

Chemistry 30A Syllabus

Laney College

Fall 2022

Welcome to Chemistry 30A at Laney College!

Chemistry 30A is an introductory chemistry class, and it is suitable for anyone who has never taken any chemistry classes before. If you have had high school chemistry but didn't understand it very well, taking Chemistry 30A can fill in the gaps. This class is usually required for nursing school. It is also an excellent preparatory class for Chemistry 1A. I'm glad you've chosen to take this class! Following is information you need to know about the class.

Course Name: Introductory General Chemistry

Course Number(s) / Code(s): Chemistry 30A / Class code 41113 (lecture), 41114 or 43645 (lab)

Class Meeting Days and Times:

Lecture TTh 1:00-2:15 pm room A 239

Lab TTh 2:30-3:45 pm room A237 or A236

Prerequisite: Math 201 or 210D or 204B (Basic Algebra)

Instructor: Cheli (Michelle) Fossum (lecture/lab) and Phillip Tou (lab)

Office Location: A 236 A

Office Phone: (510) 464-3272

Office Hours: Mondays 5:00 – 6:00 pm

Tuesdays 12:15 - 1:00 pm and 5:15 – 6:00 pm

Wednesdays 12:30 – 1:30 pm on Zoom (link given in Canvas)

Thursdays 12:15 - 1:00 pm and 5:15 – 6:00 pm

If you have any questions on the lecture or lab material, come to my office hours and I will help you!

Any changes to the above office hours will be announced in class and posted on my website (see below for website url).

E-mail Address: mfossum@peralta.edu or use Canvas messages. (Please include "Chem 30A" in the subject line of any email you send to me.)

Class Website: <http://www.laney.edu/wp/cheli-fossum/chem-30a/>

Check the website for handouts you can print.

Required Textbooks:

- Text: Tro, Introductory Chemistry Essentials, 6th Edition. ISBN 978-0134291802 [OR ISBN 978-0134302386 - This version of the book has two additional chapters that we will not use.)
- Lab manual: Chem 50/Chem 30A Lab Manual, Laney IMC. (I will print the individual experiments for you each week.) <https://laney.edu/cheli-fossum/chem-30a/chem-30a-laboratory/>

Also Required: a scientific calculator that can handle logarithms and scientific notation. No programmable calculators or graphing calculators are allowed on tests or quizzes.

Recommended:

- Solutions Manual and Study Guide for the textbook

Attendance Policy: According to Laney College policy, students are allowed a total of two weeks worth of absences. Therefore, since this class meets two times per week, you will be allowed a total of four absences. If you are absent from class five or more times, you could be dropped from the class.

Course Description: Chemistry 30A introduces quantitative problem solving skills and many of the fundamental principles of chemistry. No previous chemistry is required or assumed, but algebra is a prerequisite (one year of high school algebra or a semester of college algebra), because we will be using it extensively in this class. Chem 30A is a prerequisite for Chem 30B. Chem 30A is recommended preparation for Chem 1A.

The topics we will be covering are: measurements, matter, atoms, the periodic table, electron structure of atoms, ionic compounds, molecular compounds, chemical reactions, stoichiometry, energy, gases, liquids and solids, solutions, acids and bases, and nuclear chemistry.

What I want you to get out of this course: a solid background in the basics of chemistry (so that you're well prepared for future chemistry and biology classes), and chemical problem solving skills. Knowing how to solve the kinds of problems that we will work on in this class is a valuable skill that can be transferred to other situations and areas of life.

Learning Outcomes

At the end of this course, students will be able to:

1. Use dimensional analysis to solve quantitative problems and evaluate the results of calculations to make sure they are physically reasonable.
2. Clearly explain qualitative chemical concepts and trends at the molecular level.
3. Perform laboratory techniques correctly using appropriate safety procedures.
4. Calculate experimental values from laboratory data and interpret the results.

Grading Policy & Method of Evaluation:

There will be ten 20-point quizzes (one of which will be dropped), three exams worth 100 points each, and a final exam that is worth 200 points (**none** of the exams will be dropped). The laboratory assignments are usually worth 10 points each. (The lowest two lab scores will be dropped.) Homework will also be collected and it will be worth 5 points per week (the lowest homework assignment will also be dropped). The **approximate** total number of points assigned to each of these categories is as follows:

| | |
|-------------------------|----------------------------|
| Quizzes (9 × 20 points) | 180 points |
| Exams (3 × 100 points) | 300 points |
| Final Exam | 200 points |
| Laboratory Reports | 200 points (approximately) |
| Homework | 70 points (approximately) |
| Project (if assigned) | 20-30 points |

Grades will be assigned as follows. You can calculate your grade at any time by dividing the total number of points you have earned by the total number of points possible so far, and then multiplying by 100 to get a percentage.

| | |
|------------|---|
| 89-100 % | A |
| 79-88.9 % | B |
| 68-78.9 % | C |
| 57-67.9 % | D |
| under 57 % | F |

Lecture Schedule: For a detailed schedule, see the attached pages. We will be covering the following chapters, in order:

Chapter 1 – The Chemical World
Chapter 2 – Measurement and Problem Solving
Chapter 3 – Matter and Energy
Chapter 4 – Atoms and Elements
Chapter 5 – Molecules and Compounds
Chapter 6 – Chemical Composition
Chapter 7 – Chemical Reactions
Chapter 16 – Oxidation and Reduction
Chapter 8 – Quantities in Chemical Reactions
Chapter 9 – Electrons in Atoms and the Periodic Table
Chapter 10 – Chemical Bonding
Chapter 11 – Gases
Chapter 12 – Liquids, Solids, and Intermolecular Forces
Chapter 13 – Solutions
Chapter 14 – Acids and Bases
Chapter 17 – Radioactivity and Nuclear Chemistry

Other policies and information:

- There will ordinarily be no make-ups possible for exams and quizzes. If you miss an exam, it will ordinarily count as a zero. If an emergency comes up, you must notify me **before the exam** by calling me at either of the above phone numbers (leave a message). For an excused absence, you may be assigned a score calculated from your other exam scores. In some cases, a make-up exam is possible, provided it is taken before the exams are returned to the other students. In these cases, the score on the make-up exam cannot be used to raise your grade.
- If you miss class or come in late, it is your responsibility to find out from someone what you missed, including assignments and due dates. I suggest exchanging phone numbers with a few people in class so that you can get this information if you need it. You are responsible for knowing when tests and due dates are. Being "misinformed by another student" is not an adequate excuse for missing a test.

Exams: There will be three exams, worth 100 points each. The exam dates will be: September 22, October 20 and December 1 (Thursdays). The final exam will be on Tuesday, December 13. No exam scores will be dropped.

Quizzes: There will be a quiz given **every Thursday** (unless there is an exam). Quizzes will be worth 20 points each. They might also include questions on the lab. No make-up quizzes will be given, but your lowest quiz score will be dropped.

The quizzes will always cover the previous week's material, so you will always have at least one week to absorb the material before you are quizzed or tested on it.

Laboratory: You are expected to read the lab and write a brief outline of the experiment before coming to lab. This outline is due at the beginning of lecture for the experiment that we will do that day, and it is worth 2 points. Labs will ordinarily be worth 12 points per lab day (10 points for the report sheet and 2 points for the outline). No make-up labs will be given. Your lowest two labs will be dropped: the equivalent of two lab days. Therefore, you may miss two lab periods without penalty. Any attempt to turn in a lab report for a lab that you did not do will be considered cheating.

Homework: Assignments will be collected once a week, and will be worth 5 points each. Your lowest homework score will be dropped. Detailed solutions to the problems are in the solutions manual. However, in order to succeed in this class, you must be able to do these problems on a test, without the help of the solutions manual. In order to learn how to do the problems, you need to struggle with them for a while. Don't turn to the solutions manual too soon. Also, sometimes the solutions manual contains mistakes. Don't go against your better judgment and write down a wrong answer just because it's in the solutions manual.

** **When you turn in your homework**, write on the top of the first page the number of problems that were honestly attempted over the number of problems assigned, and circle it. Alternatively, you may write "all" or "all - 1" indicating how many problems you did. (If you are dishonest here, no credit for the assignment.) Since all of the answers are available, homework will be graded mainly on **completeness**. Of course, you must show your work, and also make sure to write the answers in your own words. (It's obvious when people copy the answers from the solutions manuals.) **You are responsible for checking your answers to the homework problems.** (You may either buy the solutions manual or check it out from the reserve desk at the library.)

No Extra Credit: There will be no extra credit assignments in this class, no make-up tests, and no retaking tests. (Why not? Because this is college!) It is therefore very important that you learn the material **before** being tested on it.

Late labs or other assignments:

Labs are due on Tuesdays. Deductions for late assignments will be as follows:

If turned in on the Thursday after the due date: - 10%

If turned in one week late - 25%

If turned in two Thursdays after the due date: - 35%

If turned in two weeks late - 50%

Assignments will not be accepted after they are more than 2 weeks late.

Helpful tips:

- Make sure to refer to the lecture and lab schedule regularly to see what's coming up and when assignments are due.
- Start working on things (lab reports, homework, studying for the tests) EARLY, to eliminate last-minute scrambling and stress. (Things usually take longer than you think.)
- Studies have shown that when people take notes by hand, they retain and understand more than those who take notes by typing into a computer.

Other policies:

- Please be considerate and **make sure that your phone is turned off** during lecture and lab. We will all need to concentrate in this class and ringing phones are incredibly distracting.
- Lecture time is meant for learning and engaging with the material. Please pay attention, take notes, ask questions, answer questions, and work on solving the example problems during lecture. **Please do not use lecture time for texting, going online, doing your homework, working on lab reports, or looking at/copying other students' work.**
- Points will be deducted from any work that is turned in late.
- One of the objectives of this course is to give you practice in various lab techniques. If you miss lab often, you won't get this essential practice. Therefore, if you miss more than 4 labs, you cannot pass this course, no matter how many other points you have.
- No phones, smart phones, iPads, smart watches, or iPods are allowed during tests and quizzes. Any attempt to use any electronic devices during a test or quiz will be considered cheating. (Non-programmable calculators are permitted.)
- It is fine to discuss your homework and lab work with each other and help each other. It is not OK to copy sentences or paragraphs from other students or to allow another student to copy from you. **Please do not allow other students to "look at" your lab reports, prelabs, or homework assignments. Usually this means that they want to copy your work!** Always put your explanations and lab reports in your own words. It is also not acceptable to collaborate on tests and quizzes, of course. Any instances of cheating, copying, or plagiarism on any assignments or tests will result in a zero on the assignment, test or quiz. If you are caught cheating a second time, you will be referred to the dean's office for disciplinary action. If I see you using your phone, looking at hidden notes, looking at someone else's paper, or talking during a test, I will

assume you are cheating, so make sure you keep your eyes on your own paper. If you have a question or if you need something during a test or quiz, raise your hand, do not ask your neighbor. Cheating is unfair to everyone involved: the teacher, the cheater, and especially the honest students in the class.

- At the end of the semester, I will give you the grade you earn. If you "need" a B, you must do B work during the course. I will also not give you a lower grade than you earned. If you complete the class, I will not give you an incomplete. It's fine to ask for clarification on grades, but do not argue with me about your grade.

Advice: KEEP UP WITH THE WORK! Most people find chemistry difficult. There will be a lot of homework, because it takes a lot of practice to really learn the material. (I don't think it's possible to learn chemistry without a lot of practice.) In order to understand the material, you need to be actively involved in the learning process. This means trying to do problems on your own, doing the examples in the book, being focused in lecture and lab, and asking for help when you need it.

A final note: Many of these policies might seem a little harsh. The purpose of the policies is to guard against students being dishonest, manipulative, or unreasonable, which does happen sometimes. Basically, I want you to approach this class honestly and to take responsibility for yourself.

I wish to make this course as accessible as possible to students with disabilities that may affect any aspect of course assignments or participation. I encourage you to communicate with me by the second week of the course regarding any accommodations that will improve your experience in (or access to) this course. You can also contact the Disability Services and Programs for Students (DSPS) at 510-464-3428 for assistance. (If you have an accommodations letter from DSPS, please provide me with a copy sometime in the second week of classes.)

Laney College does not discriminate on the basis of age, race, religion, color, gender identity, gender expression, sexual orientation, ancestry, citizenship, national origin, military or veteran status, disability, marital status, pregnancy, medical condition, and immigration status.

Chem 30A Lecture and Lab Schedule – Fall 2022

Note: this is my best estimate and is subject to change. Quiz and exam dates are firm.

| Tuesday | Thursday |
|---|---|
| Aug 23 Lecture: Ch. 1 Lab: Check in, Safety worksheet (due today) | Aug 25 Lecture: Ch. 2 Lab: Volume Measurement (handout) Prelab outline for Volume Measurement lab due |
| Aug 30 Lecture: Ch. 2 Lab: Expt. 1 Prelab outline for Expt. 1 due Volume Measurement Lab due | Sept 1 Lecture: Ch. 2, 3 Lab: Expt. 2 Prelab outline for Expt. 2 due HW #1 due Quiz 1 |
| Sept 6 Lecture: Ch. 3 Lab: Expt. 3 Prelab outline for Expt. 3 due Experiments 1 and 2 due | Sept 8 Lecture: Ch. 4 Lab: Expt. 7 Prelab outline for Expt. 7 due HW #2 due Quiz 2 |
| Sept 13 Lecture: Chapter 4, 5 Lab: Expt. 4 Prelab outline for Expt. 4 due Expt. 3 and 7 due | Sept 15 Lecture: Ch. 5 Lab: Continue Expt. 4 HW #3 due Quiz 3 |
| Sept 20 Lecture: Ch. 5, 6 Lab: Review for exam Expt. 4 due | Sept 22 Exam 1 HW #4 due |
| Sept 27 Lecture: Ch. 6, 7 Lab: Naming worksheet (no prelab outline due) | Sept 29 Lecture: Ch. 7 Lab: Expt. 8 Prelab outline for Expt. 8 due HW #5 due Quiz 4 |
| Oct 4 Lecture: Ch. 7, Ch. 16 Lab: Expt. 11 Prelab outline for Expt. 11 due Naming worksheet and Expt. 8 due | Oct 6 Lecture: Ch. 8 Lab: Expt. 10 Prelab outline for Expt. 10 due HW #6 due Quiz 5 |
| Oct 11 Lecture: Ch. 8 Lab: Expt. 9 Prelab outline for Expt. 9 due Expt. 11 and 10 due | Oct 13 Lecture: Ch. 9 Lab: Expt. 13 Prelab outline for Expt. 13 due HW #7 due Quiz 6 |

| Tuesday | Thursday |
|--|---|
| Oct 18 Lecture: Ch. 9, 10 Lab: Review for Exam 2 Expt. 9 and 13 due | Oct 20 Exam 2 HW # 8 due |
| Oct 25 Lecture: Ch. 10 Lab: Expt. 15 Prelab outline for Expt. 15 due | Oct 27 Lecture: Ch. 10, 11 Lab: Expt. 14 Prelab outline for Expt. 14 due HW #9 due Quiz 7 |
| Nov 1 Lecture: Ch. 11 Lab: Worksheet: Lewis structures and geometries (no prelab outline) Expt. 14 and 15 due | Nov 3 Lecture: Ch. 11, 12 Lab: Molar Mass of Unknown Liquid (on website) Prelab outline for MM of Unknown Liquid expt due HW #10 due Quiz 8 |
| Nov 8 Lecture: Ch. 12 Lab: Expt. 21 Prelab outline for Expt. 21 due Geometry WS and MM of unknown liquid experiments due | Nov 10 Lecture: Ch. 13 Lab: Expt. 22 Prelab outline for Expt. 22 due HW #11 due Quiz 9 |
| Nov 15 Lecture: Ch. 13 Lab: Expt. 25 Prelab outline for Expt. 25 due Expt 21 and 22 due | Nov 17 Lecture: Ch. 14 Lab: Expt. 25 HW #12 due Quiz 10 |
| Nov 22 Lecture: Ch. 14 Lab: Expt. 24 Prelab outline for Expt. 24 due Expt. 25 due HW #13 due | Nov 24 Holiday |
| Nov 29 Lecture: Ch. 16, 17 Lab: Review Expt 25 due | Dec 1 Exam 3 HW #14 due |
| Dec 6 Lecture: Finish up lecture material Lab: Review for Final Exam | Dec 8 Lecture: Review for final exam Lab: Review for final exam HW #15 due |
| Dec 13 Final Exam | Dec 15 No class |