

CHEM V12B: Organic Chemistry II (CRN: 31917) Spring 2018

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Office Hours: MTWTh 7:30-8:30am (SCI-330), MW 3:45pm-4:15pm (SCI-222), T 11:30-12:30pm (SCI-223) or by appointment

Class Meetings: MW 2:30-3:45pm in SCI-222

Please feel free to stop by my office at any time as I am more than happy to help whenever I can. Let me know if you wish to set up an appointment for additional help. I am also very available via e-mail and iMessage, even during off hours, so please contact me whenever you have questions or concerns! *Free peer tutoring is available at the LRC.*

Required Materials: *Organic Chemistry*, 8th ed., by Paula Bruice
Scientific calculator

Prerequisites: CHEM V12A/CHEM V12AL with grades of C's or better

Course Description: This course, when combined with ChemV12A, continues the study of functional groups such as carboxylic acids and their derivatives, carbonyls, amines and phenols. The emphasis is again on reaction mechanism, structure determination using nuclear magnetic resonance and infrared spectroscopy, synthesis and applications. A major part of this course is devoted to the study of biochemistry. It is both challenging and demanding; you should anticipate attending every class and spending 8-10 hours a week outside lecture for study. Mastering chemistry is hands-on; the more you put in, the more you will get out.

By the end of this course you will be able to:

- 1.) Categorize, arrange, and assemble structures of aromatics, ketones, aldehydes, carboxylic acids, esters, amines, and biochemical amino acids using IUPAC and common systems of nomenclature, in addition to continued ChemV12A knowledge.
- 2.) Examine, evaluate, and formulate mechanisms for the reactions of aromatics, ketones, aldehydes, carboxylic acids, esters, and amines given reactants and reagents; in addition to continued ChemV12A knowledge.
- 3.) Ability to propose the multistep synthesis for common functional groups using all learned reagents from ChemV12A and ChemV12B.
- 4.) Evaluate spectra (infrared, mass spec, ¹H NMR, ¹³C NMR) to formulate structures for alkanes, alkenes, alkynes, alkyl halides, cyclics, alcohols, ethers, ketones, aldehydes, carboxylic acids, esters, amines, and aromatics.
- 5.) Students will recognize and identify the components of problems or issues, examine them from multiple perspectives and investigate the ways to resolve them using reasoned and supportable conclusions while differentiating between facts, influences, opinions, and assumptions.

See http://www.venturacollege.edu/faculty_staff/academic_resources/core_competencies/index.shtml

Course Objectives: Upon successful completion of this course, the student will be able to demonstrate the following measurable skills and abilities:

- A.) Categorize, arrange and assemble structures of aldehydes, ketones, carboxylic acids, acid derivatives, amines, phenols, sugars and proteins using IUPAC, derived, and common systems of nomenclature.
- B.) Examine, evaluate, and formulate mechanisms for the reactions of aldehydes, ketones, carboxylic acids, II. acid derivatives, amines, phenols, sugars, and proteins given reactant and target compounds, and propose alternate steps in reaction mechanisms for common reactions.
- C.) Examine, evaluate, and formulate appropriate multi-step synthetic pathways leading to target compounds involving aldehydes, ketones, carboxylic acids, acid derivatives, amines, phenols, sugars, and proteins.
- D.) Evaluate spectra (infrared, mass, hydrogen NMR, carbon NMR, UV) to formulate structures for organic compounds involving aldehydes, ketones, carboxylic acids, acid derivatives, amines, phenols, sugars, and proteins.
- E.) Analyze stereochemistry by building models and drawing three-dimensional models of aldehydes, ketones, carboxylic acids, acid derivatives, amines, phenols, sugars, and proteins.
- F.) Relate principles of organic chemistry to biosynthetic reaction pathways.
- G.) Investigate organic chemical reaction, by evaluating chemical data, constructing hypotheses, and applying the scientific method to formulate conclusions based on logical reasoning of the available information

Attendance: Attendance is mandatory and will be taken every class period. Doing well in this course requires your initiative and involvement at all times. School policy states that students missing two weeks' worth of class may be dropped. If you are absent, it is your responsibility to catch up on what you have missed or make arrangements by speaking with me beforehand. Absence is not a valid excuse for missing assignments and cannot be used to avoid late penalties or to make up exams.

Academic Integrity: Cheating on or plagiarizing any assignment or examination is strictly prohibited and will result in a zero for that assignment and further disciplinary measures taken. This includes, but is not limited to, talking and using notes, references, or prohibited electronic devices during exams. Be mature; cheating is always unacceptable, no matter the circumstances.

Classroom Conduct: Courtesy is required in the classroom at all times. This includes, but is not limited to, punctuality, turning off all electronic devices, and refraining from other disruptive behavior. Continual behavior in this manner will lead to your removal from the classroom and loss of points. You made the effort to be in class; you should get the most out of it!

Grading Policy: Grades are posted on Canvas. Your grade in this course will be determined by:

Quizzes (best 5 of 6)	40 pts each for a total of	200 pts
Exams (best 4 of 5)	200 pts each for a total of	<u>800 pts</u>
	Total Possible Points	1000 pts
<i>Tentative Points to Grade:</i>	1000 to 900 points earns an	A
	899 to 800 points earns a	B
	799 to 700 points earns a	C
	699 to 600 points earns a	D
	599 to 0 points earns a	F

Extra credit may appear unexpectedly but should not be anticipated.

Homework: No homework will be collected for this class. However, you will be provided with a list of recommended questions from the end-of-chapter exercises in the textbook. Your quiz and exam questions will be very similar to these recommended problems. Generally speaking, students who do well in this class are those that spend significant amounts of time outside of class practicing these as well as any other extra practice resources they can find. Organic chemistry is learned by *doing* and creating *muscle memory*, not by just listening!

Quizzes: Approximately one week before each exam, an in-class paper quiz consisting of one to four questions will be given for the first fifteen minutes of class on the dates listed on the schedule. **No late quizzes will be given for any reason** nor will tardy students be given extra time. The questions will be based on the lecture material from the previous week and will help prepare you to write out your answers clearly and logically before your next exam.

Exams: Five total exams will be given during the class period on the dates indicated on the schedule with the last exam given during finals week on **Monday, May 15 at 12:30pm-2:30pm**. The questions will be a combination of multiple choice, short answer, and/or essay questions on the material covered in the preceding lectures. By nature organic chemistry is cumulative; thus while each exam will primarily focus on the newest two to three chapters, each will also include material from previous chapters. **Your lowest test score will be dropped before your final grade is calculated at the end of the semester.** This is to account for any emergencies, accidents, or just a bad test day. Therefore, **no make-up or early exams will be given, no matter the reason.** If you require alternative classroom or test accommodations, please contact me and the Educational Assistant Center at 654-6300 so that your needs may be met as soon as possible.

A Final Note: This course is both demanding and difficult; organic chemistry is a very challenging subject. **Do not fall behind!** Every day is cumulative and builds upon the previous; it is impossible to play catch-up. The amount of time you put in to practice problems and review material will directly determine your success in this class. Please never feel timid about asking for help – that really is the only way to do well in this course.