



## COURSE OUTLINE

1. **Course:** CHEM 502.1, Research In Chemistry - Fall 2021 & Winter 2022, Topic: Research In Chemistry I

Lab 01:

Instructor	Email	Phone	Office	Hours
Dr George Shimizu	gshimizu@ucalgary.ca	403 220-5347	SB 403	TBA

Note that this is 6-credit, 2-semester course and requires a strong ongoing commitment over**both** the Fall and Winter sessions.

### In Person Delivery Details:

In following COVID-19 and University of Calgary campus guidelines this course can be taken**either** remotely and/or have a physical (in-person) laboratory component, as agreed upon by the student and supervisor.

### Re-Entry Protocol for Labs and Classrooms:

To limit the spread of COVID-19 on campus, the University of Calgary has implemented safety measures to ensure the campus is a safe and welcoming space for students, faculty and staff. The most current safety information for campus can be found [here](#).

### Course Site:

D2L: CHEM 502.1 B01-(Fall 2021 - Winter 2022)-Research In Chemistry

**Note:** Students must use their U of C account for all course correspondence.

2. **Requisites:**

See section [3.5.C](#) in the Faculty of Science section of the online Calendar.

### Prerequisite(s):

Consent of the Department.

### Note(s):

- It is recommended that students have completed the third year of their program in Chemistry, Applied Chemistry or Chemical Physics. MAY BE REPEATED FOR CREDIT

3. **Grading:**

The University policy on grading and related matters is described in [F.1](#) and [F.2](#) of the online University Calendar.

In determining the overall grade in the course the following weights will be used:

Component(s)	Weighting %	Date
Selection of Committee Member	N/A	Sept. 24, 2021
Written literature review and outline	10	Oct. 22, 2021
Midterm Research progress meeting	10	Meet before Dec. 22, 2021
Research poster	10	Jan. 21, 2022
Final written report	30	April 15, 2022
Final oral presentation	15	TBA, before April 29, 2022
Research Work	25	Ongoing

*While the supervisor and supervisory committee are directly responsible for grading and evaluating student work, all grades must be submitted by the supervisor to the course coordinator on or before April 30th, 2022.*

### 1. Selection of Committee Member. (due Sept. 24, 2021)

In consultation with your supervisor, another faculty member must be identified to serve on your supervisory committee and then determine if that person is willing to serve in this capacity. This individual should have research interests that are related to your project and thus should be able to provide advice to you over the

course of your project. Email the course coordinator the name of your committee member.

**2. Literature review/proposal and outline of any laboratory and remote learning work.** (due Oct. 22, 2021)

An approximately 10-page summary (typed, 12 point, double-spaced, with figures), including a review of the prior published literature, the relevant research carried out in your group, your research goals/objectives/hypothesis and how these relate to past work, and a few pages covering the methods/approaches/techniques you expect to use during your work. A clear outline of how this work will be carried out remotely if applicable, i.e. with no access to the research laboratory, must be detailed. Three copies are required, one for your supervisor, one for your committee member, and one for the course coordinator. It is highly recommended that you start early on this document and provide several rough drafts to your supervisor/committee member for early feedback. (Value: 10% of Final Grade)

**3. Midterm Research Progress Meeting** (must occur on or before the last day of exams, December 22 2021)

A meeting will be held with your supervisor and your committee member, and open to the course coordinator, fellow 502 students, and chemistry department members (via Zoom) if you choose. Supervisor and committee member to assess your progress during the first half of the course. During this meeting, a brief progress report must be given by the student in the form of a 15-20-minute talk (this can also be quite informal, using few or no slides, and if remote learning is in place via an online platform). This presentation should include a clear indication of the objectives of your research project and a description of what has been done and observed to date. Also, a brief description of the work that is planned for the remaining months should be provided. You should then be prepared to discuss your work with your committee members. You will be assigned a grade on the first semester's work by the committee members, based on the degree of motivation shown, the quality of results obtained, the clarity of your talk, and your knowledge and understanding of the project. (Value: 10% of Final Grade)

Please ensure this meeting has been scheduled on/before the first week of December.

**4. Digital Poster Presentation** (submit by Jan 21, 2022. Poster viewing/grading occurs the week of Jan 24, 2022)

To showcase your research to date you are required to complete a poster presentation. This poster should be in the format established by your research group. If you do not have a poster template, contact the course coordinator and he/she will provide a PowerPoint poster template and aid in creating the poster. This poster will be available to the entire chemistry department and thus should not contain any confidential information. The aim is to highlight yourself, research project, and research team. The content of the poster should be accessible to all chemistry department members and be visually appealing. The poster will be graded on clarity of research project goals/progress and visual presentation. The posters must be complete and sent to the course coordinator as a PDF file. (Value: 10% of Final Grade)

**5. Final Written Report** (due Apr 15, 2022)

A written electronic report must be submitted to the course coordinator, your supervisor, and the other member of your committee. The Chemistry 502 report is to be written as if it were being submitted for publication to a scientific journal. Therefore, the report must be in typed form using a journal manuscript preparation template and all figures and tables must be clearly and carefully drafted according to the standards set by your chosen journal. While the report should be written in the style of a paper for a scientific journal, it could be somewhat more detailed. Regarding format, you will be required to download the "Instructions to Authors" for the journal most suited for your work and follow them explicitly in writing your report. A pdf file submission of the final report and supporting information will suffice for this course. You may also be required to submit to your supervisor an electronic copy of your lab notebook and any data acquired during the project (e.g. spectra, X-ray data, etc.). Discuss these requirements with your supervisor. The Final Report is one of the key components of the course. It MUST be submitted by the prescribed date or you will lose marks (10% deducted for each day late). (Value: 30% of Final Grade)

**6. Final Oral Presentation** (Dates TBA, to occur on or before April 29, 2022)

The final oral presentations must be made prior to the last day of the exam period. You will be graded by your supervisor and committee member. The presentation can be made via Zoom, or in-person if university guidelines permit at the time, and open to the department unless the work contains confidential information. The presentation should be 20 minutes in-length and will be followed by a discussion period of up to 20 minutes. A maximum of 40 minutes will be available for the presentation plus the question period. The presentation is to meet with current standards of professionalism, e.g., utilizing PowerPoint presentation software. The presentations will be organized by the course coordinator and ideally all will occur back to back in conference format. (date/time will be scheduled by the course coordinator) (Value: 15% of Final Grade)

The oral presentations will be evaluated using the following criteria:

- a. Organization of material
- b. Clarity of the presentation
- c. Quality of slides
- d. Conclusions
- e. Handling of questions and discussion (knowledge and understanding of project)

## 7. Research Work

The student's research work will be evaluated by their supervisor based on the student's engagement, role, initiative, skill, independence, etc. The supervisor will submit a 1-paragraph justification for the score when submitting it to the coordinator at the end of the course. (Value 25%)

Each piece of work (reports, assignments, quizzes, midterm exam(s) or final examination) submitted by the student will be assigned a grade. The student's grade for each component listed above will be combined with the indicated weights to produce an overall percentage for the course, which will be used to determine the course letter grade.

The conversion between a percentage grade and letter grade is as follows.

	A+	A	A-	B+	B	B-	C+	C	C-	D+	D
<b>Minimum % Required</b>	95 %	90 %	85 %	80%	75%	70 %	65 %	60%	55%	50 %	45 %

The University of Calgary offers a [flexible grade option](#), Credit Granted (CG) to support student's breadth of learning and student wellness. Faculty units may have additional requirements or restrictions for the use of the CG grade at the faculty, degree or program level. To see the full list of Faculty of Science courses where CG is not eligible, please visit the following website: <https://science.ucalgary.ca/current-students/undergraduate/program-advising/flexible-grading-option-cg-grade>

## 4. Missed Components Of Term Work:

The university has suspended the requirement for students to provide evidence for absences. Please do not attend medical clinics for medical notes or Commissioners for Oaths for statutory declarations.

In the event that a student legitimately fails to submit any online assessment on time (e.g. due to illness etc...), please contact the course coordinator, or the course instructor if this course does not have a coordinator to arrange for a re-adjustment of a submission date. Absences not reported within 48 hours will not be accommodated. If an excused absence is approved, one possible arrangement is that the percentage weight of the legitimately missed assignment could also be pro-rated among the components of the course. This option is at the discretion of the coordinator and may not be a viable option based on the design of this course.

## 5. Scheduled Out-of-Class Activities:

There are no scheduled out of class activities for this course.

## 6. Course Materials:

In order to successfully engage in their learning experiences at the University of Calgary, students taking online, remote and blended courses are required to have reliable access to the following technology:

- o A computer with a supported operating system, as well as the latest security, and malware updates;
- o A current and updated web browser;
- o Webcam/Camera (built-in or external);
- o Microphone and speaker (built-in or external), or headset with microphone;
- o Current antivirus and/or firewall software enabled;
- o Stable internet connection.

For more information please refer to the UofC [ELearning](#) online website.

## 7. Examination Policy:

There are no examinations in this course.

Students should also read the Calendar, [Section G](#), on Examinations.

## 8. **Approved Mandatory And Optional Course Supplemental Fees:**

There are no mandatory or optional course supplemental fees for this course.

## 9. **Writing Across The Curriculum Statement:**

For all components of the course, in any written work, the quality of the student's writing (language, spelling, grammar, presentation etc.) can be a factor in the evaluation of the work. See also Section [E.2](#) of the University Calendar.

## 10. **Human Studies Statement:**

Students will not participate as subjects or researchers in human studies.

See also [Section E.5](#) of the University Calendar.

## 11. **Reappraisal Of Grades:**

A student wishing a reappraisal, should first attempt to review the graded work with the Course coordinator/instructor or department offering the course. Students with sufficient academic grounds may request a reappraisal. Non-academic grounds are not relevant for grade reappraisals. Students should be aware that the grade being reappraised may be raised, lowered or remain the same. See [Section I.3](#) of the University Calendar.

- a. **Term Work:** The student should present their rationale as effectively and as fully as possible to the Course coordinator/instructor within **ten business days** of either being notified about the mark, or of the item's return to the class. If the student is not satisfied with the outcome, the student shall submit the Reappraisal of Graded Term work form to the department in which the course is offered within 2 business days of receiving the decision from the instructor. The Department will arrange for a reappraisal of the work within the next ten business days. The reappraisal will only be considered if the student provides a detailed rationale that outlines where and for what reason an error is suspected. See sections [I.1](#) and [I.2](#) of the University Calendar
- b. **Final Exam:** The student shall submit the request to Enrolment Services. See [Section I.3](#) of the University Calendar.

## 12. **Other Important Information For Students:**

- a. **Mental Health** The University of Calgary recognizes the pivotal role that student mental health plays in physical health, social connectedness and academic success, and aspires to create a caring and supportive campus community where individuals can freely talk about mental health and receive supports when needed. We encourage you to explore the mental health resources available throughout the university community, such as counselling, self-help resources, peer support or skills-building available through the SU Wellness Centre (Room 370, MacEwan Student Centre, [Mental Health Services Website](#)) and the Campus Mental Health Strategy website ([Mental Health](#)).
- b. **SU Wellness Services:** For more information, see [www.ucalgary.ca/wellnesscentre](http://www.ucalgary.ca/wellnesscentre) or call [403-210-9355](tel:403-210-9355).
- c. **Sexual Violence:** The Sexual Violence Support Advocate, Carla Bertsch, can provide confidential support and information regarding sexual violence to all members of the university community. Carla can be reached by email ([svsa@ucalgary.ca](mailto:svsa@ucalgary.ca)) or phone at [403-220-2208](tel:403-220-2208). The complete University of Calgary policy on sexual violence can be viewed at (<https://www.ucalgary.ca/legal-services/sites/default/files/teams/1/Policies-Sexual-and-Gender-Based-Violence-Policy.pdf>)
- d. **Misconduct:** Academic integrity is the foundation of the development and acquisition of knowledge and is based on values of honesty, trust, responsibility, and respect. We expect members of our community to act with integrity. Research integrity, ethics, and principles of conduct are key to academic integrity. Members of our campus community are required to abide by our institutional [Code of Conduct](#) and promote academic integrity in upholding the University of Calgary's reputation of excellence. Some examples of academic misconduct include but are not limited to: posting course material to online platforms or file sharing without the course instructor's consent; submitting or presenting work as if it were the student's own work; submitting or presenting work in one course which has also been submitted in another course without the instructor's permission; borrowing experimental values from others without the instructor's approval; falsification/fabrication of experimental values in a report. Please read the following to inform yourself more on academic integrity:

[Student Handbook on Academic Integrity](#)  
Student Academic Misconduct [Policy](#) and [Procedure](#)  
[Research Integrity Policy](#)

Additional information is available on the [Student Success Centre Academic Integrity page](#)

e. **Academic Accommodation Policy:**

It is the student's responsibility to request academic accommodations according to the University policies and procedures listed below. The student accommodation policy can be found at: <https://www.ucalgary.ca/legal-services/sites/default/files/teams/1/Policies-Student-Accommodation-Policy.pdf>

Students needing an accommodation because of a disability or medical condition should communicate this need to Student Accessibility Services in accordance with the Procedure for Accommodations for Students with Disabilities: <https://www.ucalgary.ca/legal-services/sites/default/files/teams/1/Policies-Accommodation-for-Students-with-Disabilities-Procedure.pdf>.

Students needing an accommodation in relation to their coursework or to fulfil requirements for a graduate degree, based on a Protected Ground other than Disability, should communicate this need, by filling out the [Request for Academic Accommodation Form](#) and sending it to Dr. Yuen-Ying Carpenter by email [yyscarpe@ucalgary.ca](mailto:yyscarpe@ucalgary.ca) preferably 10 business days before the due date of an assessment or scheduled absence.

f. **Freedom of Information and Privacy:** This course is conducted in accordance with the Freedom of Information and Protection of Privacy Act (FOIPP). Students should identify themselves on all written work by placing their name on the front page and their ID number on each subsequent page. For more information, see [Legal Services](#) website.

g. **Student Union Information:** [VP Academic](#), Phone: [403-220-3911](tel:403-220-3911) Email: [suvpaca@ucalgary.ca](mailto:suvpaca@ucalgary.ca). SU Faculty Rep., Phone: [403-220-3913](tel:403-220-3913) Email: [sciencerep@su.ucalgary.ca](mailto:sciencerep@su.ucalgary.ca). [Student Ombudsman](#), Email: [ombuds@ucalgary.ca](mailto:ombuds@ucalgary.ca).

h. **Surveys:** At the University of Calgary, feedback through the Universal Student Ratings of Instruction ([USRI](#)) survey and the Faculty of Science Teaching Feedback form provides valuable information to help with evaluating instruction, enhancing learning and teaching, and selecting courses. Your responses make a difference - please participate in these surveys.

i. **Copyright of Course Materials:** All course materials (including those posted on the course D2L site, a course website, or used in any teaching activity such as (but not limited to) examinations, quizzes, assignments, laboratory manuals, lecture slides or lecture materials and other course notes) are protected by law. These materials are for the sole use of students registered in this course and must not be redistributed. Sharing these materials with anyone else would be a breach of the terms and conditions governing student access to D2L, as well as a violation of the copyright in these materials, and may be pursued as a case of student academic or [non-academic misconduct](#), in addition to any other remedies available at law.

Electronically Approved - Sep 09 2021 11:23

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**Department Approval**

Electronically Approved - Sep 09 2021 13:33

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**Associate Dean's Approval**