# CHEM 12A Course Syllabus

**3 units**

**CHEM 12A Organic Chemistry I** **3 hours Lecture**

Presents the lecture portion of the first semester of the year-long organic chemistry course designed for chemistry majors and pre-professional medical and biology majors. Covers stereochemistry, mechanisms, reactions and spectroscopic studies of aliphatic compounds.

***Instructor***

Jason Camara, Ph.D.
Office: 605A Hours: M/W 1:30-2:30 pm; T 11:00-12:00 pm; Th 10:00-11:10am
Phone: (831) 477-5621
Email: jason.camara@cabrillo.edu
Course Web Page: http://www.cabrillo.edu/~jcamara/chem12A/

***Schedule***

Lecture: M/W 11:10 – 12:30 pm – **Room 608**
**Final Examination: Monday May 18th, Room 608 10:00 am – 12:50 pm**

***Materials***

Klein, D. R. *Organic Chemistry, 3rd Edition*; John Wiley & Sons, Inc.: New Jersey, **2017**. (ISBN 978-1-119-31615-2)
Klein, D.R. *Student Study Guide & Solutions Manual t/a Organic Chemistry Binder Ready Version, 3rd Edition*; John Wiley & Sons, Inc.: New Jersey, **2017**. (ISBN 978-1-119-37869-9)
Klein, D.R. *Organic Chemistry as a Second Language: First Semester Topics, 5e*; John Wiley & Sons, Inc.: New Jersey, **2019**. (ISBN 978-1-119-49348-8)
Molymod (TM). *Molecular Model Set For Organic Chemistry*; Allyn & Bacon: New Jersey, **1984.** (ISBN 978-0-205-08136-3)

***Requisites***

Prerequisites: CHEM 1B with grade of "C" or better

***Student Learner Outcomes***

1. Communicate the structure of organic molecules, including the stereochemistry thereof, utilizing standard organic nomenclature, condensed structural formulas, Lewis structures and bond-line formulas with emphasis on alkanes, alkenes, alkynes, aromatic hydrocarbons and alkyl halides.
2. Analyze molecular structures through the use of conformational analysis to deduce their lowest energy conformation.
3. Predict and explain organic chemical reactivity utilizing a variety of models including Valence Bonding Theory, Molecular Orbital Theory, Resonance Theory and Reaction Mechanisms.
4. Utilize a series of organic reactions to design a viable synthetic route to a given simple target molecule requiring a maximum of four steps.

5. Analyze spectroscopic (FT-IR, NMR, Mass-Spec) and other analytical data (Melting/Boiling points, Molecular Weight, Percent Elemental Composition) to determine the structure of an unknown chemical substance.

***Content*** Course Content:

Molecular Structure
Valence Bonding Theory
Molecular Orbital Theory
Functional Groups including: Alkanes, Alkenes, Alkynes, Aromatic Hydrocarbons and Alkyl Halides
Constitutional and Stereoisomerism
Acid and Base structure and reactivity
Nucleophilic Substitution and Elimination reaction mechanisms
Theory and interpretation of UV-Vis, IR, NMR, Mass Spectroscopy

***Assessment*** Each and every one of you are taking Organic Chemistry because you have some professional goal. At this level in your education a grade should reflect your knowledge and command of the subject, not the effort with which you pursued it. With that in mind, your grade will be based on your knowledge and command of the subject as demonstrated through problem solving exercises - cooperatives, quizzes, exams, and a cumulative final.

Homework - All of the in-chapter exercises and end-of-chapter exercises are viewed as essential study guides which will allow you to practice the requisite skills. The answers to these homework problems are in the solutions manual. It is therefore pointless for me to grade homework assignments, thus homework will not be collected. In addition, individual homework assignments will not be handed out, all of the problems in the book are viewed as valuable.

Cooperatives - Cooperatives are my term for group exercise. Coops will be assigned for certain chapters and consist of two or three representative exercises. The purpose of the coops is to encourage study groups. Coops will be distributed via the course website at the close of each chapter and collected at the specified due date. **No late work will be accepted**. Each coop will count for three points (~6 chpts × 3 pts = ~18 pts) for a total of ~3% of your grade.

Quizzes - Quizzes will be in class independent timed exercises. The date and content of each quiz is detailed in the schedule. Quizzes will last from 10 to 15 minutes, consist of up to four problems, and count for 20 points. There will be a total of ten quizzes, from which the lowest score will be dropped from the grade total. **There will be no make-up quizzes**.

Exams - There will be a total of two 100 point exams this semester. The date and content of each exam is detailed in the schedule. The exams are open note and open book. **Should you miss an exam due to an emergency or illness you must contact me at your earliest convenience, preferably prior to the exam**.

Cumulative Final - The final will be cumulative over the semesters material and consistent in format with the midterm exams - open note/open book. This exam will count for 150 points or 27% of your grade.

The scoring breakdown is as follows:

| | | Points | Percentage |
|---|---|---|---|
| Cooperatives | 6 × 3 = | 18 | 3% |
| Quizzes | 10 × 20 = | 200 | 35% |
| Exams | 2 × 100 = | 200 | 35% |
| Final | 150 = | 150 | 27% |
| Total Points | | 568 | |

***ACCESS*** The chemistry department participates in a NIH Bridges program with UCSC called "ACCESS." The ACCESS program offers free peer tutorial sessions which will be scheduled weekly. The schedule will be determined by the availability of the ACCESS Supplemental Instruction (SI) Leader and the availability of the students. The program is open to all students. The ACCESS leader for CHEM 12 this semester is Linnea Blaustein. Linnea is a talented student who recently completed CHEM 12. I work closely with the SI leaders to ensure that the SI instruction is integral to the class. The ACCESS schedule will be announced in class and on the web.

***Classroom Conduct and Instructor Policies*** Listed here are some of the common courtesies and conduct I expect in my classroom as well as the ramifications for not following them.

Cell phones - Please turn off your cell phone ringer prior to entering the classroom. If you need to be connected to the outside world during lecture (i.e. - ailing relative, child care issues, volunteer fireperson....), leave your ringer on vibrate and sit along the isles such that you can quietly leave the room before answering your phone.

Attendance - I don't take attendance other than on the first few days of class. My attendance policy is: show up if you want to learn. Once in a while people are late for various reasons. If you come late to class, be respectful of your fellow students. Quizzes and exams start on time at the beginning of the lecture. If you come late to a quiz or an exam you will have only as much time as remains for the class. Missed quizzes may not be made up. If you must miss an exam you must contact me at your earliest convenience, preferably prior to the start of the exam. Exam make-ups are at the discretion of the instructor. Simply forgetting, missing the bus, oversleeping, parking issues, etc. are not valid reasons for requesting a make-up exam.

Grade disputes - I encourage all of my students to regularly attend office hours. The proper place to ask about grading is during office hours. If you feel that your answer is correct and that I have made a mistake in my grading, please take it up with me in office hours. I am more than happy to go over the grading of any work, however before class, during class and immediately after class are too chaotic for me to give you the attention you deserve for a grading issue.

Cheating - Cheating has never been a problem in my class. Beyond the first exam there is no real way to cheat in my class. Exams and quizzes are open book - open note (except for the first three quizzes which are closed book). The only exception is that you must use your own resources. You may not share texts, notes or model kits during exams. It is your responsibility to not give me cause to think that you are cheating, in other words keep your eyes on your own work. Cheating on an exam or quiz will result in a zero for that assignment.

Disruptions - A disruption is classified as an act that disrupts the normal function of the classroom, be it a distraction to me while lecturing or to your fellow students, that a reasonable person would not engage in. Examples of such disruptions are cell phones ringing after first warning, answering cell phones in class, engaging in disruptive conversations while lecture is proceeding, attempting to sit in the center of the room when coming to class tardy during lecture, quiz or exam (incredibly disruptive to your fellow classmates attempting to concentrate), etc.... The consequences for disruptive behavior are a three strikes policy. First disruptive behavior warrants a verbal warning, second time garners a Disruptive Student Report to the Dean of Student Services, third time you will be excused from the class and dropped from the role.

***Nondiscrimination and Accessibility Notice***

The District is committed to equal opportunity in educational programs, employment, and all access to institutional programs and activities. The District, and each individual who represents the District, shall provide access to its services, classes, and programs without regard to national origin, religion, age, gender, gender identity, gender expression, race or ethnicity, color, medical condition, genetic information, ancestry, sexual orientation, marital status, physical or mental disability, pregnancy, or military and veteran status, or because he/she is perceived to have one or more of the foregoing characteristics, or based on association with a person or group with one or more of these actual or perceived characteristics.

I encourage students with disabilities to explain their needs and appropriate accommodations, as evidenced by a counselor or specialist's recommendations, to me during office hours. As required by the Americans with Disabilities Act (ADA), accommodations are provided to insure equal opportunity for students with verified disabilities. To determine if you qualify, or if you need assistance with an accommodation, please contact the Accessibility Support Center (ASC, formerly DSPS), Room 1073 (upstairs in the Library), (831) 479-6379 or (831) 479-6370.

***Expectations of your Instructor***

You can expect to find me approachable. You can expect that I will fully answer your questions regarding course content or grading when such questions are asked at the appropriate time. You can expect that your work in the course will be evaluated fairly without bias and will be returned in a timely manner. You can expect that I will start and end class on time. You can expect to be treated with respect at all times. You can expect that I will provide you with a challenging and engaging semester which will prepare you for whatever future goals you have that have led you to take my course.