

# Chemistry 3B, Spring 2019 Course Syllabus

## Reedley College, SCCCD

### Course Info:

Course #: 57204 – Lecture M/W 8-9:15am in PHY 82; Lab M/W 9:25-10:50am in PHY-82

### Instructor and Contact Information:

Instructor: Kurtis Thiesen  
Office: ANX 5 (Faculty Annex)  
Office Hours: Mon 1-1:50pm (LRC 111) and 2-2:50pm (virtual – email)  
Tues 10-10:50am (ANX 5)  
Wed 12-12:50pm (LRC 111)  
Thurs 10-10:50am (ANX 5)  
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### Prerequisites

To become enrolled in CHEM 3B students need to have passed CHEM 3A (with a grade of C or better).

### Required Items

**Textbook:** Chemistry: Introduction to Organic and Biochemistry, 8<sup>th</sup> edition by Bettelheim et. al. OR the 10<sup>th</sup> edition of Introduction to General, Organic, and Biochemistry, by Bettelheim et. al. (which is the same textbook, it just contains additional general chemistry information at the beginning, i.e. CHEM 3A material)

**Homework:** Suggested homework problems for each chapter will be given. Mastery of these problems is vital to your success in this course.

**Lab Text:** Laboratory experiments will be uploaded to Canvas in pdf format; you must print these experiments out and bring them with you to class.

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

**Safety Goggles & Lab coat:** You will not be allowed to participate in lab experiments without your safety goggles and a lab coat. Approved safety goggles and lab coats are available for purchase in the bookstore. Gloves will be provided.

**Scantron Form:** #882-E, you'll need one of these for each lecture exam we take in class.

### Course Description

Introduction to the basic concepts of organic and biological chemistry. A study of the structure and behavior of organic and biochemical compounds, including metabolism, and regulation. Topics such as bonding, saturated and unsaturated hydrocarbons, the chemistry of organic functional groups, and the properties of important biological compounds such as carbohydrates, fats, and proteins are covered. Primarily for students in health oriented professions.

### **Additional Resources:**

Free tutoring is available in the Tutorial Center (Library, Room LRC 111). The link to the RC Tutorial Center is as follows: <http://www.reedleycollege.edu/index.aspx?page=128>

### **Important Dates:**

Friday (2/1) - Last day to drop in order to avoid a "W"

Friday (3/15) - Last day to drop with a "W" (a letter grade will be assigned after this date)

**Additional policies related to adding this course: If a student hopes to add this course, he/she must attend all lecture and lab periods, otherwise he/she will lose their spot on the list of students who are hoping to add the course. Also, if a student is issued an add code, the code must be used within 48 hours; if the code is not used promptly, an alternative add code will be given to the next student on the waiting list, and the original code will cease to be valid (i.e. if the original student adds the course after 48 hours have passed, they will immediately be dropped).**

## **Course Policies:**

### Lecture Attendance:

- Lecture attendance is mandatory; attendance will be recorded for lecture and lab. You are responsible for the material that you miss if you are absent from lecture or lab.
- Any student who is not present at the start of the first class period may be dropped and their spot given to another student.
- **Important Note: If a student misses more than 25% (combined) of lectures/labs they will be dropped.**

### Lab Attendance:

- In order to be counted as present for a lab you must arrive on time, participate in the experiment or activity, and, unless otherwise instructed, stay the entire lab period. In other words, if you arrive late, leave early, or do not participate in lab activities, you may be counted absent and given a zero on your lab exercise.  
Note: Showing up late for lab is a safety risk for you and others, as specific safety concerns are generally addressed at the beginning of lab.
- **Important Note: If a student misses more than 6 laboratory sessions they will be dropped from the course (if these absences occur before the final “drop” deadline), or receive a failing grade in the course (if their 6<sup>th</sup> absence occurs after the final “drop” deadline etc.).**

### Canvas:

- Canvas will be used extensively in this course, and students will be expected to check Canvas regularly for updates; lecture PowerPoints and other important documents (for both lecture and lab) 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, quizzes and labs:

- Make-up exams and quizzes are generally not given (exceptions are very unlikely), and as such, a missed exam will result in a score of “0” on the exam etc.
- 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 labs. However, ***your individual work must be evident***. Do not copy work or allow others to copy from your work. Instances of confirmed cheating will generally result in failure 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.

### Laboratory Safety:

- On the first day of lab we will cover various safety rules. If you do not follow these rules you will be asked to leave, and you may be dropped from the course. For example, if you refuse to wear safety glasses, you would be immediately and permanently removed from the course for your own protection and those around you.

### 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) so that I can support you to the best of my ability. 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. In lab, they must also be used in such a way as to not cause a safety risk (e.g. do not handle chemicals and then use your computer without removing your gloves and/or washing your hands). Electronic devices of any kind are NEVER permitted during exams.

### Classroom Visitors:

- In accordance with Reedley College policy, only students currently enrolled in the course will be allowed in the classroom during lab and lecture.

**Grading:** Your course grade will be calculated as follows:

Lab Reports	15%
Lab Quizzes	10%
Exams	48.75% (3 unit exams worth 16.25% each)
Final exam	16.25%
Homework	10% (possibility for 5% XC)

### **\*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.

**Lab Reports:** Expectations about lab reports will be discussed during the introduction to lab policy and safety on the first day of lab.

**Lab Quizzes:** There will be 4 lab quizzes during the term that are meant to examine whether you've gained a thorough understanding of relevant lab theory, the techniques associated with lab experimentation, and, where appropriate, how these lab experiments are related to lecture topics.

**Exams:** There will be 3 exams and a final; all exams have equal weight, and the final exam is NOT comprehensive. Exams may be multiple choice, essay, short answer, or a mixture of these. If you need to bring a calculator to the exams, scientific calculators are ok, but graphing calculators (or any other electronic

devices) are NOT allowed. Make up exams will be given only in exceptional circumstances and only by prior arrangement with the instructor.

**Homework:** Before we begin a new chapter, I will post suggested HW problems; it is HIGHLY recommended that you complete these practice problems in order to prepare yourself for the exams, and in order to receive HW credit (see grading scheme above). HW will be collected before each exam (e.g. Exam #1 will cover chapters 1-5, and the corresponding HW for these chapters will be collected on the day of the exam); there will be 4 HW collections (before each of the 3 unit exams, and before the final exam), making each HW collection worth 2.5% of your overall grade. Grading of these HW assignments is qualitative, and will be discussed on the first day of class. It is possible to receive an additional 5% (1.25% per HW collection) added to your overall course total. This extra credit opportunity will be discussed on the first day of class.

**Student Learning Outcomes for CHEM 3B:**

(Specify the learning skills the student demonstrates through completing the course and link critical thinking skills to specific course content and objectives.)

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

- A. demonstrate structural formula--name conversions for less complex organic and biochemical compounds.
- B. describe physical properties of organic compounds.
- C. predict products of representative chemical reactions.
- D. explain basic concepts of biomolecules, such as carbohydrates, lipids, proteins, enzymes, and nucleic acids.
- E. safely demonstrate laboratory experiments involving basic organic chemistry and biochemical themes.

**Course Objectives for CHEM 3B:**

(Specify major objectives in terms of the observable knowledge and/or skills to be attained.)

In the process of completing this course, students will:

- A. assess the process, products, and coenzymes in metabolic pathways.
- B. describe different organic functional groups and major biological categories of compounds.
- C. use (with safe procedures) laboratory equipment for simple organic chemistry and biochemical experiments.
- D. describe and discuss the procedures used in basic organic chemistry and biochemical experiments

## Tentative Schedule:

Week	Date	Lecture topics	Text section	Lab experiment
1	1/14	M Syllabus, Intro. to Chem. 3B		
1	1/16	W Introduction to Organic Chemistry + Review Topics	Ch 1 + Review	Finish Review + Intro to Lab Policy/Safety
2	1/21	<b>M Martin Luther King Jr. Holiday (No Class)</b>		
2	1/23	W Chapter 2 Alkanes	Ch 2.1-2.5	Experiment 21 Structure in Organic Compounds
3	1/28	M Chapter 2 Alkanes cont'd	Ch 2.6-2.11	Experiment 21 cont'd
3	1/30	W Chapter 3 Alkenes and Alkynes	Ch 3.1-3.5	Experiment 30 Aspirin Synthesis
4	2/4	M Chapter 4 Benzene and Its Derivatives	Ch 4.1-4.4	Experiment 30 cont'd
4	2/6	W Chapter 5 Alcohols, Ethers, and Thiols	Ch 5.1-5.5	Catch up on Lecture Topics
5	2/11	M Chapter 6 Chirality	Ch 6.1-6.5	<b>Lab Quiz #1 (Experiments 21, 30)</b>
5	2/13	<b>W Exam #1 (Chapters 1-5)</b>		
6	2/18	<b>M Washington Day (No Class)</b>		
6	2/20	W Chapter 8 Amines	Ch 8.1-8.5	Experiment 22 Stereochemistry
7	2/25	M Chapter 9 Aldehydes and Ketones	Ch 9.1-9.3	Experiment 22 cont'd
7	2/27	W Chapter 9 Cont'd	Ch 9.4-9.5	Experiment 26 Identification of Aldehydes and Ketones
8	3/4	M Chapter 10 Carboxylic Acids	Ch 10.1-10.5	Experiment 26 cont'd
8	3/6	W Chapter 11 Carboxylic Anhydrides, Esters, and Amides	Ch 11.1-4, 11.6	Experiment 31 Caffeine from Tea
9	3/11	M Chapter 7 Acids and Bases	Ch 7.1-7.11	Experiment 31 cont'd
9	3/13	W Catch up on topics or get ahead		<b>Lab Quiz #2 (Experiments 22, 26)</b>
10	3/18	<b>M Exam #2 (Chapters 6-11)</b>		
10	3/20	W Chapter 12 Carbohydrates	Ch 12.1-12.3	Experiment 34 Soap Preparation and Properties
11	3/25	M Chapter 12 Carbohydrates cont'd	Ch 12.4-12.5	Experiment 34 cont'd
11	3/27	W Chapter 13 Lipids	Ch 13.1-13.6	Experiment 33 Fermentation and Distillation of Ethanol
12	4/1	M Chapter 13 Lipids cont'd	Ch 13.7-13.11	Experiment 33 cont'd
12	4/3	W Chapter 14 Proteins	Ch 14.1-14.7	Experiment 40 Casein
13	4/8	M Chapter 14 Proteins cont'd	Ch 14.8-14.13	Experiment 40 cont'd
13	4/10	W Chapter 15 Enzymes	Ch 15.1-15.4	<b>Lab Quiz #3 (Experiments 31, 33, 34)</b>
<b>N/A – No Classes Held During Spring Break</b>			<b>N/A</b>	
14	4/22	M Problem-solving session		Problem-solving session
14	4/24	<b>W Exam #3 (Chapters 12-14)</b>		
15	4/29	M Chapter 15 Enzymes cont'd	Ch 15.5-15.8	Experiment 41 Properties of Enzymes
15	5/1	W Chapter 22 Nutrition	Ch 22.1-22.6	Experiment 41 cont'd
16	5/6	M Chapter 20 Specific Catabolic Pathways	Ch 20.1-20.3	Experiment 47 Quantitative Analysis of Vitamin C in Foods
16	5/8	W Chapter 17 Nucleotides, Nucleic Acids	Ch 17.1-17.3	Experiment 47 cont'd
17	5/13	M Chapter 17 Nucleotides, Nucleic Acids cont'd	Ch 17.4-17.6	Catch up on lecture topics
17	5/15	W Catch up/Review		<b>Lab Quiz #4 (Experiments 40, 41, 47)</b>
18	5/22	<b>W Final Exam 8:00-9:50am (Chapters 15, 22, 20, 17)</b>		