

CHEM 2601 Syllabus

Professional Skills for Chemists and Biochemists, 1 credit, letter grade only.

Fall 2026

Instructor Information

Instructor: Dr. Hui Zhu

Email: hui.zhu@chemistry.gatech.edu

Office hours: by appointment

Please include “CHEM 2601” in the subject line of all emails relating to this class

General Course Information

Description

Professional Skills for Chemists and Biochemists is an introduction to technical and communication skills utilized in upper-level chemistry and biochemistry courses with additional focus on resume building and professional development.

There are no pre-requisites for this course. We believe the course will be most beneficial when taken at the same time as CHEM 1212K and before CHEM 2216 (quantitative chemical analysis) and CHEM 2311 (organic chemistry I).

Course Learning Outcomes

Be aware of the skills that future employers are looking for and how to build a resume that will be attractive to employers/professional schools

Know how to find and apply for research opportunities including REU and internships.

Be able to find chemical and biochemical information in primary and secondary scientific literature.

Be able to utilize commonly employed software to produce publication-worthy molecular images.

Be able to utilize commonly employed spreadsheet and data analysis packages.

Understand and be able to apply the ethical standards that are expected for practicing chemists and biochemists. In particular, you should understand and be able to apply the ethical principles that relate to the performance of experiments and the recording/reporting of experimental results.

Know how to record the results of experiments in archival form, label laboratory samples, and store data so that it can be retrieved and used in the future.

Be able to present, in an effective and appealing fashion, scientific findings in the form of a poster.

Be aware of safety-related professional practices with emphasis on the identification of hazards in laboratory settings.

Required Course Materials

You do not need to purchase any materials for the course. However, you will have to pay for the printing of the poster that you prepare for one of the assignments. This can be done most economically using the GT library's poster printing service. All the software needed for the course (Excel, ChemDraw, and Endnote) can be freely installed on your own laptop computer under GT licenses, and you can freely access the databases SciFinder and Web of Science under GT licenses.

Grading Policy:

Your final grade will be assigned as a letter grade according to the following scale:

A	90.0 – 100%	(850.5—945 points)
B	80.0 – 89.9%	(756—850 points)
C	70.0 – 79.9%	(661.5—755 points)
D	60.0 – 69.9%	(567—661 points)
F	Less than 60.0%	(less than 567 points)

Graded component of the course	Points associated with the component
Attendance + participation	225 points (15 points per class period)
Resumes and recommenders	50 points
Internship, co-op, and REU assignment	50 points
Chemical literature assignment	70 points + 5 for installing EndNote before class
Excel assignment	70 points
ChemDraw assignment	50 points + 5 for installing ChemDraw before class
Poster abstract	45 points
Poster	150 points
Job Hazard Analysis (JHA)	75 points
Learning portfolio	150 points
TOTAL	945 points

Description of Graded Components

Attendance and Participation

In-class discussion is an integral part of the course, so attendance and participation is a large portion of your course grade. For each class period, you will be allotted 5 points for attendance (defined as arrival within 5 minutes of the beginning of class and staying until the end of class). Ten points per class period will be allotted for participation (defined as contribution to class or small group discussion). Attendance and participation points will be posted by 5pm on the Monday following each class period.

Resume Assignment

The primary focus of this assignment is to think about the types of activities your resume will need to have on your resume to achieve your goals at various points in your academic career. You will submit a current resume as well as a list of people who you think would serve as good references for you.

Internship, Co-op, and REU Assignment

We will discuss the differences between these experiences as well as how to search for opportunities. This assignment requires you to identify an opportunity to which you can imagine applying, explain why it is interesting to you, and outline what requirements you meet and which you may need to work on prior to applying.

Chemical Literature Assignment

In this class, you will learn to use scientific databases (Web of Science and SciFinder Scholar) to search the chemical literature and a software packaged called EndNote to catalog and cite the literature. This assignment requires you to find all publications by a specific School of Chemistry and Biochemistry faculty member during a certain year and to create an EndNote library for the data.

Excel Assignment

Excel is a very useful tool for data analysis, and you'll use it extensively in chemical principles II (CHEM 1212K) and quantitative chemical analysis (CHEM 2216L). We will cover the basics of formatting, graphing, and using functions, and the assignment will provide practice to help familiarize you with the program.

Drawing Tools Assignments

Molecular imaging is vital to the communication of chemical concepts. In CHEM 2601, you'll learn to use ChemDraw to produce high-quality images of molecules and crystals. This assignment is designed to provide practice using both programs. The software needs to be installed and working before class begins. Points are awarded for completing the installation before class begins.

Poster Presentation

This assignment is designed to provide an opportunity for you to combine many of the skills and software programs discussed during the semester. You will have the chance to select your top two or three choices from a list of scientific topics. Once your topic is assigned, you will perform a literature search and prepare a poster to present your findings to the class. The assigned topics will be broad, but you are free to focus on some small part of the assigned topic. Additional details, a grading rubric, and resources for printing will be provided in a separate document.

Poster Abstract

Prior to your poster presentation, you will be asked to submit an abstract for your poster. This is typical of what is required when you wish to present a poster at a scientific professional meeting/conference.

Job Hazard Analysis

Safety in the laboratory is of paramount importance. After we discuss safety in class, you will work in a small group to evaluate a laboratory experiment and identify risks, hazards, and protocols for mitigating them. This analysis will be completed as a homework assignment.

Learning Portfolio

The learning portfolio is designed to help you reflect on and document your learning in the course and the development of your professional skills over the semester. We hope that it also assists you in setting goals for future development of professional skills. The portfolio consists of a reflective essay acknowledging your achievement of course goals, an essay identifying areas of strength and for improvement of professional skills, and final essay describing what professional skills challenges you may face in the future and how you will address them. Additional details and a grading rubric will be provided in separate document.

Course Policies

Attendance and/or Participation

In-class discussion is an integral part of the course, so attendance and participation is a large portion of your course grade. For each class period, you will be allotted 5 points for attendance (defined as arrive within 5 minutes of the beginning of class and staying until the end of class). Ten points per class period will be allotted for participation (defined as contribution to class or small group discussion). Attendance and participation points will be posted by 5pm on the Monday following each class period.

Academic Integrity

Georgia Tech aims to cultivate a community based on trust, academic integrity, and honor. Students are expected to act according to the highest ethical standards. Review [Georgia Tech's Honor Code](#) and the student [Code of Conduct](#).

Any student suspected of cheating or plagiarism on a quiz, exam, or assignment will be reported to the Office of Student Integrity, who will investigate the incident and identify the appropriate penalty for violations.

Collaboration, Group Work and use of AI tools

Collaboration with classmates on homework assignments is acceptable, and you should keep in mind that the effort you put into these assignments will be reflected in what you gain from them.

It is acceptable to use AI tools to support, rather than substitute for, your work. AI is permitted for brainstorming, identifying sources, and light editing, but it must not be used to draft assignments or summarize readings.

Accommodations for Students with Disabilities

If you are a student with learning needs that require special accommodation, [contact the Office of Disability Services](#) (404-894-2563) as soon as possible to make an appointment to discuss your special needs and to obtain an accommodations letter. Please also e-mail me as soon as possible to set up a time to discuss your learning needs.

Student-Faculty Expectations Agreement

At Georgia Tech, we believe that it is important to strive for an atmosphere of mutual respect, acknowledgement, and responsibility between faculty members and the student body. [The Student-Faculty Expectations](#) articulate some basic expectations that you can have of me and that I have of you. In the end, simple respect for knowledge, hard work, and cordial interactions will help build the environment we seek. Therefore, I encourage you to remain committed to the ideals of Georgia Tech while in this class.

Campus Resources for Students

Undergraduate Student Academic Success Resources:

Academic Support: Academic Success and Advising (a unit in the Office of Undergraduate Education & Student Success) provides free support for your courses. Students can attend scheduled supplemental review (PLUS) sessions, stop by Drop-In Tutoring, or schedule a one-on-one appointment through Knack. To explore what options work best for you, please visit us online at success.gatech.edu/tutoring, email us at tutoring@gatech.edu, or come see us at Clough Undergraduate Learning Commons, Suite 283.

Student Well-Being:

At Georgia Tech, we are concerned about your overall physical, social, and mental well-being. A [comprehensive list](#) of wellness related resources has been compiled and maintained by the Office of the Vice President for Student Engagement and Well-being (student-resource-guide@gatech.edu)