

San José State University
Department of Chemistry
CHEM 190, Introduction to Research
Section 1, Spring 2022

Course and Contact Information

Instructor:	Prof. Lionel Cheruzel
Office Location:	DH 285
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Email:	lionel.cheruzel@sjsu.edu
Office Hours:	T-Th 1:30-2:30 pm or by appointment
Weekly Meeting Days/Time:	Group Meetings: Friday 2:00 – 4:00 pm Laboratory Hours: TBD (up to 4 hours per week)
Classroom:	TBD

Technology Intensive

This course requires access to canvas for course information and assignments as well as a number of online resources. Please be prepared to bring a computer to class.

MYSJSU Messaging

You are responsible for regularly checking with the messaging system through [MySJSU](http://my.sjsu.edu) at <http://my.sjsu.edu>, Canvas Learning Management System at <http://sjsu.instructure.com>, or other communication system as indicated by the instructor to learn of any updates.

Course Description

Supplemental course for students taking lower division chemistry lecture courses taken simultaneously with lower division chemistry lecture courses. This course focuses on fundamental principles and techniques geared toward preparing students for independent experimental work in a faculty hosted research laboratory.

Course Goals

This course is designed to cultivate proper laboratory practices and record keeping, introduce proper use of common scientific instrumentation, and familiarize students with resources available to expand their educational experience with independent research studies.

Course Learning Outcomes (CLO)

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

1. Demonstrate safe laboratory practices
2. Answer questions regarding chemical safety
3. Understand and properly use instruments for making measurements in the laboratory
4. Perform basic calculations common in research laboratories
5. Navigate scientific protocols
6. Be proficient with a number of basic laboratory instrumentation

Program Learning Objectives (PLOs)

The following PLOs for SJSU's BA/BS chemistry program have been established by faculty members of the SJSU Chemistry Department and apply to CHEM 190 students. For a full list of program learning outcomes visit - http://www.sjsu.edu/chemistry/Academic_Programs/undergraduate_program_learning_objectives.html

PLO #1 - Demonstrate understanding of core concepts and to effectively solve problems in inorganic chemistry.

PLO #2 - Demonstrate understanding of core concepts and to effectively solve problems in organic chemistry.

PLO #3 - Demonstrate understanding of core concepts and to effectively solve problems in analytical chemistry.

PLO #4 - Demonstrate understanding of core concepts and to effectively solve problems in physical chemistry.

PLO #6 - Answer questions regarding safe practices in the laboratory and chemical safety.

PLO #7 - Demonstrate safe laboratory skills (including proper handling of materials and chemical waste) for particular laboratory experiments.

Required Texts/Readings

Greensheet

You can access this greensheet on the Chemistry Department website (<http://www.sjsu.edu/chemistry/>) – look for your section in the “Greensheets” link. It will also be posted on the Canvas Learning Management System at <http://sjsu.instructure.com>.

Textbook

None

Other Readings

Readings will be assigned to match the in-class discussions and laboratory work goals. These readings will be posted on Canvas and will be the responsibility of the student to check regularly.

Course Requirements and Assignments (Required)

- Weekly assignments will usually be comprised of reading/videos, tutorials, practical activities and writing.
- Students are required to attend, participate, and complete all required training sessions and activities (typically hosted weekly).
- Students are required to complete all relevant tutorials and preparatory work prior to carrying out weekly laboratory work.
- Students are required to come prepared to discuss any readings assigned as well as perform all work in a safe, timely manner.
- As per Academic Senate Resolution as of Fall 2012: *“Success in this course is based on the expectation that students will spend, for each unit of credit, a minimum of forty-five hours over the length of the course (normally 3 hours per unit per week with 1 of the hours used for lecture) for instruction or preparation/studying or course related activities including but not limited to internships, labs, clinical practicals. Other course structures will have equivalent workload expectations as described in the syllabus.”*

◆ **To satisfy the requirement above for this half semester 1-unit class, students should spend a MINIMUM of 45 hours on this class for an average of six hours per week.**

CoS COVID-19 Safety

All students registered for a College of Science (CoS) class with an in-person component must view the [CoS COVID-19 Training](#) slides and the [SJSU Phased Adapt Plan](#) website and acknowledge reading them according to their instructor's directions. By working together to follow these county and SJSU safety practices, we can keep our college safer. Students who do not follow COVID-19 Safety practice(s) outlined in the training, the SJSU Phased Adapt Plan, or instructions from their instructors, TAs or CoS Safety Staff may be dismissed from CoS buildings, facilities or field sites. Please review this training as needed throughout the semester, as updates will be implemented as changes occur (and posted to the same links).

Grading Information

Students will be graded on the quality of their written assignments, the extent of their participation, and the thoughtfulness and effort put into their laboratory work.

Points will be allocated as such:

Laboratory-based Assignments	400 pts
Required Training Sessions/Activities	400 pts
Instructor Evaluation	100 pts
Final	100 pts

The following grading scale will be used:

97.0%+	A+	96.9 - 90.0%	A	89.9 - 87.0%	B+
86.9 - 80.0%	B	79.9 - 77.0%	C+	76.9 - 70.0%	C
69.9 - 67.0%	D+	66.9 - 60.0%	D	Below 60%	F

There is no extra credit or extra assignments for this course. This is final and there are no exceptions.

Additional University Policies

As a student at San Jose State University, you should review these University Policies which apply to ALL university courses.

<http://www.sjsu.edu/gup/syllabusinfo/#GeneralExpectations>

Topics covered include:

- General Expectations, Rights and Responsibilities of the Student
- Workload and Credit Hour Requirements
- Attendance and Participation
- Timely Feedback on Class Assignments
- Accommodations to Students' Religious Holidays
- Dropping and Adding
- Consent for Recording of Class and Public Sharing of Instructor Material
- Academic Integrity
- Campus Policy in Compliance with the American Disabilities Act
- Student Technology Resources
- SJSU Peer Connections
- SJSU Writing Center
- SJSU Counseling and Psychological Services

CHEM 190, Advanced Problem Solving for Chemistry, Section 1, Spring, 2022

Schedule is subject to change with fair notice through Canvas update.

Course Schedule

Week	Date	Weekly Topics	Meeting Topics
0	3/7		- Introductions & Ice Breakers (Course photo)
1	3/14-3/18	- Online Safety Review - Notebooks & Record Keeping	- Safety Exam - Training 1: MilliQ Water, Proper use of the system, Proper use of our dispensers - Training 2: Introduction to Micropipettors (anatomy, selection, setting, tips)
2	3/21 – 3/25	- Understanding the water at SJSU/washing/drying - Online Micropipettor quizzes	- Scientific Journal Articles: Understanding what you're reading - Joining the Scholarly Conversation
3	3/28 – 4/1	SPRING BREAK Course Individual Guided Protocol Choice Due by 04/08/21	
4	4/4 – 4/8	- Micropipettors Part 1 - Micropipettor Evaluations	- Training 1: Cleaning Cuvettes & Safety - Training 2: Using the Eppendorf Biospectrophotometer - Laboratory Notebooks Review
5	4/11 – 4/15	- Micropipettors Part 2 - Journal Club papers posted. Start reading, taking notes, writing questions, etc. - Online Trainings/Quizzes	- Laboratory Notebooks Review - Journal Club #1
6	4/18 – 4/22	- Micropipettors Part 3 and Part 4 (optional) - Journal Club papers posted. Start reading, taking notes, writing questions, etc. - Online Trainings/Quizzes	- Mastering Basic Calculations - Trainings: Understanding pH meters, Scales, Sterility & Respecting your reagents - Journal Club #2
7	4/25 – 4/29	- Preparation of Buffer 1 - Preparation of Buffer 2 - Online Trainings/Quizzes	- Data Collection & Management - Journal Club #3
8	5/2 – 5/6	- Finishing Core Trainings (if needed) - Start on your individual guided protocol	- Journal Club #4 and #5
9	5/9 – 5/13	- Finishing Core Trainings (if needed) - Start/Continue on your individual guided protocol	- Finding a Research Home - Reviewing/Finalize your Portfolio Page
Final Exam			Interviews & Stream Preference Submissions