

SUL ROSS STATE UNIVERSITY

Syllabus for Inorganic Chemistry I Laboratory

CHEM 2402: L01 (Fall 2023) _11592

Inorganic Chemistry I: Lab 01
Room: WSB 305
Time: Th. 3:30-6:00 pm
Date: Aug.28 to Dec.13

TA: Dr. Hong Young Chang
Office: WSB 219
Email: hong.young.chang@sulross.edu
Office Hours: TBD

Required Laboratory Manual: Inorganic Chemistry I: Laboratory Manual (Handout) will be provided.

Safety glasses are required for Inorganic Chemistry Laboratories, which can be purchased from the SRSU Bookstore. You will **NOT** be allowed to participate in Inorganic Chemistry laboratories without safety glasses!

Laboratory coats are recommended for Inorganic Chemistry laboratories, which can be purchased from the SRSU Bookstore.

Calculator: A scientific calculator is required for this course.

Cell phones **ARE NOT** permitted for use in exams and should be turned off during laboratory time.

Expectations:

- Read over the experiment before the lab
- Follow all safety procedures:
- Shorts, flip-flops, chewing gum and open-toed shoes are **NOT** allowed in the lab. If you come to class without appropriate clothing, you will be asked to leave. **NO EXCEPTIONS!**

Attendance:

Coming to lab is mandatory. Be on time and SIGN IN at the beginning of the lab period. Plan to spend the entire period in lab. The TA may deduct points for students who arrive late or leave early.

If you *miss* 3 labs or more you will receive an automatic *F*.

Assignments:

Lab Manual Assignments:

- Pre-Lab: Due at the beginning of the lab where the experiment will be performed
- Data Sheet: Due to the lab period after the lab is done

Written Assignments:

- *Pre-Lab Write-Up:* Due at the beginning of the lab the experiment is performed
- *Lab Report:* Due to the lab period after the lab is done
- Guidelines for writing lab reports are shown on the next page and are found in your General Chemistry II Laboratory Manual

Lab Grading:

- Each experiment is worth 30 points
- These points will come from:
 - o The pre-lab definitions (5)
 - o Attendance (5)
 - o The experiment work & time submission of data & result sheets/ written lab report (20)
 - o **Note:** Points will be deducted for not turning in lab reports and data/results sheets on time.
- Assignments must be completed and turned in on time
 - o Assignments must be legible
 - o Assignments and reports will be due the following week unless told otherwise
 - o 10% of the grade will be deducted for assignments not turned in at the beginning of lab. An additional 10% will be deducted for each day that the assignment is late

Outline for Written Pre-lab Reports

- **Aim:** Here you will state the goal of the experiment (in your own words).
- **Reagents:** You will make a list of all of the chemicals used in the experiment along with relevant data (grams, volume, molarity etc. that is indicated in your experiment).
- **Apparatus:** You will list all of the equipment that you will use.
- **Method:** This is where you will outline the steps in the experiment. The steps will be put in your own words.

Outline for Written Lab Reports (Use Microsoft Word or related program)

- **Aim:** Here you will state the goal of the experiment (in your own words).
- **Reagents:** You will make a list of all of the chemicals used in the experiment along with relevant data (grams, volume, molarity etc.). This is how much **YOU** used, not how much the manual asks for.
- **Apparatus:** You will list all of the equipment that you used.
- **Method:** This is where you will outline the steps in the experiment. Be sure to note any difference between what you did and what the manual said to do.
- **Data & Results:** Note the observations that you made during the experiment. What are your findings? (Percent yield, melting point, etc.)
- **Discussion:** Discuss your results and answer the questions that were asked in the **Data and Results** section of the experiment. Talk about the significance of your results. Were your results expected or unexpected? Why or why not?
- **Conclusion(s):** Summarize the key points and findings of the experiment. Was the experiment successful or unsuccessful?

Inorganic Chemistry I Lab Schedule and Brief Description

* This course calendar could be changed. Before one week, your professor will let you know the changes.

Date	Experiments	Report
Aug. 31	No Laboratory Experiment	
Sep. 7	Safety Video, Lab Tour, Equipment Checkout (Exp. 1)	
Sep. 14	Synthesis Hexaamine Co(III) Chloride (Exp. 2)	Only Pre-Lab
Sep. 21	Synthesis of trans-dichloro bis (ethylenediamine) cobalt (III) Chloride (Exp. 3)	Pre-Lab & Lab-Report for the former experiment
Sep. 28	Purification of Solids by Recrystallization (Exp. 4)	Pre-Lab & Lab-Report for the former experiment
Oct. 5	Infrared (IR) spectroscopy (Exp. 5)	Pre-Lab & Lab-Report for the former experiment
Oct. 12	Powder X-ray Diffractometer for solid samples (Exp. 6)	Pre-Lab & Lab-Report for the former experiment
Oct. 19	Simultaneous determination of chromium and manganese in a solution by visible spectroscopy (Exp. 7)	Pre-Lab & Lab-Report for the former experiment
Oct. 26	Determination of the extent of distortion for Octahedral Oxides (Exp. 8)	Pre-Lab & Lab-Report for the former experiment
Nov. 2	Lab Clean-Up	Lab-Report for the former experiment
Nov. 9	Final Exam on Blackboard	

Student Learning Outcomes (SLO) by SACSCOC:

A student graduating with a ***chemistry major*** is expected to demonstrate that (s)he is able to do the following:

1. Organic Chemistry—Students will be able to draw organic molecular structures and explain organic reactions, stereochemistry, structural analysis, and reactions in biological systems.
2. Inorganic Chemistry—The student will be able to demonstrate an understanding of coordination chemistry, valence theory, elementary actions, and advanced molecular theory.
3. Analytical Chemistry—The student will be able to demonstrate an understanding of the theory of analytical chemistry and conduct analytical analysis, including data analysis and calibration, equilibrium chemistry, gravimetric analysis, titrimetric analysis, spectroscopic analysis, and electrochemical analysis.
4. Physical Chemistry—The student will be able to demonstrate an understanding of the application and theory of physical chemistry, including topics such as atomic structure, electrochemistry, surface chemistry, solid-state chemistry, and thermodynamics.
5. Research—The student will collect and analyze published chemical literature and undertake a chemistry research project.

BSc in Chemistry Marketable Skills:

1. Students will become good at punctuality and time management.
2. Students will analyze &/or synthesize molecules and perform spectroscopic characterization and interpret their results scientifically.
3. Students will become proficient at writing scientific papers and to identify appropriate references for their papers.
4. Students will become proficient at orally presenting scientific topics including the use of visual aids.

SRSU Disability Services: ADA (Americans with Disabilities Act):

Sul Ross State University (SRSU) is committed to equal access in compliance with the Americans with Disabilities Act of 1973. It is SRSU policy to provide reasonable accommodations to students with documented disabilities. It is the student's responsibility to initiate a request each semester for each class. Students seeking accessibility/accommodations services must contact Mrs. Mary Schwartz Grisham, LPC, SRSU's Accessibility Services Director at 432-837-8203 or email mschwartz@sulross.edu. Our office is located on the first floor of Ferguson Hall, room 112, and our mailing address is P.O. Box C122, Sul Ross State University, Alpine, Texas, 79832.

Libraries:

The Bryan Wildenthal Memorial Library in Alpine offers FREE resources and services to the entire SRSU community. Access and borrow books, articles, and more by visiting the library's website, library.sulross.edu/. Off-campus access requires

logging in with your LoboID and password. Librarians are a tremendous resource for your coursework and can be reached in person, by email (srsulibrary@sulross.edu), or by phone (432-837-8123).

No matter where you are based, public libraries and many academic and special libraries welcome the general public into their spaces for study. SRSU TexShare Cardholders can access additional services and resources at various libraries across Texas. Learn more about the TexShare program by visiting library.sulross.edu/find-and-borrow/texshare/ or ask a librarian by emailing srsulibrary@sulross.edu.

New for Fall 2023: Mike Fernandez, SRSU Librarian, is based in Eagle Pass (Building D-129) to offer specialized library services to students, faculty, and staff. Utilize free services such as Interlibrary Loan (ILL) and Scant to get materials delivered to you at home or via email.

Academic Integrity:

Students in this class are expected to demonstrate scholarly behavior and academic honesty in the use of intellectual property. Students should submit work that is their own and avoid the temptation to engage in behaviors that violate academic integrity, such as turning in work as original that was used in whole or part for another course and/or professor; turning in another person's work as one's own; copying from professional works or internet sites without citation; collaborating on a course assignment, examination, or quiz when collaboration is forbidden. Students should also avoid using open AI sources ***unless permission is expressly given*** for an assignment or course. Violations of academic integrity can result in failing assignments, failing a class, and/or more serious university consequences. These behaviors also erode the value of college degrees and higher education

overall.

Counselling:

Sul Ross has partnered with TimelyCare where all SR students will have access to nine free counseling sessions. You can learn more about this 24/7/365 support by visiting [Timelycare/SRSU](https://www.timelycare.com/srsu). The SR Counseling and Accessibility Services office will continue to offer in-person counseling in Ferguson Hall room 112 (Alpine campus), and telehealth Zoom sessions for remote students and RGC students.

Classroom Climate of Respect:

Importantly, this class will foster free expression, critical investigation, and the open discussion of ideas. This means that all of us must help create and sustain an atmosphere of tolerance, civility, and respect for the viewpoints of others. Similarly, we must all learn how to probe, oppose and disagree without resorting to tactics of intimidation, harassment, or personal attack. No one is entitled to harass, belittle, or discriminate against another on the basis of race, religion, ethnicity, age, gender, national origin, or sexual preference. Still, we will not be silenced by the difficulty of fruitfully discussing politically sensitive issues.

Distance Education:

Students should correspond using Sul Ross email accounts and submit online assignments through Blackboard, which requires a secure login. Students enrolled in distance education courses at Sul Ross are expected to adhere to all policies

pertaining to academic honesty and appropriate student conduct, as described in the student handbook. Students in web-based courses must maintain appropriate equipment and software, according to the needs and requirements of the course, as outlined on the SRSU website. Directions for filing a student complaint are located in the student handbook.