CHEM 2601 Syllabus

Fall 2018

CHEM 2601 (1 credit hour)

Friday, 3:00—3:50pm

Molecular Science and Engineering (MoSE) G021

Instructor Information

Instructors

Professor: Office:
Email: Phone:
Office hours:

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Email: Phone:
Office hours:

General 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.

Pre- &/or Co-Requisites

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 2214 (quantitative chemical analysis) and CHEM 2311 (organic chemistry I).

Course Goals and 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 the primary and secondary scientific literature.

Course Goals and Learning Outcomes, Continued

- Understand and be able to apply the ethical standards that are expected for practicing chemists and biochemists. In particular, they should understand and be able to apply the ethical principles that relate to the performance of experiments and the recording/reporting of experimental results.
- Have a fundamental understanding of what intellectual property is and how it can be protected.
- 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 utilize commonly employed software to produce publication-worthy molecular images.
- 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 identification of hazards in laboratory settings.

Course Requirements & Grading

Attendance and participation	210 points
Chemical literature assignment	100 points
Drawing tools assignments	75 points
Excel assignment	70 points
Internship, co-op, and REU assignment	70 points
Learning portfolio	150 points
Poster abstract	25 points
Poster presentation	150 points
Resumes	75 points
Risk assessment group project	75 points
	1000 points

Grade Dispute Policies

Concerns regarding grades (including those for attendance and participation) must be addressed via email or in class within seven days of the score for that assignment being posted on Canvas.

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 arrive within 5 minutes of the beginning of class and staying until 3:50pm). 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.

Chemical Literature Assignment

In this class, you will learn to use scientific databases 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.

Drawing Tools Assignment

Molecular imaging is vital to the communication of chemical concepts. In CHEM 2801, you'll learn to use ChemDraw and PyMol to produce high-quality images of molecules. This assignment is designed to provide practice using both programs.

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 2214). We will cover the basics of formatting, graphing, and using functions, and the assignment will provide practice to help familiarize you with the program.

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.

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.

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 of a list of broad scientific topics. Once your topic is assigned, you will perform a literature search and prepare a poster to present your findings to the class. Additional details, a grading rubric, and resources for printing will be provided in a separate document.

Poster Abstract

The week after your poster presentation, you will be asked to arrive to class with an abstract for the poster in hard copy. The class period will focus on peer review, and a revised abstract will be submitted for a grade.

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.

Risk Assessment Group Project

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.

Grading Scale

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

A	90.0 – 100%	(900—1000 points)
B	80.0 – 89.9%	(800—899points)
C	70.0 – 79.9%	(700—799 points)
D	60.0 – 69.9%	(600—699 points)
F	Less than 60.0%	(less than 600 points)

Course Materials

Course Text

There is no textbook for this course. Reading materials will be posted to Canvas for some topics.

Additional Materials/Resources

You will need access to Microsoft Excel, and we also will ask you to install two pieces of software to your laptop computer. Instructions will be provided, and there is no cost for access.

Course Website and Other Classroom Management Tools

Canvas

All course reading material and grades will be posted to Canvas. Some assignments also will be submitted via the website. ***You are responsible for all information posted in Canvas announcements.***

Course Expectations & Guidelines

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. For information on Georgia Tech's Academic Honor Code, please visit http://www.catalog.gatech.edu/policies/honor-code/ or http://www.catalog.gatech.edu/rules/18/.

Any student suspected of cheating or plagiarizing will be reported to the Office of Student Integrity, who will investigate the incident and identify the appropriate penalty for violations.

During anytime throughout the semester you have question involving the Academic Honor Code, please contact your instructor or a freshman program faculty member.

Accommodations for Students with Disabilities

If you are a student with learning needs that require special accommodation, contact the Office of Disability Services at (404)894-2563 or http://disabilityservices.gatech.edu/, as soon as possible, to make an appointment to discuss your special needs and to obtain an accommodations letter. Please inform Dr. Carrie Shepler (carrie.shepler@chemistry.gatech.edu, Clough 584A) ***within the first week of the course or as soon as possible.***

Attendance and/or Participation

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Collaboration & Group Work

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.

Extensions, Late Assignments, & Re-Scheduled/Missed Exams

Comprehensive guidelines regarding class attendance and excused absences can be found in the Georgia Tech catalog. Please read through the policies in their entirety.

http://www.catalog.gatech.edu/rules/4/

http://www.catalog.gatech.edu/policies/student-absence-regulations/

Guideline summary:
You are permitted to miss class for Institute approved absences (athletics, etc.) You should inform Dr. Shepler (carrie.shepler@chemistry.gatech.edu) as soon as you have your travel schedule.

If you miss class or an assignment due to illness, then you should submit medical documentation to the Office of the Dean of Students. They will contact the course instructors, and we will work with you to determine the best course of action.

Students may miss exams due to personal emergencies. Again, documentation of some sort should be provided to the Office of the Dean of Students who will communicate with course instructors.

Students who are absent because of participation in a particular religious observance will be permitted to make up the work missed during their absence with no late penalty, provided the student informs the course instructors of the upcoming absence, in writing, within the first two weeks of class, and provided that the student makes up the missed material within the time frame established by the course instructors.

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. See http://www.catalog.gatech.edu/rules/22/ for an articulation of some basic expectation 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, we encourage you to remain committed to the ideals of Georgia Tech while in this class.

We expect students to arrive prepared for class, to participate in class activities and discussions, and to utilize office hours for additional help when needed.

In return, students should expect instructors to arrive prepared for class, to engage them in activities and discussions that further their understanding of course material, and to be available during office hours.

Students should expect to spend an average of 2-3 hours per week outside of the classroom in this course. This includes time spent reading any assigned materials and preparing homework assignments.

Statement of Intent for Inclusivity

As members of the Georgia Tech community, we are committed to creating a learning environment in which all of our students feel safe and included. Because we are individuals with varying needs, we are reliant on your feedback to achieve this goal. To that end, we invite you to enter into dialogue with us about the things we can stop, start, and continue doing to make our classroom an environment in which every student feels valued and can engage actively in our learning community.

Campus Resources for Students

In your time at Georgia Tech, you may find yourself in need of support. Below you will find some resources to support you both as a student and as a person.

Academic support

- Center for Academic Success http://success.gatech.edu
  - 1-to-1 tutoring http://success.gatech.edu/1-1-tutoring
  - Peer-Led Undergraduate Study (PLUS) http://success.gatech.edu/tutoring/plus
  - Academic coaching http://success.gatech.edu/coaching
- Residence Life's Learning Assistance Program https://housing.gatech.edu/learning-assistance-program
  - Drop-in tutoring for many 1000 level courses
- OMED: Educational Services (http://omed.gatech.edu/programs/academic-support)
  - Group study sessions and tutoring programs
- Communication Center (http://www.communicationcenter.gatech.edu)
  - Individualized help with writing and multimedia projects
- Academic advisors for your major http://advising.gatech.edu/

Personal Support

Georgia Tech Resources

- The Office of the Dean of Students: http://studentlife.gatech.edu/content/services; **404-894-6367**; Smithgall Student Services Building 2nd floor
  - You also may request assistance at https://gatech-advocate.symplicity.com/care_report/index.php/pid383662?
- Counseling Center: http://counseling.gatech.edu; **404-894-2575**; Smithgall Student Services Building 2nd floor
  - Services include short-term individual counseling, group counseling, couples counseling, testing and assessment, referral services, and crisis intervention. Their website also includes links to state and national resources.
  - *Students in crisis may walk in during business hours (8am-5pm, Monday through Friday) or contact the counselor on call after hours at **404-894-2204**.*
- Students' Temporary Assistance and Resources (STAR): http://studentlife.gatech.edu/content/need-help
  - Can assist with interview clothing, food, and housing needs.
- Stamps Health Services: https://health.gatech.edu; **404-894-1420**
  - Primary care, pharmacy, women's health, psychiatry, immunization and allergy, health promotion, and nutrition
- OMED: Educational Services: http://www.omed.gatech.edu
- **Women's Resource Center: http://www.womenscenter.gatech.edu; 404-385-0230**
- **LGBTQIA Resource Center: http://lgbtqia.gatech.edu/; 404-385-2679**
- **Veteran's Resource Center: http://veterans.gatech.edu/; 404-385-2067**
- **Georgia Tech Police: 404-894-2500**

Course Schedule

Date	Topic	Presenter(s)
08/24	Finding, applying, and interviewing for internships, co-ops, and REUs	Dr. Carrie Shepler
08/31	Building your resume	Professor Henry La Pierre
09/07	Finding and evaluating information in the chemical literature	Professor Henry La Pierre
09/14	Excel skills	Drs. Christy O'Mahony and Carrie Shepler
09/21	Finding and evaluating information in the chemical literature	Professor Henry La Pierre
09/28	Atlanta area chemists	
10/05	Advanced data analysis	Professor Henry La Pierre and Dr. Carrie Shepler
10/12	Authorship and data recording	Dr. Carrie Shepler
10/19	Introduction to poster preparation and presentation	Professor Henry La Pierre and Dr. Carrie Shepler
10/26	Drawing tools for chemical and biochemical structures	Professors Will Gutekunst and Henry La Pierre
11/02	Drawing tools for chemical and biochemical structures	Professor Loren Williams
11/09	Chemical safety	Professor Henry La Pierre and Drs. Pamela Pollet and Carrie Shepler
11/16	Poster session	Location: MoSE ground floor atrium
11/30	Writing an abstract	Group activity