

Chem 30B Fall 2025 Syllabus

Introduction to General, Organic, and Biological Chemistry

Term: Fall 2025

Instructor: Dr. Semere Bairu

Class Schedule: Section 27Y Lecture Friday 8:30 am – 10:20 am in DA 1102
Section 27Y Lab Friday 10:30 am – 1:20 pm in SC2210

Office Hrs. Every Tuesday 12:00 pm to 1:00 pm

Office Hrs. Link: <https://fhda-edu.zoom.us/j/84494619346>

October 5 - Last day to [add 12-week classes](#)

October 5 - Last day to [drop classes](#) without a W.

November 14 - Last day to [drop classes](#) with a W.

November 27-30 - Thanksgiving Holiday – No classes; Offices Closed.

About the Course

This hybrid course combines in-person and remote learning with strict attendance requirements for weekly in-person labs, which are mandatory and require punctuality. The lecture component includes both in-person sessions and asynchronous online materials, which must be completed before the Friday lecture. Students unable to attend the in-person components should not enrol in this course.

Course Webpage

The course webpage is hosted on De Anza Canvas, and students are automatically added to the Canvas shell upon enrolment. Waitlisted students, however, will not have access to Canvas. The webpage is best viewed on a web browser rather than the Canvas student app. Be sure to enable Canvas notifications to stay updated on class announcements, Inbox messages, and comments or feedback on assignment submissions.

Community Statement

Every individual in this class is a valued and integral member of the group, regardless of personal history or identity. Your experiences are important and welcomed, and you are encouraged to share them when relevant. No one is expected or presumed to represent all members of any group. You have the right to define your identity, choose the name you wish to be called, and specify your pronouns, which you may change at any time. If any aspect of the class, including facilitation, instruction, content, or environment, creates barriers to your inclusion, please inform me privately without fear of reprisal. We are all on a learning journey, and my goal is to continually improve to support everyone in this class and my future students.

About Your Instructor

Instructor: Dr. Semere Bairu

E-mail: bairusemere@fhda.edu

Phone Number: 269-365-8814 (not preferred)

The most reliable way to contact me outside of class is through **Canvas Inbox**. Generally, you can expect a reply within 12 hours.

Office hours

Office hours is an opportunity to meet with me outside of regular class time. Bring your homework, notes, readings, or any other assignments to discuss over a zoom. You're welcome to ask questions about the course material, practice problems, or your educational path. My office hours are open to all students, feel free to join zoom meeting every Tuesday from 12:00 pm to 1:00 pm using this link

<https://fhda-edu.zoom.us/j/84494619346>.

My Teaching Philosophy

My goal is for every student in my class to develop an appreciation for the power of chemistry and the beauty of the natural world. I aim to create a course that is accessible to students from diverse educational, cultural, and socioeconomic backgrounds while upholding high intellectual and academic standards. I strive to recognize and reward consistent, sustained effort throughout the quarter, and my ultimate objective is for every student to pass with a reasonable grade, enabling you to progress to the next stage of your educational or career journey.

Course Description

This course is designed for students entering allied health fields and serves as the second part of an Introduction to General, Organic, and Biochemistry series. The focus is on organic chemistry and biochemistry. Topics in organic chemistry include hydrocarbons, alcohols, thiols, ethers, carboxylic acids, esters, amines, and amides, with an emphasis on their physical and chemical properties, nomenclature, and structural features. In biochemistry, topics cover carbohydrates, fatty acids and lipids, amino acids and proteins, nucleic acids, and DNA, examining their physical and chemical properties. The course also provides a brief introduction to metabolism.

Dr. Bairu's Course Description

Chemistry 30B offers a general overview of organic chemistry and biochemistry, presenting these typically year-long upper-division subjects in a more accessible and engaging format. The course is divided into two main sections, with some overlap: the first focuses on organic structure, nomenclature, and reactivity, while the second explores biomolecules and their biological functions. This approach makes complex topics both exciting and approachable for students.

Required Materials

Textbooks: Chemistry: An Introduction to General, Organic, and Biological Chemistry, 13th edition by Karen Timberlake will be used this quarter. It is accessible via Canvas through Access Pearson after purchasing the access code.

Supplementary textbook: Access it freely - <https://open.umn.edu/opentextbooks/textbooks/the-basics-of-general-organic-and-biological-chemistry>

Lab Handouts: Laboratory handouts will be uploaded to Canvas. It is your responsibility to bring a printed copy to the lab for ease of use, safety, and so that you can easily record your results.

Computer and Printer Access: This is a hybrid course with extensive technological requirements. It is strongly recommended that you have regular and consistent access to a computer with a camera and microphone. You will also need to be proactive in reaching out to technical and support services for the many platforms that we use. Start your work early so that you do not fall behind.

Scanner: Throughout the quarter, you will submit handwritten reports by creating a PDF and uploading it to Canvas. Recommended apps for this purpose include GeniusScan and CamScanner. Please avoid using Adobe apps, as the resulting files are often too large to read. Make sure all documents are scanned and combined into a single PDF file with a clear file name. I do not accept multiple image files, as it is difficult to grade them online in Canvas.

Lab Goggles: Eye protection is essential PPE. You must bring department-approved ANSI (Z.87) lab goggles to each lab period.

Nitrile or Latex Gloves: You must provide your own gloves this quarter.

Access Pearson: We will use Pearson Access for Mastering Chemistry as our reading platform this quarter. Please purchase the etextbook as mentioned in my first announcement. You will have courtesy access through the second week of the quarter. By then, you should purchase an access code either directly from Pearson or through the campus bookstore.

Supplemental Materials

Calculator: A scientific calculator with natural log functionality is required for this class and is sufficient for all coursework. If you already own a graphing calculator from another class, you may use it for exams and quizzes; however, the graphing functionality will not be utilized.

Recommended model: <https://www.amazon.com/Texas-Instruments-MultiView-Scientific-Calculator/dp/B000PDFQ6K>

Enrolment

Prerequisites: To enrol in Chemistry 30B, you must have completed Chemistry 30A, 25, 1A, or 1AH with a grade of C or better. Additionally, EWRT 211 and READ 211 (or LART 211), or ESL 272 and 273, are required.

It is recommended that students have taken Chemistry 30A or 1A in person at De Anza College within the past six months. If your recent chemistry background does not align with this, I strongly encourage you to reach out early and frequently to me, as well as to campus tutoring and academic support services, if any issues arise.

Add Codes Policy

Add codes will only be provided if space is available during the first week of class. To be considered for enrollment in Chemistry 30B, you must attend both the first lecture and especially the first lab meeting. Students who miss either, particularly the lab, will be dropped and replaced by someone from the waitlist. Add codes will not be issued after the first week.

Time Commitment and Expectation

This is a 5-unit course, and you should plan to dedicate approximately 15 hours per week to class assignments. To avoid becoming overwhelmed, divide this workload throughout the week and establish a consistent time and place to focus on class materials daily. As this is a hybrid course, additional assignments and lecture materials will also require your attention outside of scheduled class time.

Course Objectives

We will cover the following topics in Chemistry 30B:

- Examine the chemistry of simple organic molecules, focusing on structural features and nomenclature.
- Explore the chemistry of unsaturated hydrocarbons, including their nomenclature, structure, and reactivity.
- Analyse and assess the properties and reactivity of alcohols, thiols, ethers, aldehydes, and ketones.
- Evaluate the properties and reactions of carboxylic acids, esters, amines, and amides.
- Study the chemistry of carbohydrates and their biological significance.
- Investigate the chemistry of fatty acids, lipids, and the structure of cell membranes.
- Explore the chemistry and function of amino acids and proteins.
- Examine the structure and function of nucleic acids and summarize the process of protein synthesis.
- Inspect various metabolic pathways and connect them to energy production mechanisms.

Student Learning Outcomes (SLOs):

- Analyze and predict the physical and chemical properties of simple organic molecules and biological macromolecules based on their structure and functional groups.
- Apply the principles of organic and biochemistry to explain the roles of carbohydrates, lipids, proteins, and nucleic acids in biological systems.
- Assess the relationship between metabolic pathways and energy production within living organisms.

Active Course Outline

The active course outline for this class may be found online at:

<https://www.deanza.edu/catalog/courses/outline.html?cid=chemd030b>

Important Dates

First Day: September 26, 2025 - First day of class for Chem 30B! In-person attendance is *mandatory*.

Withdraw: Last day to [drop classes](#) with a W.

For a full list of important dates, please see <https://www.deanza.edu/calendar/>

If circumstances beyond your control prevent you from completing the course, you may qualify for an excused withdrawal. Please see the following website for more information.

<https://www.deanza.edu/admissions/withdrawals.html#excused>

Attendance Policy

Punctual attendance is expected at all class meetings. To be marked present and receive credit for the day's activities, you must arrive within the first five minutes of class, as late arrivals may result in missing important information. If you must miss class, notify me via Canvas message as soon as possible. Communicating about absences or tardiness demonstrates responsibility and respect for both yourself and your classmates. In cases of documented emergencies, such as hospitalization, a court

appearance, or a car accident, you may be excused from that day's work. These situations will be evaluated individually. Please note that travel is not considered an emergency and will not qualify for an excused absence. It is your responsibility to obtain any missed notes or information from a classmate. Quizzes missed during mandatory lecture sessions will receive a zero unless the absence is due to one of the approved emergency situations.

Syllabus Statement

This syllabus serves as a contract for the course. Please read it thoroughly before asking questions about the course schedule, content, requirements, grading, or other details, as many answers can be found within. As a student in this course, you are expected to conduct yourself with integrity and professionalism at all times. This includes adhering to the De Anza College Student Code of Conduct (Administrative Policy 5510). For complete details, please refer to the linked PDF file below.

<https://www.deanza.edu/titleix/documents/5510Conduct.pdf>

This syllabus is a living document and subject to updates. Any corrections or changes will be communicated through Canvas Announcements.

Class Structure

This course consists of two in-person instructional periods: a lecture period for covering the primary course material and a lab period for conducting experiments. All students attend the same lecture and lab sessions, as there is only one lab section. At De Anza College, the lab and lecture cannot be taken as separate courses under any circumstances.

Late Work Policy

All due dates for take-home assignments are set for 11:59 PM on the specified day and must be submitted via Canvas or Mastering Chemistry, depending on the assignment instructions. However, in-class quizzes are time-limited and must be completed during the scheduled class period. Make-up quizzes will only be considered in the case of a documented emergency, as outlined in the attendance policy.

How to Learn Chemistry

Chemistry is a broad subject with a reputation for being challenging. This class will leverage various resources to help you build the skills, knowledge, and understanding needed to apply chemical principles across multiple areas of study. Lectures will provide structure and context for the topics, while assigned readings will help you explore the details in depth.

How to Succeed in This Course

- **Attend all class sessions:** Be punctual and actively participate in both lecture and lab sessions.
- **Stay organized:** Keep track of deadlines, assignments, and exam dates using a planner or digital calendar.
- **Review material regularly:** Study lecture notes, readings, and lab material consistently throughout the week.
- **Complete assignments on time:** Submit all work on Canvas by the deadlines to avoid late penalties.

- **Ask for help:** Reach out to me during study hall, office hours, or via Canvas Inbox with questions. Utilize campus tutoring and academic support services if needed.
- **Form study groups:** Collaborate with classmates to review material, work on practice problems, and discuss challenging concepts.
- **Practice problems:** Work through practice problems to strengthen your understanding of the material and prepare for exams.
- **Use recommended tools:** Ensure you have the required scientific calculator and PDF scanner app for assignments.
- **Engage with online content:** Complete all asynchronous online materials and activities by the required deadlines.
- **Communicate proactively:** Notify me in advance of any issues or absences and provide explanations for late submissions when necessary.

Academic Integrity

Academic integrity is essential in this course, and students are expected to adhere to De Anza College's academic integrity policy. All submitted work must represent your own understanding, written in your own words, with collaboration only allowed on specific assignments where the final submission reflects individual effort. Cheating, copying, or plagiarism, including the use of prohibited online resources such as Chegg, CourseHero, or Reddit, is strictly forbidden. Assessments are closed resource, and using internet answers or unauthorized help is not allowed. Incidents of academic dishonesty, no matter how minor, will be reported to the Dean and may result in penalties to your course grade, including retroactive grade changes within two years of course completion. Reputable tutoring resources are encouraged, but services that provide direct answers without promoting learning are prohibited. Students should seek clarification about resources or policies when unsure and are encouraged to engage with the instructor and peers for support. Violations may lead to significant changes in course structure, such as oral exams or exit interviews, to ensure academic standards are maintained.

Lecture

Attendance and active participation are expected at every lecture. If you are unable to attend, notify me via email as soon as possible, even if it's shortly before or after class starts. You are responsible for obtaining notes or missed information from a classmate. Arrive on time and stay for the entire class, as late arrivals and early departures can be distracting for everyone.

Take your own notes during lectures for better engagement and understanding. While we may use electronic devices for certain activities, refrain from using them for non-course-related purposes. Ensure your phone is on silent or Do Not Disturb mode during class. In case of an emergency call, quietly step out of the room before answering.

Canvas Homework Guidelines

Homework questions for each chapter are available under the **Quizzes tab** in Canvas. You can also access the homework through the **Modules**. These assignments are designed to support your learning and prepare you for exams.

You will have up to **two attempts** to answer each question without penalty, allowing you to practice and strengthen your understanding. Homework assignments are typically due on **Thursdays each week**, with late submissions accepted at a **10% deduction per day**. Be sure to stay on track and complete your assignments on time to maximize your success in the course.

Recommended Practice Problems

Consistent practice is essential for mastering the material. In addition to homework, recommended practice problems from the textbook will be posted for each chapter. While these practice problems will not be graded, they are crucial for your success, as we will review them weekly during class.

To further reinforce your understanding, a **graded quiz** will be administered each week, based on the content of the practice problems. **Mandatory in-person attendance** is required for these sessions, providing valuable opportunities to address questions and strengthen your understanding of the material. Regular engagement and consistent practice are vital to your success in this course.

Assessments

Quizzes and Exams Policy

There will be **8 quizzes** conducted throughout the quarter, typically during class after reviewing practice problems.

Two midterm exams will be conducted during the course. Midterm Exam 1 is scheduled for **October 24, 2025**, and Midterm Exam 2 will take place on **November 21, 2025**. Please refer to the study guides below for preparation for both exams. All exams will be conducted in person, proctored, and subject to exam rules, which must be followed to receive credit

Exam 1: Molecular structure

- IUPAC Nomenclature: Review IUPAC naming conventions for organic compounds.
- Simple Organic Molecules: Explore the chemistry of simple organic molecules, focusing on their structural features and nomenclature.
- Unsaturated Hydrocarbons: Examine the nomenclature, structure, and reactivity of unsaturated hydrocarbons.
- Functional Groups: Analyze and assess the properties and reactions of alcohols, thiols, ethers, aldehydes, and ketones.
- Carboxylic Acids and Derivatives: Investigate the properties and chemistry of carboxylic acids, esters, amines, and amides.

Exam 2: Chemistry of Macromolecules and Metabolic Pathways

- Fatty Acids, Lipids, and Cell Membranes: Explore the chemistry, structure, and function of fatty acids, lipids, and their role in forming cell membranes.
- Amino Acids and Proteins: Study the chemistry of amino acids, their properties, and how they combine to form proteins.
- Nucleic Acids and Protein Synthesis: Examine the chemistry of nucleic acids and summarize the steps involved in the process of protein synthesis.
- Metabolic Pathways and Energy Production: Analyze various metabolic pathways and their connections to energy production within biological systems.

Final Exam

The final exam is comprehensive, with 30% focusing on the organic chemistry portion and 70% exclusively covering the biochemistry portion of the course. The exam will be conducted in person, proctored, and subject to exam rules, which must be followed to receive credit. The final exam is scheduled for **Dec 9, 7:00 am to 9:00 am**. Early or late exams will not be offered, and missing an exam will result in a score of zero.

If you require accommodations, you must be approved by DSPS, (<https://www.deanza.edu/dsps/>). For extended-time or reduced-distraction accommodations, you must schedule your exam with the DSPS office to coincide with the normal class time. The final exam will include multiple-choice and short-answer questions, with opportunities for partial credit. To receive credit for any answer, you must clearly show your work and thought process. Plan ahead to meet these requirements and ensure your success on the final exam

Phones, smart watches, and other computers are not permitted in any circumstances. If I see you on your phone or other electronic device, you will receive a zero on the exam. The first two exams will be administered during the scheduled lecture time. The final exam will be administered during the designated final exam time on **Friday, Dec 9, 7:00 am to 9:00 am in DA 1102**.

Laboratory

Laboratory Policies

Chemistry is an experimental science, and the laboratory is a vital component of this course. De Anza College does not offer make-up labs, and you must attend the laboratory section for which you are registered to complete the required labs.

- **Attendance:** Everyone is allowed one excused absence without a grade penalty. A second absence, regardless of the reason for the first, will result in a zero for the lab and all associated assignments. After a third lab absence, you will automatically receive an “F” in the course.
- **Timeliness:** Arrive on time for every lab. The beginning of the lab period is reserved for a required lab lecture that includes essential safety information. If you miss the lab lecture, you will not be permitted to complete that lab and will receive a zero for all related assignments.
- **Clean-Up and Check-Out:** You must clean your work area before leaving. Failure to do so will result in a point deduction for that lab. Before leaving, you must check out with me and have your data in your lab notebook signed. Credit for the lab will not be given without my signature.
- **Lab Assignments:** Assignments include pre-labs, conducting experiments with accurate data collection, and analyzing data thoughtfully.

Adhering to these policies is crucial for both your success and the safe functioning of the lab.

Lab Safety

Safety Contract: All students must review, print, sign, and scan the safety contract into a PDF format before participating in any lab activities. The contract is available on Canvas and must be uploaded to Canvas by the end of the first lab day. Retain the original signed copy for your reference throughout the course. This requirement is mandatory, and students who fail to submit the contract will be excluded from all lab activities until compliance is met. Safety is a top priority, and adherence to these rules is non-negotiable.

Safety Video: You are required to watch the designated safety video playlist, which will be available on Canvas, at the beginning of each quarter, regardless of whether they have viewed the videos in a previous class. I will show the videos during the first lab session as part of the safety orientation and prior to lab check-in. Watching the safety videos is mandatory, and failure to comply will result in exclusion from lab activities until this requirement is fulfilled

Safety Quiz: You must complete and pass the safety quiz, which will be available on Canvas, with a **100% score** prior to participating in any wet lab activities. This is a mandatory requirement to ensure lab safety.

Lab Handouts and Assignments

All required lab handouts are available on Canvas. You are required to **print and bring these handouts** to the lab for use. These handouts provide detailed instructions and essential information for each lab experiment. The nature of each assignment and the points available will vary based on the specific lab activity. Failure to bring the required handouts may impact your ability to successfully complete lab activities.

Pre-lab Assignments

Pre-lab assignments are designed to prepare you for each lab session and will vary by experiment. These assignments typically include assigned reading, safety preparation, and an introduction to the experiment. All required lab handouts for this quarter are available on Canvas. To complete the pre-lab assignments, use the background notes provided in the handouts and the assigned lecture textbook to answer the pre-lab questions thoroughly. Each completed pre-lab assignment is worth **5 points**, so be sure to put in the necessary effort to earn full credit and to set yourself up for success in the lab.

Post-lab Assignments Lab reports are a critical component of your lab work, designed to help you analyze and communicate the results of each experiment. Each lab report is worth 20 points, so it is important to put in the necessary effort to produce high-quality work.

When completing your lab reports, ensure that you carefully review the handouts provided for each experiment and answer every question included in the report. Do not leave any question unanswered.

All responses must be written in complete sentences and should clearly address the subject matter. Avoid vague or incomplete answers; instead, provide detailed, thoughtful, and accurate explanations. Your lab report should reflect your understanding of the experiment, including its objectives, methodology, results, and conclusions. Thorough and well-written lab reports are essential for earning full credit and demonstrating your mastery of the material.

Lab Preparation and Submission Guidelines

- **Preparation:** You are expected to arrive at the lab fully prepared to complete each experiment efficiently and with minimal delays.
- **Submission:** lab assignments must be submitted on Canvas as PDF file uploads and are generally due as specified on the **Canvas Calendar**.
- **Grading:** Refer to the **Canvas submission rubric** to understand how your lab assignments will be evaluated before submitting your work.

Class Schedule

Course Content and Schedule: Chemistry 30B will cover material from *Chapters 11–18 of An Introduction to General, Organic, and Biological Chemistry, 13th edition by Karen Timberlake*. Throughout the quarter, we will also review topics from Chemistry 30A to reinforce foundational knowledge. Detailed reading assignments for each topic will be posted on Canvas, and students are expected to stay up to date with the readings.

Every effort will be made to adhere to the class schedule provided below. However, if we fall significantly behind, the content of the exams will be adjusted to align with the material covered in class. Please note that exam dates will remain fixed unless extraordinary circumstances require a change. Staying current with the schedule, readings, and lectures is critical for success in this course. Regular updates and any necessary adjustments will be communicated through Canvas.

Lecture Schedule

Week	Asynchronous Topics	In-person Lecture
1	Introduction to Organic Chemistry: Hydrocarbons (<i>2nd. half</i>)	Lecture (<i>1st. half</i>) Introductions Activities and Quiz
2	Alcohols, Thiols, Ethers Aldehydes, and Ketones (<i>2nd. half</i>)	Lecture (<i>1st. half</i>) Activities and Quiz
3	Carbohydrates (<i>2nd. half</i>)	Lecture (<i>1st. half</i>) Activities and Quiz
4	Carboxylic Acids, Esters, Amines, and Amides (<i>2nd. half</i>)	Lecture (<i>1st. half</i>) Activities and Quiz
5	Worksheet 1- Review	EXAM 1 (Oct 24) 8:30 am – 9:30 am in DA 1102
6	Lipids (<i>2nd. half</i>)	Lecture (<i>1st. half</i>) Activities and Quiz
7	Amino Acids, Proteins, and Enzymes (<i>2nd. half</i>)	Lecture (<i>1st. half</i>) Activities and Quiz
8	Nucleic Acids and Protein Synthesis (<i>2nd. half</i>)	Lecture (<i>1st. half</i>) Activities and Quiz
9	Metabolism, Glycolysis (Asynch. only)	EXAM 2 (Nov 21) 8:30 am – 9:30 am in DA 1102
10	Thanksgiving Holiday	
11	TCA Cycle, Oxidative Phosphorylation (<i>2nd. Half</i>)	Lecture (<i>1st. half</i>) Activities and Quiz
12	Final Exam; Comprehensive: Dec 9, 7:00 am to 9:00 am in DA 1102	

Laboratory Schedule

Week of	Week	Mon	Tu	Wed	Th	FRIDAY
09/21/2025	1					Check-in
09/28/2025	2					Organic Compounds
10/05/2025	3					Polymer-Nylon 6-10
10/12/2025	4					Polarimetry & Fisher Projection
10/19/2025	5					Carbohydrate and Testing
10/26/2025	6					Carbohydrate Modeling
11/02/2025	7					Synthesis of Aspirin
11/09/2025	8		Veterans Day			Analysis & % yield
11/16/2025	9					Protein Reaction and Tests
11/23/2025	10					Thanksgiving – No Class
11/30/2025	11					Check-out and Lab Final
12/07/2025	12					No Lab

Holidays: Campus Closed

Grading Policies and Schemes

To succeed in this course, you will need to exhibit *consistent and sustained effort* throughout the quarter. This will be demonstrated through in-class participation, laboratory preparation and data analysis, and examinations. Assignment types are assigned a weight; not all points are created equally!

Lecture	70.6 % of total grade
8 Canvas Homework's (160 pts.) - online via canvas	23.5 %
2 Exam (200 pts.) – in-person	29.4 %
2 Worksheets (40 pts.) – upload to canvas	5.9 %
8 Home-take Quizzes (80 pts.) – online canvas quizzes	11.8 %
Lab	29.4 % of total grade
8 Pre-labs (40 pts.) – upload to canvas	5.9 %
8 Lab report (160 pts.) – upload to canvas	23.5 %

Note that there will be in-class bonus quizzes that account upto 2% of your grade total. These quizzes are mainly based on the day's in-person lecture.

Final Percentage	Grade
> 100	A+
> 90	A
88 – 89.9	A-
85 – 87.9	B+
80 – 84.9	B
78 – 79.9	B-
75 – 77.9	C+
68 – 74.9	C
63 – 67.9	C-
55 – 62.9	D
<55	F

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.

Office Hours:

T 12:00 PM - 1:00 PM

Zoom