CHEM 3B, Fall 2023 Course Syllabus
Reedley College, SCCCD

Course Info:
Course #: 52051 – Lecture (online); Lab W 8:00-10:50am in MSCI-202; labs, quizzes and exams held in-person (see course schedule)

Instructor and Contact Information:

Instructor: Kurtis Thiesen
Office: MSCI-221
Office Hours: Mon 11-11:50am, Wed 11-11:50am, Fri 8-10:30am
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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, 8th edition by Bettelheim et. al. OR the 10th or 11th edition of Introduction to General, Organic, and Biochemistry, by Bettelheim et. al. (which is the same textbook, it just contains additional introductory 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 Information and appointments may also be obtained through the RC Tutorial Center link in your Canvas Shell.

Important Dates:
Friday (8/18) – Last day to drop in order to receive a full refund
Friday (8/25) – Last day to drop in-person in order to avoid a "W"
Friday (10/6) – Last day to drop with a "W" (a letter grade will be assigned after this date)

Course Policies:
Lecture Attendance:
- Lectures will be posted on Canvas; lecture exams will be given in-person (see course schedule).

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.

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. Lab quizzes will be given in-person (see course schedule)

- **Important Note: If a student misses more than 3 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 4th 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 videos, 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	12%
Exams	48.75% (3 unit exams worth 16.25% each)
Final exam	16.25%
Homework	8%
ACS Exam	Possibility for up to 10% extra credit

***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 our first in-person 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 in 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 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% of your overall grade. Grading of these HW assignments is qualitative, and 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	8/7	M Intro. to Organic Chemistry + Review Topics (part I)	Ch 1 + Review	
1	8/9	W Intro. to Organic Chemistry + Review Topics (part II)	Ch 1 + Review	Introduction to CHEM 3B, syllabus, course policies etc.
2	8/14	M Chapter 2 Alkanes	Ch 2.1-2.5	
2	8/16	W Chapter 2 Alkanes (part II)	Ch 2.6-2.11	Experiment 21 Structure in Organic Compounds
3	8/21	M Chapter 3 Alkenes and Alkynes	Ch 3.1-3.5	
3	8/23	W Chapter 4 Benzene and Its Derivatives	Ch 4.1-4.4	Experiment 30 Aspirin Synthesis
4	8/28	M Chapter 5 Alcohols, Ethers, and Thiols	Ch 5.1-5.5	
4	8/30	W Exam #1 Review @ 11am		Experiment 31 Caffeine from Tea
5	**9/4**	**M Labor Day Holiday**		
5	9/6	W Chapter 6 Chirality (part I)	Ch 6.1-6.2	**Exam #1 (Chapters 1-5)**
6	9/11	M Chapter 6 Chirality (part II)	Ch 6.3-6.5	
6	9/13	W Chapter 8 Amines	Ch 8.1-8.5	Experiment 22 Stereochemistry
7	9/18	M Chapter 9 Aldehydes and Ketones (part I)	Ch 9.1-9.3	
7	9/20	W Chapter 9 Aldehydes and Ketones (part II)	Ch 9.4-9.5	**Lab Quiz #1 – Experiments 21, 30, 31**
8	9/25	M Chapter 10 Carboxylic Acids	Ch 10.1-10.5	
8	9/27	W Chapter 11 Carboxylic Anhydrides, Esters, and Amides	Ch 11.1-4, 11.6	Experiment 75 Preparation of Hand Sanitizer
9	10/2	M Chapter 7 Acids and Bases	Ch 7.1-7.11	
9	10/4	W Exam #2 Review @ 11am		Experiment 33 Fermentation and Distillation of Ethanol
10	10/9	M Chapter 12 Carbohydrates	Ch 12.1-12.3	
10	10/11	W Chapter 12 Carbohydrates cont'd	Ch 12.4-12.5	**Exam #2 (Chapters 6-11)**
11	10/16	M Chapter 13 Lipids	Ch 13.1-13.6	
11	10/18	W Chapter 13 Lipids cont'd	Ch 13.7-13.11	Experiment 33 Fermentation and Distillation of Ethanol Cont'd
12	10/23	M Chapter 14 Proteins	Ch 14.1-14.7	
12	10/25	W Chapter 14 Proteins cont'd	Ch 14.8-14.13	**Lab Quiz #2 (Experiments 22, 75, 33)**
13	10/30	M Exam #3 Review @ 11am		
13	11/1	W Chapter 15 Enzymes	Ch 15.1-15.4	Experiment 34 Soap Preparation and Properties
14	11/6	M Chapter 15 Enzymes cont'd	Ch 15.5-15.6	
14	11/8	W Chapter 15 Enzymes cont'd	Ch 15.7-15.8	**Exam #3 (Chapters 12-14)**
15	11/13	M Chapter 22 Nutrition	Ch 22.1-22.6	
15	11/15	W Chapter 20 Specific Catabolic Pathways	Ch 20.1-20.3	Experiment 40 Casein
16	11/20	M Chapter 17 Nucleotides, Nucleic Acids	Ch 17.1-17.3	
16	11/22	W Chapter 17 Nucleotides, Nucleic Acids cont'd	Ch 17.4-17.6	Experiment 47 Quantitative Analysis of Vitamin C in Foods
17	11/27	M Catch up if necessary…		
17	11/29	W Exam #4 Review @ 11am		**Lab Quiz #3 (Experiments 34, 40, 47)**
18	**12/6**	**W Final Exam (Chapters 15, 22, 20, 17) – 8:00am**		