addresses and/or eCompanion so make sure you check the email addresses associated with both of those. Notification that lab reports are graded will be emailed out using Turnitin. You are responsible for knowing about information sent to your official SMC address and via eCompanion.

- **Contacting the instructor.** Use the Threaded Discussion (Q&A) area of eCompanion to ask course-related (content and protocols) questions. Use email only for personal questions. Include the course name as the subject in any email to help keep it from getting trapped in the spam filter. The instructor reserves the right to ignore questions asked via email that should have been asked via the threaded discussion.

- **Successful completion of this course will require full participation in all class activities.** Punctuality is critical as well—plan to arrive on time each and every class period. You will miss important material, annoy your fellow students and anger the instructor when you disrupt the class by entering late. Students are responsible for knowing what happens in class, including schedule changes, material not in the book, information about what’s going to be on the next test and so on. It is a good idea to have the names and contact information for a few students whom you can contact if you miss class.

- **Office hours.** These are for you. If there are already students in the office, please come in and join us. I take questions on a rotating basis if more than one student is in the office. If I seem to be busy with something else when you come by during office hours that’s just because no one is there yet and I’m looking for something else to do. Interrupt me.
• **Electronic devices.** Please adjust cell phones, laptops, tablets, etc. so they do not make noise and/or and disrupt class members; the instructor reserves the right to confiscate such devices that do make noise and/or to evict students who are not using them appropriately during class time.

• **No eating, gum chewing, or drinking** is permitted in classrooms or labs; no food or drink is permitted unless it’s sealed so that it absolutely cannot spill.

• **Tutoring.** The Science Learning Resource Center (Sci 245, http://www.smc.edu/sciencelrc/) provides free tutoring for SMC students and other resources; see Saundra Willis (434-4630) to set up a tutoring appointment.

• **Religious Holiday Absences.** SMC Academic Regulation 5530 states: “It is the college practice that students may be required to make-up missed work from absences due to the observance of a religious holiday, but they cannot be penalized for such absences. This practice applies to any work affecting a student’s grade.” My policy is to avoid scheduling tests and quizzes on religious holidays that commonly affect students in my classes and, whenever possible, to schedule labs that can easily be rescheduled or done on a student’s own time on religious holidays that affect large numbers of students. Students must let the instructor know by email within the first week of class of any planned absence due to a religious holiday. I try to offer students opportunities to make up labs they have to miss and expect students to make a reasonable effort to make up said labs. I do lecture on religious holidays and students who need to miss class are expected to get notes from other students.

• **SMC accommodates students with disabilities.** If you qualify for any special accommodations due to a disability, you need to officially process your request through the Disabled Students Programs and Services (DSPS) office. If you believe you have a learning disability that has not yet been documented, please see me and make an appointment at the DSPS office for assistance. The DSPS office is located in the Admissions/Student Services Complex, Room 101, and the phone numbers are (310) 434-4265 and (310) 434-4273 (TDD). Students requiring permissible accommodations should contact the instructor by email no later than the end of the second week or classes or as soon as s/he becomes aware of the disability. No retroactive accommodations will be provided. The student is solely responsible for securing any provisions to which they may be entitled. Scheduling of accommodated exams must be made through DSPS.

• **Topics for test and quiz questions** will be taken from information presented in lecture and assigned problems. Quizzes will be given at the end of the class period.

• **There will be no makeup tests or quizzes.** If you miss a quiz it will be dropped (one quiz only). If you miss a test for a legitimate, verifiable reason the higher of your percent score on the final or your percentage score on the ACS test will be used in place of that test score. Your percentage score on the ACS test for the first semester of organic chemistry may be used to replace your lowest test score.

• “**Graphing**” calculators are permitted during tests for which calculators are permitted until the first occurrence of one being used improperly; from that point on, they will not be permitted for any student in any class. No cell phones, dictionaries, or translators are allowed during quizzes or tests.

• **Suggested problems** for students to work on their own from the textbook are listed online: [http://homepage.smc.edu/kline_peggy/chem-21/suggested-problems-from-the.html](http://homepage.smc.edu/kline_peggy/chem-21/suggested-problems-from-the.html) There is a strong correlation between working the problems in a serious and dedicated manner (pencil, paper, and lots of time) and course grade.

• **Online homework** - via WileyPLUS (see Materials section). Assignments are usually due at 11:59 pm on Sundays.

  • There will be about 20 assignments for WileyPLUS. Extra-credit points will be awarded based on your overall percent score based on the total points. Thus someone who did half of two equally-pointed assignments would get the same number of points as someone who did all of one assignment. No partial points will be given. Points as follows: 80%-5 points, 70%-4 points, 60%-3 points, 50%-2 points, and 40%-1 point.

  • In lieu of WileyPLUS you may turn in written homework for the end-of-chapter problems (excluding the challenge problems) listed in the Suggested Problems online handout. Written homework must be neat and in numerical order by question. Homework will be due on the Monday after a chapter is completed in lecture (if Monday is a holiday, then Wednesday) at the beginning of class. Extra credit will be awarded as followed, where an assignment counts if it seems reasonably complete and correct (and neat!): 10 chapters- 5 points, 8 chapters- 4 points, 7 chapters- 3 points, 6 chapters- 2 points, and 5 chapters-1 point. (added to syllabus 9/5/2015; hard copy handed out in class on 9/2/2015)

• **The Academic Honesty Policy of Santa Monica College** will be strictly enforced. Acts of academic dishonesty including, but not limited to, plagiarism, providing test/quiz answers to another student, and
copying from another student can result in a failing grade for the assignment or the course. Plagiarism consists of presenting the words of another person as your own and includes “recycling” written work from other students and the Internet. Both the provider and the recipient of the information will be penalized. In addition, lying, manipulative or disruptive behavior will not be tolerated. More information on SMC policies is available on the website for The Office of Student Judicial Affairs. Students need to be familiar with the SMC Code of Academic Conduct.

- **Re-grading.** Tests and quizzes may be submitted for re-grading (or re-adding) within one week of their initial return to students. Please note that the instructor reserves the right to re-grade the entire test or quiz. Answers that look as if they could have been changed after they were graded will not be considered for re-grading.

- **Turnitin.** This course will require electronic submission of written assignments through Turnitin (http://www.turnitin.com). Turnitin’s OriginalityCheck conducts textual similarity reviews of submitted papers. When papers are submitted to Turnitin, the service may retain a copy of the submitted work in the Turnitin database for the sole purpose of detecting plagiarism in future submitted works. Students retain copyright on their original course work. Please note that Turnitin does not accuse you of plagiarism; it is only identifying similarity to content in its database, and you or I will determine whether you used source material accurately and ethically. Additionally I will use the GradeMark feature to grade your labs online. The use of Turnitin is subject to the Terms of Use agreement posted on the Turnitin.com website. There is a Turnitin handout from the instructor also linked from the navigation bar on the left side of the Chem 21 lab web page.

- **Safety, Personal Protective Equipment (PPE) and Emergency Information.** Chemical splash goggles must be worn by all students whenever they, or anyone else, are working with reagents in the laboratory. An extremely limited supply of goggles may be available in the lab for students to borrow. If you do not have a pair of appropriate goggles to wear for lab and none are available in the lab, you will have two options—go buy some or don’t work in lab that day. Students must supply nitrile or neoprene gloves for lab. Gloves must be removed and placed in the glove waste container when contaminated or any time you leave the lab. Students in organic chemistry classes must wear a blue flame-resistant lab coat whenever anyone in the room is conducting an experiment. If a student forgets his/her lab coat, he or she may not remain in the lab without it. A limited supply of lab coats is available to borrow. A link to the SMC Safety Rules, PPE Information, and Emergency Information is on the course web site. All students must sign a statement indicating that they are familiar with the above Safety, PPE, and Emergency information before being allowed to work in the lab.

- **Lab neatness.** Students are responsible for keeping the lab neat. Students will be assigned one clean-up day during the semester. Any chemical samples kept at the end of the lab period must be labeled with the student’s and instructor’s name, date, and identity of substance(s) present. Dispose of unknowns in the appropriate waste container, clean the vial in which they came, and return the empty clean vial to the instructor. There are ten points available for lab citizenship: deductions from the ten points will occur for transgressions such as bottles left off lids, messy balance areas, not doing your assigned cleanup, not wearing appropriate PPE, etc. The entire lab class may get points deducted for certain items.

- **Missed labs.** There will be no make-up labs, unless you arrange to do the lab during another lab time when that section is doing the experiment. If you miss one lab, it will be the one dropped. If you miss more than one lab, you will forfeit the points. Students who must miss their regularly-scheduled lab time due to a day of religious observance may not be penalized; however, they must make a reasonable attempt to attend another session and/or complete the lab report.

- **Students who miss more than two labs will not receive a passing grade in the course except in the case of exceptional circumstances.**

- **Lab Reports** have two components: NCR copies of notebook pages that are turned in at various times and a typed portion that is submitted via Turnitin. The latter is due at 11:59 pm, usually one or two weeks after the lab is finished. See Turnitin for due dates.

- **Lab Quizzes** may or may not be open lab notebook.

- **Additional lab information.** See the Lab Notebooks and Reports handout and the Chem 21 Lab webpage (http://homepage.smc.edu/kline_peggy/chem-21-lab.html) for additional information about the lab and lab reports.

- **Dates and Deadlines.** See the SMC Dates and Deadlines web page for enrollment and payment deadlines and Corsair Connect for individual course withdrawal deadlines. The instructor reserves the right to drop any student who misses any class meetings during the first week. The instructor will probably drop students who miss a test without notification or appear to vanish; however, clerical errors do occur. If you want to be sure
you are dropped, do it yourself. Aside from the circumstances under which you may be dropped by the instructor, it is nevertheless your responsibility as a student to withdraw from class if you do not intend to complete it. Students must not expect faculty to initiate withdrawal procedures for them. If you wish to drop this class, you may do so through Corsair Connect. Students may process a drop for themselves through 75% of the class, which is through the 12th week in a regular semester. Data regarding the withdrawal parameters for each class are provided within each student’s individual Corsair Connect account.

**Study Advice**

Chemistry is not a spectator sport—reading the book and watching the instructor work problems will not be sufficient. The only way to learn to work problems is by working them yourself (without looking at the solutions). Read the appropriate chapter sections and work the problems as we cover them in lecture. Do not wait until the last minute to work the problems. It is often helpful at least to skim the chapter (read the headlines) before we cover it in lecture. If you have difficulty with a problem, try rereading the appropriate section(s) or your lecture notes and/or the book, looking at worked-out problems of the same type, etc. If you get totally frustrated with a problem, don’t get hung up on it—go on to something else for a while. **Study strategies** that students have found useful in the past include study groups, flashcards, working questions from old tests and quizzes, reworking assigned problems and examples, and reviewing their tests before the final exam.

**Official Course Information**

**Catalogue Description:** This course is a systematic introduction to the chemistry of carbon compounds. It encompasses theory and reactions of hydrocarbons and functional group derivatives. Included are bonding and structure, nomenclature, stereochemistry, synthesis, mechanism, and spectroscopic analysis. The laboratory work focuses on techniques of synthesis, isolation, purification, and analysis. Chem 21 and 22 together constitute two semesters of organic chemistry with one semester of organic chemistry laboratory. Chem 21, 22, and 24 constitute two semesters of organic chemistry with two semesters of laboratory. **Prerequisite:** Chemistry 12 or equivalent with a grade of C or better. Successful completion of this course requires access to a computer with internet access to complete homework assignments, download handouts, obtain lab information, and turn in lab reports.

**Content:** Review of Pertinent Chemistry 11 and 12 Topics—Bonding, Molecular Structure, Kinetics, Equilibrium, and Acid-Base Chemistry; Introduction to Organic Compounds—Functional Groups, Nomenclature, Reaction Concepts; Alkenes and their Reactions; Alkynes and their Reactions; Stereochemistry; Spectroscopy (MS, IR, NMR, uV-vis); Electron Delocalization and Resonance; Reactions of Dienes; Reactions of Alkanes; Nucleophilic Substitution and Elimination Reactions of Alkyl Halides; Alkane Reactions; Laboratory Experiments—Experiments utilizing common organic lab techniques such as reflux, distillation, extraction, recrystallization, melting point determination, chromatography, and spectroscopy in the preparation, isolation, purification, and identification of organic compounds.

**Student Learning Outcomes** As assessed by: questions on exams and/or observation of laboratory performance and/or evaluation of notebook data and lab reports and/or lab tests.

1. The student will follow a logical process based on well-established scientific principles and demonstrate the ability to use the appropriate problem-solving techniques to solve a scientific problem such as an organic synthesis comprised of two or more steps, or a determination of the structure of a compound based on spectroscopy (IR, NMR, MS) and/or chemical evidence.
2. When conducting a laboratory experiment, the student will follow written procedures commonly used in the organic lab (such as reflux, distillation, extraction, recrystallization, and melting-point determination) accurately and safely. When completing a lab report, the student will apply the scientific method correctly by being able to state a hypothesis, take careful measurements, estimate uncertainties and draw appropriate conclusions based on gathered data and scientific principles.
3. The student will explain observable phenomena using appropriate scientific theories, such as writing a reaction mechanism consistent with observed facts or utilizing appropriate structures to represent different types of organic molecules and species.