

Stony Brook University
Department of Chemistry
CHE 133
General Chemistry Laboratory I
Summer 2026

Course Description: Designed to familiarize students with (1) some chemical and physical properties of substances, (2) techniques of quantitative chemistry, and (3) scientific methodology. Three hours of laboratory or related activity per session. CHE 133 and CHE 134 may not be taken for credit in addition to CHE 154. This course has been designated as a High Demand/Controlled Access (HD/CA) course. Students registering for HD/CA courses for the first time will have priority to do so. This course has an associated fee. Please see www.stonybrook.edu/coursefees for more information.

Pre- or Co-requisites: CHE 129 or 131

Credits: 1

In Lab Meeting Times: Tuesdays, Thursdays: 9:30 am – 12:30 pm

How do you find which section (L##) you are in? SOLAR (<https://it.stonybrook.edu/services/solar>) lists your section number in your CHE 133 enrollment.

Learning Objectives:

1. Demonstrate how to properly conduct a scientific experiment.
2. Demonstrate proficiency with some of the basic experimental techniques of chemistry.
3. Demonstrate the ability to make measurements precisely, to record and analyze data with error analysis.
4. Demonstrate the ability to assess the quality of data through a comparison with class data.
5. Demonstrate the ability to decide when and how to modify one's experimental method.
6. Demonstrate the ability to interpret the results of an experiment.
7. Demonstrate the ability to communicate experimental results through oral presentations.

Text and Materials: All of the laboratory documents and assignments will be posted on Brightspace. Other required materials, which can be purchased through online (Amazon) are safety goggles, which meet legal requirements for splash protection (**ANSI Z87.1**), and a laboratory notebook, duplicating and its pages numbered (National Brand Notebook 43649). You may also wish to wear protective gloves during some laboratory exercises; household dishwashing gloves are suitable for this purpose. For some exercises, you will be asked to bring in interesting samples for study.

Staff: Professor Susan Oatis (Chemistry 535) will oversee CHE 133 during Summer 2026. Teaching Assistants will hold office hours and help with grading. You are expected to treat all staff members respectfully.

Office hours will be posted on Brightspace (CHE 133.30, Announcements) early in the semester. If you need to meet at another time, please email the Professor/Teaching Assistants to schedule an appointment. Professor/Teaching Assistants will do their absolute best to respond to emails within 24 hours.

Student Responsibilities:

- Be prepared for the lab by completing all pre-lab assignments in advance.
- Complete all experiments and post-lab assignments on time.
- Ask questions when something is not clear to you.
- Work cooperatively with your classmates so that all may learn.
- Know and comply with course and safety policies, including any announcements made in class or on course websites.

Philosophy and Goals: A scientist's job is to formulate and answer questions. They start with a hypothesis they would like to test. They design experiments to gather data that either supports or disproves the hypothesis they are trying to test. When they perform an experiment in the lab, they not only gather data, but also determine whether their data is valid. Once they feel confident in their data, they need to interpret what the data means. Sometimes the data doesn't answer the question, so they go back to the drawing board and redesign their experiment. This cycle continues until the data disproves or supports the hypothesis. Once they have reached a conclusion, scientists communicate these results through publications and conference seminars.

The key is that the scientist doesn't know the answer beforehand. The scientist needs to rely on their assessment of the quality and validity of their data. You will find that the concepts illustrated in the laboratory exercises will often precede the lecture.

The purpose of this course is to allow you to develop skills that chemists use and practice the scientific method. Some of the exercises in this laboratory course will help you to develop general laboratory skills. These experiments will be presented with specific instructions. When you have obtained precise and accurate results, this will build your confidence in the reliability of your technical skills. Other laboratory exercises will be more open-ended and will require you to devise and carry out your own procedures for answering questions while working in small groups. By comparing your data with class data, you will be able to assess the quality of your data. Quality data is essential to be able to determine the relationship between the variables you are measuring. You will develop your communication skills through a poster presentation of your final project.

Class Meetings: Attendance is required. You must complete all experiments to receive a passing grade. A sign-in sheet, provided by your TA, will be available at the beginning of every lab period. Necessary lab materials will not be available at times outside the normal meeting times. No make-ups will be offered without proper documentation.

Grades: The final grade for this course will be based upon quizzes, laboratory results (precision and accuracy), your interpretation of your results, pre- and post-lab assignments, discussions, final project and poster presentation.

You will be required to wear your safety goggles in lab at all times. By adhering to this safety requirement you will receive points per lab period.

Safety (5 points each lab section) 25 points

You will need to prepare your laboratory notebook in advance of the lab period. This will follow the notebook format given below. All data and observations must be written directly into the lab notebook in **ink**. The carbon copies will need to be initialized by your TA when they are submitted at the end of the lab period for grading.

Notebook: (5 points each lab section) 25 points

Most of the laboratory experiments include a pre-lab assignment. This may be a reading assignment, watching a demonstration video or an internet search. At the beginning of lab, only within the first ten minutes of lab, you will take a pre-lab quiz. (No cell phones will be allowed during this time) If you are late for lab, you will only have the remaining time to complete the quiz. If you are more than 10 minutes late, you will receive a zero.

Pre-Lab Quizzes: (10 points each lab section) 50 points

Post-Lab Quizzes: (20 points each experiment) 80 points

Laboratory Experiments (100 points each) 400 points

IC Project 100 points

Poster Presentation 100 points

Online assignments 100 points

Total Points: 880 points

Course Info: General information about the course staff, assignments, syllabus, and policies is available on Brightspace. All documents related to the experiments/assignments will be posted in Course Documents (CHE133.30). Assignments completed outside of lab will be submitted to Assignments (CHE 133.Lxx, where xx is your lab section). It is accessed via it.stonybrook.edu/services/brightspace. If you used Brightspace during a previous semester, your login information (Username and Password) has not changed. If you have never used Stony Brook's Brightspace system, your username and password are the same as your Stony Brook gmail account.

For help or more information, see: it.stonybrook.edu/services/brightspace. For problems logging in, call Academic Technology Services: 631-632-9800.

Student Accessibility Support Center (SASC) Statement: If you have a physical, psychological, medical or learning disability that may impact your course work, please contact the Student Accessibility Support Center (SASC), SB Union, Suite 107 128, (631) 632-6748. They will determine with you what accommodations, if any, are necessary and appropriate. All information and documentation is confidential.

Students who require assistance during emergency evacuation are encouraged to discuss their needs with their professors and the staff at the Student Accessibility Support Center (SASC). For further information, please visit: <http://www.stonybrook.edu/ehs/fire/disabilities>

Academic Integrity Statement: Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. Representing another person's work as your own is always wrong. Faculty are required to report any suspected instances of academic dishonesty to the Academic Judiciary. Faculty in the Health Sciences Center (School of Health Technology & Management, Nursing, Social Welfare, Dental Medicine) and School of Medicine are required to follow their school-specific procedures. For more comprehensive information on academic integrity, including categories of academic dishonesty, please refer to the academic judiciary website at http://www.stonybrook.edu/commcms/academic_integrity/index.html

Critical Incident Management Statement: Stony Brook University expects students to respect the rights, privileges, and property of other people. Faculty are required to report to the Office of Student Conduct and Community Standards any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, or inhibits students' ability to learn.

Laboratory Notebook

You will be required to obtain a laboratory notebook that generates duplicates and has its pages numbered.

Before each experiment, you will be required to read the lab experiment, understand the concepts behind it and write out an abbreviated procedure. It is best to generate tables to enter your data within prior to starting the experiment. All of your data will be entered directly into your lab notebook in pen. All of your carbon copies will be collected at the end of each period.

The level of detail required is such that if another student or scientist could reproduce your results based upon the procedure and data entered in your lab notebook.

Notebook Format:

Experiment

CHE 133

Lab Section

TA:

Date

Name:

Partners:

Purpose: In one or two sentences describe the main objective of the laboratory experiment (what questions you will attempt to answer and how).

Procedure:

Each line (numbered) should describe one step.

Include any specific equipment required (may include a diagram)

This is to facilitate the execution of the lab without rereading an entire paragraph to find out where in the procedure you have left off.

Any modifications to the procedure executed during the experiment should be recorded.

Results:

Record any observations...evolution of heat, formation of a gas, precipitate, color change.

Tables should be generated in advance of the lab period (copy the tables in the handouts) to organize data as it is being recorded.

Discussion:

You will need to assess the quality of your data. If more than one trial was run, you will need to report an average value, average deviation and percent deviation.

If the true value is known either from the literature or the class average, you will need to report a percent deviation.

Table 1: Class Schedule

Date	Exercise	Points
Tues. 5/26	Read Syllabus, watch Safety video (online) Syllabus quiz, Safety quiz (online) Online assignment #1: Measurements, Accuracy and Precision Discussion #1: Water Quality	30 points Reading 10 points
Thurs. 5/28	Experiment #1: Dirty Water Lab Post-lab quiz	100 points 20 points
Tues. 6/2	Experiment #2: Acid-Base Lab Post-lab quiz	100 points 20 points
Thurs. 6/4	Online assignment #2: Excel Excel assignment	Reading 10 points
Tues. 6/9	Experiment #3: Ca/EDTA Lab Post-lab quiz	100 points 20 points
Thurs. 6/11	Online assignment #3: Sampling Online assignment #4: Defining your Project Discussion #2: Filtration	Reading Reading 10 points
Tues. 6/16	Experiment #4: Phosphate Post-lab quiz	100 points 20 points
Thurs. 6/18	Online assignment #5: Group Contract Form, Group Project Form Discussion #3: Plastics	10 points 10 points 10 points
Tues. 6/23	Experiment #5: Ion Chromatography	100 points
Thurs. 6/25	Online assignment #6: Poster Presentations Online assignment #7: Poster Drafts/ Critiquing	Reading 10 points
Thurs. 7/2	Poster Presentations Peer/Self Assessment	100 points 20 points