

Chemistry 28B, Spring 2024 Course Syllabus

Reedley College, SCCC

Course Info:

Course #: 50037 – Lectures held in MSCI-204, T/Th 11am-12:15pm

Instructor and Contact Information:

Instructor: Kurtis Thiesen
Office: MSCI-221 (2nd floor of the new MAS building)
Office Hours: Mon 11-11:50am, Wed 11-11:50am, Fri 8:10-10:40am
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Prerequisites:

To become enrolled in CHEM 28B students need to have passed CHEM28A with a grade of C or better.

Required Items:

***Textbook:** Organic Chemistry: 4th edition, by David Klein (but the 2nd or 3rd edition would be fine also)
*Note: You're welcome to rent, purchase, or borrow this textbook anywhere you can find one. Homework will be administered using an online program called WileyPLUS. The registration code for WileyPLUS comes bundled with our textbook (in the RC bookstore) or it may be purchased separately if you buy/rent/borrow a book elsewhere. Note: The WileyPLUS registration code (which includes online-only ebook access) is good for BOTH semesters of ochem (28A and 28B).

Scientific calculator: Any scientific calculator is acceptable, but graphing/programmable calculators and cell phone calculators are NOT allowed during exams and quizzes.

Course Description

This is the second semester in a year-long course in organic chemistry designed for students majoring in chemistry and related disciplines, such as premedical, pre-pharmacy, pre-dental, biology, biochemistry or chemical engineering. It covers the study of several groups of compounds in organic chemistry including aromatic compounds, benzene derivatives, carbonyl compounds, amines, amino acids, lipids, and nucleic acids. Each group is analyzed in terms of their structure, physical properties, nomenclature, reactions and reaction mechanisms. Also included are the oxidation-reduction of organic functional groups and protecting groups in multistep syntheses.

Important Dates:

Sunday (1/28) - Last day to drop in order to avoid a "W" (last day to drop in-person is Friday, 1/26)
Friday (3/8) - Last day to drop with a "W" (a letter grade will be assigned after this date)

Course Policies:

Lecture Attendance:

- Lecture attendance is mandatory, and will be recorded. You are responsible for the material that you miss if you are absent.
- Any student who is not present at the start of the first class period may be dropped and their spot given to another student. Also, if a student misses more than 25% of the course lectures they will be dropped.

Canvas:

- Canvas will be used extensively in this course, and students will be expected to check regularly for updates; lecture PowerPoints and other important documents will be uploaded to Canvas regularly.

Reading:

- Listed on the course schedule is the associated reading for each chapter. The course expectation is that you will have completed the readings before coming to class on the days those topics are discussed etc.

Missed exams:

- Make-up exams are generally not given. Since your lowest exam is dropped, if you miss an exam, that score of "0" will count as your dropped score.
- Official RC Policy concerning absences - "There are no institutionally approved excused absences for any reason. Only your instructor may excuse an absence. Absences caused by personal engagements, transportation delays and business affairs will not be excused, nor will absences from class to complete registration or add/drop activities...Makeup work must be completed to the satisfaction of the instructor of the course. Being excused from class does not relieve the student from the responsibility for completing all assignments."

Cheating:

- Cheating is the act or attempted act of taking an examination or performing an assigned, evaluated task in a fraudulent or deceptive manner, such as having improper access to answers in an attempt to gain an unearned academic advantage. Cheating may include, but is not limited to, copying from another's work, supplying one's work to another, giving or receiving copies of examinations without an instructor's permission, using or displaying notes or devices inappropriate to the conditions of an examination, allowing someone other than the officially enrolled student to represent the student, or failing to disclose research results completely.
- You are encouraged to work together on homework assignments. However, ***your individual work must be evident***. Do not allow others to copy directly from your work. Instances of confirmed cheating will generally result in failure in this course and be referred to the Dean for further action.
- Electronic devices such as cell phones, tablets, etc. are not allowed during exams and must be put away in a backpack or purse; confirmed use of these devices constitutes cheating.
- As an alternative to automatic failure in the course, at the instructor's discretion, you may instead be assigned negative credit for the amount of points possible on the assignment. In this instance, the score would not be allowed to be dropped as your lowest score.
- RC Academic Dishonesty Statement: "*Because cheating, plagiarism, and collusion in dishonest activities erode the integrity of the college, each student is expected to exert an entirely honest effort in all academic endeavors. Academic dishonesty in any form is a very serious offense and will incur serious consequences.*"

Plagiarism:

- Plagiarism is a specific form of cheating: the use of another's words or ideas without identifying them as such or giving credit to the source. One of the most common forms of this is copying information from a website and pasting it into your document. Instances of plagiarism will be treated like any other form of cheating.

Disabled Students:

- It is our policy not to discriminate against any student. If you suspect that you have any type of physical disability or learning disability that is relevant to your performance in the course, I'll encourage you to come talk to me about it right away (though you're not required to). Additionally, it may be helpful for you to stop by the disabled student services office and talk with staff members there to determine what kinds of services and support are available to you to help you succeed in this and other courses. SCCCD policy: *If you have a verified need for an academic accommodation or materials in alternate media (i.e., Braille, large print, electronic text, etc.) per the Americans with Disabilities Act (ADA) or Section 504 of the Rehabilitation Act, please contact the Disabled Student Services as soon as possible.*

Electronic Devices:

- Use of electronic devices (laptop, tablet, etc.) in the classroom is acceptable as long as it is not a distraction to the instructor or to other students. Electronic devices of any kind are NEVER permitted during exams.

Grading: Your course grade will be calculated as follows:

*Exams	67% (4 unit exams worth 16.75% each)
Final exam	18%
Homework	15%

*I will replace your lowest unit exam score with your final exam score if your final exam score exceeds it (see "exams" section for a more detailed explanation).

***Grading Scale:**

A	90-100%
B	80-89%
C	70-79%
D	60-69%
F	0-59%

*The instructor reserves the right to alter grade ranges to accommodate borderline grades.

Exams:

There will be 4 unit exams that are weighted equally and a final exam which is weighted more heavily; these exams may be multiple choice, essay, short answer, or a mixture of these. Make-up exams will NOT be given for unit exams or for the final exam; however, the score on your lowest unit exam may be replaced by your final exam score if your final exam score exceeds it (and if you miss an exam, this will automatically count as your lowest unit exam score). Though each unit exam will be written primarily to examine topics in the current unit/recent chapters, topics in chemistry build upon one another and so all exams should be considered comprehensive.

Homework:

Homework will be administered online using WileyPLUS. A registration code for online access to WileyPLUS comes bundled with our textbook (if you purchase it in the RC bookstore) or it may be purchased separately online during the registration process. We will discuss multiple options for purchasing the textbook and WileyPLUS access on the 1st day of class.

Student Learning Outcomes for CHEM 28B:

(Upon completion of this course, students will be able to:

1. analyze the structural formula of an organic compound, recognize its functional groups and name it properly.
2. draw a structural formula given the systematic name of an organic compound.
3. recognize stereochemistry and describe the physical properties of chiral compounds.
4. complete the reactions of many aliphatic molecules and write the correct reaction mechanism
5. analyze MS, IR and NMR spectra and determine the structure of an unknown compound.

Course Objectives for CHEM 28B:

In the process of completing this course, students will:

1. predict the products of reactions of aromatic compounds.
2. write the reaction mechanism of an electrophilic aromatic substitution using curved arrow notation.
3. predict the products of reactions involving the carbonyl functional group such as aldehydes, ketones, carboxylic acids and their derivatives.
4. identify and predict the properties and reactions of carbohydrates, lipids, amino acids, proteins and nucleic acids.
5. explain how DNA sequencing is performed and what its role is in the current developments in biochemistry.

CHEM 28B, Spring 2024 Schedule

This schedule is a tentative one, and is subject to change by the instructor. As outlined in the course policies above, it is expected that you will be reading the textbook material associated with our in-class discussions before coming to class. Keeping up with the course topics is vital to your success in this course!

Week No.	Month & Day	Topic
Week 1	Jan 9	Syllabus, policies, Ch 13.7-13.9 (or 14.7-14.9) Ethers and Epoxides cont'd
	Jan 11	Ch 13.10-13.12 (or 14.10-14.12) Ethers and Epoxides cont'd
Week 2	Jan 16	Ch 16.1-16.3 (17.1-17.3) Conjugated Pi Systems and Pericyclic Reactions
	Jan 18	Ch 16.4-16.7 (17.4-17.7) Conjugated Pi Systems...cont'd
Week 3	Jan 23	Ch 16.8-16.10 (17.8-17.10) Conjugated Pi Systems...cont'd
	Jan 25	Ch 17.1-17.4 (18.1-18.4) Aromatic Compounds
Week 4	Jan 30	Ch 17.5-17.7 (18.5-18.7) Aromatic Compounds cont'd
	Feb 1	Ch 18.1-18.8 (19.1-19.8) Aromatic Substitution Reactions
Week 5	Feb 6	Ch 18.9-18.13 (19.9-19.13) Aromatic Substitution Reactions cont'd
	Feb 8	Ch 19.1-19.4 (20.1-20.4) Aldehydes and Ketones
Week 6	Feb 13	Exam #1 (Chapters 17-19)
	Feb 15	Ch 19.5-19.8 (20.5-20.8) Aldehydes and Ketones cont'd
Week 7	Feb 20	Ch 19.9-19.11 (20.9-20.11) Aldehydes and Ketones cont'd
	Feb 22	Ch 20.1-20.5 (21.1-21.5) Carboxylic Acids and their Derivatives
Week 8	Feb 27	Ch 20.6-20.9 (21.6-21.9) Carboxylic Acids and their Derivatives cont'd
	Feb 29	Ch 20.10-20.13 (21.10-21.13) Carboxylic Acids and their Derivatives cont'd
Week 9	March 5	Ch 21.1-21.2 (22.1-22.2) α -Carbon Chemistry – Enols and Enolates
	March 7	Exam #2 (Chapters 20-21)
Week 10	March 12	Ch 21.3-21.4 (22.3-22.4) α -Carbon Chemistry – Enols and Enolates cont'd
	March 14	RC/CSUF Chemistry Symposium
Week 11	March 19	Ch 21.5-21.6 (22.5-22.6) α -Carbon Chemistry – Enols and Enolates cont'd
	March 21	Ch 22.1-22.5 (23.1-23.5) Amines
Spring Break	March 26 March 28	N/A – Spring Recess
Week 12	April 2	Ch 22.6-22.11 (23.6-23.11) Amines cont'd
	April 4	Ch 24.1-24.5 Carbohydrates
Week 13	April 9	Exam #3 (Chapters 22-23)
	April 11	Ch 24.6-24.10 Carbohydrates cont'd
Week 14	April 16	Ch 25.1-25.3 Amino Acids, Peptides, and Proteins
	April 18	Ch 25.4-25.6 Amino Acids, Peptides, and Proteins cont'd
Week 15	April 23	Ch 25.7-25.8 Amino Acids, Peptides, and Proteins cont'd
	April 25	Ch 26.1-26.4 Lipids
Week 16	April 30	Ch 26.5-26.8 Lipids cont'd
	May 2	Exam #4 (Chapters 24-26)
Week 17	May 7	Ch 27 Synthetic Polymers (selected topics) + Review for final exam
	May 9	Review for final exam
Week 18	May 16	Final Exam 11am-12:50pm