

Expectations. The following are course-specific conditions that are required to pass the course:

A) A minimum of 15 hours/week dedicated to the course. Activities include, but not limited to, preparation for experiments/calculations, performance of research, collection of data, analysis of results, participation in the group research activities, reading the literature, and communication of research results under the direction of your assigned mentor and/or supervisor. Please note that Friday, February 28, 2025, marks the end of your laboratory work. This is to allow enough time to write your thesis and prepare your final oral presentation. Urgent and critical make-up experiments are allowed under the agreement of your supervisors.

B) Attendance at the Chem 4491E Professional Skills unit presentations. In general, presentations are given on Thursday afternoons between 1:30 and 3:30 pm. The specific schedule is given below. Some dates and times may be subject to change. Participation in each is required for course credit. Failure to attend can result in an F in Chem 4491E. ***Reserve this time in your schedule weekly.***

C) Submission of the written thesis and oral presentation and evaluation of your research project.

Initiation Meeting: Thursday, September 5, 2024, 1:30 pm. The course initiation meeting will include a discussion of the course outline, expectations in research and required Laboratory Safety courses followed by a mixer where students can discuss research projects with potential faculty supervisors in an informal setting (see scheduling in tables for details).

Laboratory safety training: Students are required to complete a series of on-line laboratory safety and other required training courses, including, but not limited to:

- WHMIS
- Laboratory Safety and Hazardous Waste Management
- Worker Health and Safety Awareness
- AODA - Accessibility in Service
- Western Safe Campus Community Certification
- Cyber Safety Awareness at Western
- Building inclusivity through anti-racism
- Supporting disclosure of gender based and sexual violence at Western

In addition, your supervisor will provide details about group-specific safety training (e.g., radiation safety, X-ray safety, laser safety, biosafety, etc.). Once completed, please submit all certificates to on Brightspace (under assignments).

Statement on the Use of Generative Artificial Intelligence (AI): As this course aims at building and strengthening your individual writing, the use of generative artificial intelligence (AI) tools/software/apps is unacceptable in this course.

Learning Outcomes

- You will build on your project hypothesis/direction of research and, depending on the nature of the project, you will design and plan experiments, and/or modelling and computations. You will then execute this plan using the most appropriate methods.
- You will develop a basic understanding of research in the specific area of your project by reading the scientific literature.
- You will integrate skills and knowledge learned during the core chemistry sub-discipline courses and apply them to your independent research project in an active research group.
- You will apply the knowledge acquired during your chemistry module and/or new knowledge acquired during your research project to interpret your results and to rationalize them in the context of your hypothesis.
- As a part of an active research group, you will develop skills for working within a team.
- You will refine your scientific writing skills through the writing of a thesis.
- You will refine your communication skills through regular, active participation in research group activities, mentorship activities (WuCHEM), and through oral presentations and defense of your honour thesis.
- You will develop professional career skills, such as self-marketing skills, job application skills, interviewing and networking skills, and advanced library skills, through a series of active learning/participatory events.

Research Schedule. Important dates for in-person research progress evaluations, thesis, and oral presentation components.

Event	Date and place for in-person event
Introduction to 4491 and Mixer Course facilitators will introduce the course and expectations. This will be followed by a meet-and-greet with potential 4491 supervisors	[REDACTED]
Project Selections Due	Friday, September 6, 2024, by 5:30 pm, Electronic submission in Brightspace.
Release of project assignments	Monday, September 9, 2024, by 5:30 pm on Brightspace.
Start of research	Monday, September 9, 2024. Students are responsible for contacting their assigned thesis supervisors to get started!
Mentor-mentee expectation plan	Monday, Oct 7 th , 2024.

Your research media post on LinkedIn	First one Due no later than Nov. 15 Second Due no later than February 21
Mid-Year presentation: Mustang's Den- Pitch Your Thesis in 3 minutes	Thursday, Nov. 28, 2024, 1:30-3:30 pm Peer-evaluated presentations. Aimed at clearly and effectively communicating your project in an impactful way
Mentorship Reports	First due no later than Friday, Nov. 29, 2024. Second due no later than Friday, March 7 th , 2025.
Thesis Introduction Due	Friday, December 6, 2024, by 5:00 pm. Students are responsible for submitting a copy via Brightspace and a copy directly to the supervisor.
Final Day in Lab for Experimentation	Friday, February 28, 2025
Submission of Thesis	Monday, March 24 , 2025 by 5:00 pm, Electronic submission of thesis via Brightspace. Hard Deadline
Thesis Oral Presentation CHEM4491 Day	Saturday, March 29, 2025 OR Friday, April 4 th , 2025.
Final Thesis Submission	Friday, April 25, 2025, 5:00 pm, Final revised thesis* to be uploaded via Brightspace *If revisions requested.

Professional Skills Presentation Schedule

NB: *tentative* dates – any changes will be announced via email (Brightspace). Slides of all presentations will be uploaded on Brightspace after all lectures.

Event	Date and Location
Introduction to 4491 and Mixer The course Coordinators will introduce the course and its expectations. This will be followed by a meet-and-greet with potential 4491 supervisors.	Thursday, September 5, 2024, Visual Arts 100, 1:30 pm 3:30-5:30 pm Meet-and-greet with faculty in the Courtyard in the middle of MSA and the B&G buildings on the ground floor. If weather does not allow the meeting in the courtyard, it will take place in the MSA Atrium on the 1 st floor.

<p>Library Session Maren Goodman (maren.goodman@uwo.ca) NOTE: Please register for your SciFinder account BEFORE this class session. Registration details here: https://guides.lib.uwo.ca/chem4491e/primaryliterature</p>	<p>Thursday, September 12, 2024</p> <p>SciFinder</p> <p>The session will take place in Taylor Instruction Room at Taylor Library at 1:30 pm. <i>Bring a laptop computer with you.</i></p>
<p>Library Session Maren Goodman (maren.goodman@uwo.ca) NOTE: Please register for your Mendeley account BEFORE this class session. Registration details here: https://guides.lib.uwo.ca/chem4491e/primaryliterature</p>	<p>Thursday, September 19, 2024</p> <p>Academic Integrity and Research Management Skills: How to Use a Bibliography Manager</p> <p>The session will take place in Taylor Instruction Room at Taylor Library at 1:30 pm. <i>Bring a laptop computer with you.</i></p>
<p>Applying to Graduate Schools & Applying for Graduate Scholarships</p>	<p>Thursday, October 3, 2024, Visual Arts 100 at 1:30 pm Guests: F. Lagurné-Labarthe and J. Wisner</p>
<p>Self-Marketing on Paper: Resumes and Cover Letters</p>	<p>Thursday, October 10, 2024, Visual Arts 100 at 1:30 pm Guests: Afa Awobajo, FoS</p>
<p>Self-Marketing On-line: Tips and Tricks for Appropriate Use of Social Media and LinkedIn</p>	<p>Thursday, October 24, 2024, Visual Arts 100 at 1:30 pm <i>Bring a laptop computer with you.</i> Guests: TBA</p>
<p>Research to Commercialization- Worlddiscoveries</p>	<p>Thursday, November 7, 2024, Visual Arts 100 at 1:30 pm Guest: Tristan Harrison</p>
<p>How to Write a Scientific Introduction</p>	<p>Thursday, November 14, 2024, Visual Arts 100 at 1:30 pm Guests: S. M. Gateman and J. Blacquiere</p>

Sign-up for the mock interview	Choose Job Posting (Record Job ID # for future use) Select and Open Interview Timeslot Complete by Monday, December 9, 2024
Apply for the mock Job	Submit Resume and Cover Letter (Job Application) Complete by Monday January 6, 2025, 11:59 p.m. <i>Please contact Dorota Oliveira (dolive8@uwo.ca) if you have any difficulties.</i> Hard Deadline: must include complete LinkedIn profile
Self-Marketing in Person: Networking & Interview Skills Workshop	Thursday, January 9, 2025 Visual Arts 100 Guest: Afa Awobajo, FoS
Mock Interview Day (10 am-5 pm)* *includes interview and networking meeting	Thursday, January 16, 2025, Interview Times TBA followed by the networking meeting – NCB Location TBA
Thesis Writing Prep: How to Write an Impactful Results and Discussion Section	Thursday, February 6, 2025, Visual Arts 100 at 1:30 pm Guests: S. M. Gateman and J. Blacquiere
Oral Presentation Preparation	Thursday, February 13, 2025, at 1:30 pm
CHEM4491 Presentation Day	Saturday, March 29, 2025 OR Friday, April 4 th , 2025. it is an all-day event. Keep both options open!

Course Evaluation

Assuming the minimum requirements as outlined above are met, the final grade in the course (out of 100%) will be determined as follows:

Mid-year “Pitch Your Project” Presentation: 5%

You will give a **3-Minute oral presentation** (one slide maximum) to practice clear and concise scientific communication skills, persuasion, and audience engagement. The slide should only aid you in telling a verbal story about the impact your research has. The goal of this exercise is to get thinking about how to write an impactful thesis introduction and to gain experience with scientific entrepreneurship communication. The presentation will be followed by questions from the course coordinators and the audience. The presentation will be graded by your peers.

Mid-year and Year End Research Social Media Project (2.5% for each post) 5%

In a format suitable for posting on social media (image and short text) describe your research project or some interesting aspect of it (an experiment, instrumentation). Submit to Brightspace suitable for posting on Chemistry Socials.....and on your LinkedIN page.

Chemistry Mentorship and Engagement 7%

The Western Undergraduate Chemistry Education and Mentorship (WuCHEM) program aims to create camaraderie and inclusivity within the Chemistry Department. All CHEM4491 students are expected to be mentors for junior undergraduate students. Facilitated by the ChemClub, you will be paired up with a mentee to help them navigate their undergraduate experience for this year. You will also be paired with other mentors, including graduate students and professors. This intergenerational mentorship program is an unofficial way for all to express their opinions about our programs, gain a sense of belonging within Chemistry, and to gain experience with networking.

Expectations from CHEM4491 Mentors include:

- Attending the WuCHEM meet-and-greet event (date and time TBA by ChemClub)
- Devising a mentor-mentee expectation plan with mentee(s). (2%)
- Facilitating and attending monthly meetups with mentee(s) (mandatory) and mentors.
- Writing a one-page report on mentorship progress (One due in November and the other in March). This should include reflection on the progress based on your mentor-mentee plan. (2.5% each)

Mid-year Preliminary Thesis Introduction: 5%

A preliminary draft of the thesis introduction will be submitted to your supervisor(s) and on Brightspace. The objective of this evaluation element is to ensure that you are thinking about the nature and scope of your research project. The exact length and content of the introduction may change in the final thesis. Typically, an introduction will be 4-6 pages. The introduction will be graded by the supervisor(s). Students are referred to the thesis rubric for guidance.

Mid-year (December) Student Performance Grade: 8%

Assigned by the supervisor(s) based on the student's performance in the research project to date. Students are referred to the student performance rubric for guidance.

Final Student Performance Grade: 25%

Assigned by the supervisor(s) based on the student's performance in the research project throughout the entire academic year. Students are referred to the student performance rubric for guidance.

Thesis Grade: (2 x 12.5% by each thesis examiner) 25%

Each student will submit a formal, written thesis by the due date. The thesis will be read and evaluated by two faculty members (who are not supervisors of the project) using the thesis evaluation rubric. The thesis grades are submitted to the coordinators prior to the oral presentation.

Oral Presentation and Defence Grade: (2 x 10% by each examiner) 20%

Each student will present a 15-minute formal oral presentation at CHEM4491 day. Your thesis examiners will provide a grade based on the quality of the presentation according to an oral presentation rubric. At the end of the student's presentation, each examiner will ask questions for a maximum time of 20 min.