

Introduction to General, Organic and Biochemistry II Spring 2018 (CHEM-030B-01) Syllabus

Lecture: Tue & Thu 12:30 PM - 2:20 PM -- Room SC2204

Lab: Tue 2:30 PM - 5:20 PM - Room SC2210

Instructor: Dr. Hema Ramakrishna

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Office Hours: Tuesday & Thursday 11:15 AM -12:15 PM; SC1 second floor.

Description: This class is for students entering the allied health fields. The course focuses on the second part of Introduction to General, Organic, and Biochemistry. The topics included in organic chemistry are: hydrocarbons, alcohols, thiols, ethers, carboxylic acids, esters, amines, and amides. Various physical and chemical properties of these organic substances will be studied along with nomenclature and structural features. The topics included in biochemistry are: carbohydrates, fatty acids and lipids, amino acids and proteins, nucleic acids and DNA. Various physical and chemical properties of these biological molecules will be studied. A brief introduction to metabolism will also be discussed.

Prerequisites: Chemistry 30A or 25 or 1A. Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.

Text: General, Organic and Biological Chemistry, Janice G. Smith, 3rd ed, 2016, McGraw-Hill.

Lab Text: Laboratory Manual for General, Organic and Biochemistry, Karen C. Timberlake, 3rd ed, 2014, Pearson'.

Evaluation:

Your grade will be based on your performance in the following:

Quizzes: Quizzes will be given during class on Tuesday or Thursday as scheduled in syllabus, and will have a time limit. If you miss the quiz, you will not have a chance to make it up. The best 9 quiz scores will be used in determining your final grade. Each quiz counts for 10 points.

Exams: There will be three exams and one final exam. You are permitted to bring a molecular model kit, the instructor must approve if it is assembled in any way. Calculators may be used if approved by instructor. Once the exam begins you may not leave the room unless you turn in the exam. No Cell Phones during exam.

Make-up exam shall be given for serious and compelling reasons only. Consult your instructor PRIOR TO EXAM TIME by all means. There will be 10% deduction in grades for all the make-up exams.

Final Exam: A comprehensive final exam will be given. Student who miss or fail the final exam will not receive a grade C or better.

Labs: All 8 labs count towards your grade. No make-up labs. Late labs will incur a penalty. You MUST wear eye protection during lab. Maintaining Lab safety is a primary concern, it is important to understand and follow the safety rules provided later in this syllabus.

Homework assignments: There will be six homework assignments(20 points each) based on the lecture and end of the chapter problems. Lowest score will be dropped.

9 best Quizzes (10 pts each, cannot drop Quiz 10)	90 points
7 Lab reports (20 pts)(5 pts for prelab and 15 pts for report)	140 points
Lab Final	70 points
Homework assignments	100 points
3 Exams (100 pts each)	300 points
1 Final (200 pts)	200 points
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Total	900 points

Letter grades will be assigned according to the following grade scale:

90-100% = A
87-89.9% = A-
84-86.9% = B+
79-83.9% = B
76 - 78.9% = B
72-75.9 % = C+
60-71.9% = C
50-59.9% = D
Below 50% = F

Lab Notebooks: You are required to maintain a bound laboratory notebook. Each experimental procedure must be written in your lab notebook prior to performing the experiment. All the observations and results must be entered immediately and directly into the lab notebook. Lab final exam will be “**open-notebook**”. A well prepared notebook will be helpful during the exam.

Attendance: Your attendance is urged for all lectures and required for all quizzes, exams and labs. Unexcused exam, quiz and lab absences score 0. It is the responsibility of the student to contact the instructor regarding missed work. If an absence is anticipated, the student should make arrangements to complete the missed assignments prior to the absence. In an emergency, it is the student’s responsibility to contact the instructor within one class period of an exam. There are no laboratory make-up days.

Academic integrity : Academic dishonesty is a serious offense. Students are also expected to abide by the Academic Integrity policy of De Anza college. Details can be found at, <http://www.deanza.edu/studenthandbook/academic-integrity.html>. Copying another student’s data, paper, exam, quiz or use of technology devices to exchange information during class time and/or testing is never tolerated and result in **dismissal** from the course with **Grade F**.

Cell Phone Policy: Use of cell phone during lecture and lab sessions are strictly prohibited. Violation of this policy will bar you from attending the classes and may result in failure in the class.

Chemical Disposal: As a concern for the environment, proper chemical disposal is essential. Students who do not comply with directed procedures may be dropped from the course for repeated offenses.

Eye protection: You must wear full goggles that are sold by the De Anza Bookstore only and not safety glasses. Without them, you may not participate in lab and will receive a grade of zero for that lab.

Changes to Syllabus: This syllabus may change according to the needs of the class. Please check with the syllabus posted.

Tentative Laboratory, Lecture, and Exam Schedule

Date Tuesday	Lecture Lab	Date Thursday	Lecture
10 April	Introduction Ch. 11: Intro to Organic Molecules and Functional Groups Lab: Check-In	12 April	Ch. 11: cont., Ch. 12: Alkanes
17 April	Ch. 12: cont. Ch. 13: Unsaturated Hydrocarbons; Quiz 1: Ch. 11 L1: Alkanes (Model kits) Signed Safety Document due	19 April	Ch. 13: cont.. Quiz 2: Ch. 12
24 April	Ch. 14: Organic Compounds That Contain Oxygen, Halogen or Sulfur. L2: Hydrocarbons	26 April	Ch:14 cont,; Review for Exam 1 Quiz 3: Ch.13,
1 May	Exam 1: Ch. 11-14 L3: Alcohols	3 May	Ch.15: The Three-Dimensional Shape of Molecules,
8 May	Ch. 15: cont, ; Ch. 16: Aldehydes and Ketones L4: Aldehydes and Ketones	10 May	Ch. 16: cont, Ch:17: Carboxylic Acids, Esters, and Amides Quiz 4: Ch. 15
15 May	Ch: 17: cont., Quiz 5: Ch. 16 Ch:18: Amines and Neurotransmitters L5: Carboxylic acids & esters	17 May	Ch. 18: cont. ; Quiz 6: Ch.17 & 18; Review for Exam 2
22 May	Exam 2: Ch. 15-18 L6: Carbohydrate Tests	24 May	Ch:19: Lipids ; Quiz 7: Ch. 19
29 May	Ch:19 cont., ; Ch. 20: Carbohydrates L7: Amines & Amides	31 May	Ch :20 cont. Ch. 21: Amino Acids, Proteins & Enzymes.
5 June	Ch:21 cont., Ch: 22: Nucleic Acids and Protein Synthesis. L8 : Peptides & Proteins	7 June	Chap 22; cont; Ch.23: Metabolism and Energy Production Quiz 8: Chap 20 & 21
12 June	Ch.23 cont. , Quiz 9: Ch. 22 & 23 Review for Lab Final	14 June	Ch.24: Carbohydrate, Lipid & Protein Metabolism
19 June	Ch.24, cont., Review for Exam 3 Quiz 10 : Ch-11-24 Lab Final Check-Out	21 June	Exam 3: Ch. 19-24
26 June	Review for Final exam	28 June	Final Exam; 11:30 am -1:30 pm

Laboratory Safety Rules

From the American Chemical Society Safety In Academic Laboratories Guidelines, 7th Ed., the following mandatory minimum safety requirements must be followed by all students and be rigorously enforced by all Chemistry faculty:

- 1) Chemistry Department-approved safety goggles purchased from the De Anza College bookstore (NOT safety glasses) must be worn at all times once laboratory work begins, including when obtaining equipment from the stockroom or removing equipment from student drawers, and may not be removed until all laboratory work has ended and all glassware has been returned to student drawers.
- 2) Shoes that completely enclose the foot are to be worn at all times; NO sandals, open-toed, or open-topped shoes, or slippers, even with socks on, are to be worn in the lab.
- 3) Shorts, cut-offs, skirts or pants exposing skin above the ankle, and sleeveless tops may not be worn in the lab: ankle-length clothing must be worn at all times.
- 4) Hair reaching the top of the shoulders must be tied back securely.
- 5) Loose clothing must be constrained.
- 6) Wearing jewelry such as rings, bracelets, and wristwatches in the laboratory should be discouraged to prevent chemical seepage in between the jewelry and skin.
- 7) Eating, drinking, or applying cosmetics in the laboratory is forbidden at ALL times, including during lab lecture.
- 8) Use of electronic devices requiring headphones in the laboratory is prohibited at ALL times, including during lab lecture.
- 9) Students are advised to inform their instructor about any pre-existing medical conditions, such as pregnancy, epilepsy, or diabetes, that they have that might affect their performance.
- 10) Students are required to know the locations of the eyewash stations, emergency shower, and all exits.
- 11) Students may not be in the lab without an instructor being present.
- 12) Students not enrolled in the laboratory class may not be in the lab at any time after the first lab period of each quarter.
- 13) Except for soapy or clear rinse water from washing glassware, **NO CHEMICALS MAY BE Poured INTO THE SINKS**; all remaining chemicals from an experiment must be poured into the waste bottle provided.
- 14) Students are required to follow the De Anza College Code of Conduct at all times while in lab: “horseplay”, yelling, offensive language, or any behavior that could startle or frighten another student is not allowed during lab;
- 15) Strongly recommended: Wear Nitrile gloves while performing lab work; wear a chemically resistant lab coat or lab apron; wear shoes made of leather or polymeric leather substitute.

Student Learning Outcome(s):

*Differentiate the general reactions of the principle organic functional groups.

*Evaluate the major classes of biological compounds from a chemical perspective.