

San José State University
Department of Chemistry
Chem 55, Quantitative Analysis, Section 02, Fall, 2020

Course and Contact Information

Instructor:	Prof. Madalyn Radlauer
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Office Hours:	Wed. 10:00 am – 11:00 am Fri. 10:00 am – 11:00 am Or by request
Class Days/Time:	Fri. 1:00 pm – 2:40 pm
Classroom:	None; we will meet via Zoom
Prerequisite:	CHEM 1B (with a grade of "C" or better; "C-" not accepted)

Course Website

Course materials such as the syllabus, handouts, notes, assignment instructions, etc. can be found on [Canvas](https://sjsu.instructure.com/) (<https://sjsu.instructure.com/>). You are responsible for regularly checking with the messaging system in Canvas to learn of any updates.

Course Description (from the [University Catalog](http://info.sjsu.edu/web-dbgen/splash/catalog.html): <http://info.sjsu.edu/web-dbgen/splash/catalog.html>)

Introduction to theories and techniques of chemical analysis.

Course Format

Technology Intensive, Hybrid, and Online Courses

This semester, due to the COVID-19 pandemic, this course will be completely online. Both asynchronous and synchronous instruction will take place, so you will be required to attend class via Zoom as well as work through course modules on [Canvas](https://sjsu.instructure.com/) (<https://sjsu.instructure.com/>). Thus you will need a computer with reliable internet access. You will need to use your SJSU account to access class meetings as only authenticated users will have access. Because there will be a considerable amount of group work, it is required that you use a camera and microphone for class meetings. Zoom virtual backgrounds are allowed as long as they are not distracting. If there is any reason you do not feel comfortable sharing video, please discuss with me at your earliest convenience and we will figure something out. If you have unmet technology needs, please see the [SJSU Work Anywhere](https://www.sjsu.edu/workanywhere/) website (<https://www.sjsu.edu/workanywhere/>) for assistance.

Course Goals and Learning Objectives

The goal of this course is to provide an introduction to analytical chemistry including, but not limited to, statistical methods, dimensional analysis, concentrations, buffers and equilibria, and instrumentation.

Program Learning Outcome (PLO)

Upon successful completion of this program, students will be able to:

PLO 3: Demonstrate understanding of core concepts, methods and limits of scientific investigation to effectively solve problems in analytical chemistry.

Course Learning Outcomes (CLO)

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

CLO 1: Analyze numerical problems relevant to chemical reactions, experiments, and tests and apply quantitative reasoning to accurately solve them with correct significant figures and units.

CLO 2: Use basic statistical methods to interpret analytical data.

CLO 3: Recognize and convert between various units in either equation or narrative form.

CLO 4: Describe analytical instrumentation, determine if the measurement from the instrument is an absolute or relative value, and understand what calibration or standardization is required for effective data analysis.

CLO 5: Give examples of analytical techniques that would help solve various scientific questions.

CLO 6: Draw n 2

Course Requirements and Assignments

Graded work will include pre-class questions, in-class worksheets, post-class quizzes, online homework, two “take-home” exams, and one comprehensive final exam, which all contribute to the course learning outcomes. Dates for the exams are in the Course Schedule below. All relevant dates are also posted to Canvas. Exams and assignments in the course will be weighted as follows:

Assignments

Points

Pre-class Questions

Course Modules

The course is organized into modules on Canvas. We will work our way through about 1 module per week. These modules will lay out the required video(s) and recommended reading before each class period and there will be pre-class questions for you to complete prior to class that will help me organize class time to best serve learning. Class will include some lecture, some problem-solving as a class, and some group work. Each class period we will tackle the worksheet that is in the module. There is a brief quiz in each module for you to take after class. There will also be one online homework assignment for each module. The two take-home midterm exams will cover large sections of the course and are not tied to a single module. The final exam is cumulative.

Pre-class Questions

The pre-class questions will be posted to the appropriate module and full credit will be awarded for on time completion of the assignment. These will be due by 1 pm on Thursday (24 h before class). The reason for this deadline is that each week there will be a question asking for the “muddiest point”, i.e. the part of the topic being covered that is least clear to you. I will read through everyone’s answers and plan my in-class lecture to cover the points that were most difficult for the most people. If your muddiest point is not covered in lecture, I will post it to the module’s discussion feed with some comments to start the discussion of that topic so that you will still have access to more instruction on it.

In-class Worksheets

Worksheets will be posted to the module before class. You will need to access the worksheet for class. You do not have to print it out, but I will try to format it so that you can do your work directly on the worksheet if you choose to print it. These worksheets will be graded for participation. This will be measured in two ways. First, I will drop into your breakout rooms to check in and offer assistance. I expect you to use this time to engage with

Quantitative Analysis, Chem 55, Fall 2020, Course Schedule

The tentative course calendar below includes weekly course content, midterm exam dates, and the date for the final exam. Dates may be subject to change, but prior to this, fair notice will be given during class and through Canvas. The recommended reading from our primary textbook, Quantitative Chemical Analysis, 10th edition, will be listed on the Canvas site along with each module.

Note: In your general chemistry