Chemistry 402 - Course Information

Course requirements

This is a 3-credit course to be completed in one semester (Fall or Winter or Spring or Summer). You must have completed CHEM 201 or 211 and CHEM 203 or 213 with a minimum of C- in each course. The course is open to all science students by permission of the supervisor and department.

Time Commitment

Estimated time commitment is an average of 9 hours per week (on the project as a whole, which can include lab work, reading, writing, etc.), plus the time required to meet with the Supervisor(s) and/or group to discuss progress.

This is an Independent Study Project course so there are no regularly scheduled classes. Students are expected to schedule the required amount of time to complete the course into their schedule. Regularly scheduled classes have precedence over any out-of-class activity; therefore, it is the responsibility of each student to coordinate their research work around their scheduled classes.

Enrolment Procedure

It is the responsibility of the student, in consultation with a supervisor, to decide on a project topic idea for this course. This is to be done in advance of initiating enrolment into the course.

Have a project idea but unsure who to approach as possible Supervisor? Students who have a project in mind but are unsure which faculty members would be potential supervisors should view the research themes carried out by faculty members in Chemistry here.

Meeting with potential Supervisor:

1. Bring a current unofficial copy of your transcript.
2. Be sure to discuss with your potential supervisor the following:
   - Options for research projects and expectations.
   - Prepare your Project Title and Description (250 word max), needed for webform submission to enrol.
   - Research timelines and milestones.
   - Evaluation criteria and due dates.

Once the prospective Supervisor has indicated their willingness to supervise you on your project. Complete the webform (https://science.ucalgary.ca/usc-independent-research-course-application) no later than 10 working days before the add/swap deadline for the term.

If approval is granted, you will be enrolled into the course by staff in the USC and you will be notified by email. If approval is denied at this point, you will be notified by e-mail.

Evaluation criteria for CHEM 402:

The criteria for CHEM 402 evaluation are determined by the Supervisor and must be documented at the beginning of the course. Chemistry 402 is a free form course. The faculty supervisor will create a detailed research project outline that includes a breakdown of all grading. This document is to be signed by both the faculty supervisor and student and sent to the course coordinator by the add/swap deadline for the term. The course can be delivered in lab, remotely, or via a hybrid approach, by mutual agreement between the student and supervisor.

Example evaluation criteria include, but not limited to, the following:

1. 50% Written literature review; 50% Research dissemination (poster, oral presentation, video, etc).
2. 50% Research work; 50% Research dissemination.
3. 25% Proposal (written/oral); 25% Research work; 25% Interpretation of data; 25% Final talk

All graded work must be due prior to the last day of final exams for the term.
CHEM 402 - Course Learning Outcomes

After completion of a CHEM 402 project, successful students will have...

- proposed a scientific question and framed the direction of research inquiry in the context of the relevant background and literature.
- performed research in accordance with appropriate professional norms, such as lab safety and applied relevant training.
- demonstrated scientific literacy by using a wide range of library skills, properly documented those sources, read scientific papers and identified key concepts.
- established time management skills required to plan and progress a research project.
- performed original research in a specific field of chemistry at a reasonable skill level.
- analyzed and interpreted scientific results and then communicated to a chemistry audience the findings by a method of dissemination determined by the PI, such as a poster, report, or oral presentation.
- developed an understanding of possible professional career paths including summer research jobs and graduate school, and exposed to appropriate skills to use for applications, interviews, and networking opportunities.