

CHEM 4103/5108 for Fall Term 2026

Surfaces and Nanostructures

We, the people of the Faculty of Science at Carleton University, acknowledge that our campus is located on the traditional, unceded territories of the Algonquin Anishinabeg people. Miigwetch for your hospitality and stewardship of this territory and the teachings that come from it. We are grateful for this land, the air that we breathe, and the water that sustains us all as well as for the animals, plants and other living beings: these enable us to research, teach, mentor, support, study, and learn. We recognize our responsibility to our natural environment and to reconciliation with Indigenous peoples.

Course Instructor: Seán Barry

How to address me: Seán

Gender Pronouns: (he/him/his)

Email: sean_barry@carleton.ca

Note: If you have a question or would like to talk with me, you can send an email, visit in my office (see below), or approach me after lecture.

Best Ways to be in Touch: in class, via email, or during student hours

Student Hours: office, drop in any time

Office Location: Room 203b, Steacie Building

Class Location: Please check Carleton Central for the room location.

Class Times: Monday and Wednesday 2:30 - 4:00 pm

Prerequisites: CHEM 3600 and CHEM 3107

Preclusions: none, kind of

Department/Unit: Chemistry

Course TAs: none

Topics Covered and Learning Outcomes

Inclusive Teaching Statement here (Examples can be found in the EDI Course Outline Template, which can be accessed through Section 1 of the [EDI Teaching Toolkit](#))

Topics to be Covered

1 - 2	Substrates
3	Band structure
4 - 5	Chemisorption, Physisorption and Dynamics
6 - 7	Thermodynamics and Kinetics of Surface Chemistry
8 - 9	Growth and Epitaxy
10 - 11	Nanolithography
12 - 13	Self-Assembled Monolayer Templating

Important dates and deadlines can be found here:

<https://carleton.ca/registrar/registration/dates/academic-dates/>, including class suspension for fall, winter breaks, and statutory holidays.

Assessments

Grade Breakdown

Component	Grade Value	Date
AssignmentS	20 %	
In-term exam	40 %	November 4
Final Exam	40 %	December 9

Late and Missed Work Policies

Late work happens: please try to have it submitted on time.

If that can't happen, let me know in advance. In this case, where an agreement is reached, there is no penalty. If you inform me after the due date, discuss it with me and we will try to reach an accommodation.

If you want a related policy use the [academic considerations form](#).

Missed Work

Short-term (5 days or less): The above policy applies to work that is late for 5 days or less.

Long-term (> 5 days): For missed work that is late beyond 5 days, we will use the course-related policy for [longer-term accommodation](#) .

Learning Material(s) and Other Course/Lab-Related Resources

Ancillary fees associated with this course, e.g., textbooks, course packs, lab manuals, field work, online resources or links required for the course along with their associated cost (if applicable). Estimated costs can be acquired based on current bookstore offerings, Amazon, etc.

Learning Material	Options for Purchasing (e.g. <i>Bookstore, Used, etc.</i>)	Approximate Cost
none		

Students are not required to purchase textbooks or other learning materials for this course.

Academic Accommodations and Regulations

Carleton is committed to providing academic accessibility for all individuals. You may need special arrangements to meet your academic obligations during the term. The accommodation request processes are outlined on the Academic Accommodations website (<https://students.carleton.ca/course-outline/>).

Statement on Chat GPT/Generative AI usage (See the *Sample Syllabus Statements for AI use in Courses* document for examples)

As our understanding of the uses of AI and its relationship to student work and academic integrity continue to evolve, students are required to discuss their use of AI in any circumstance not described here with the course instructor to ensure it supports the learning goals for the course.

Statement on Academic Integrity

Students are expected to uphold the values of academic integrity, which include fairness, honesty, trust, and responsibility. Examples of actions that compromise these values include but are not limited to plagiarism, accessing unauthorized sites for assignments or tests, unauthorized collaboration on assignments or exams, and using artificial intelligence tools such as ChatGPT when your assessment instructions say it is not permitted.

Misconduct in scholarly activity will not be tolerated and will result in consequences as outlined in Carleton University's Academic Integrity Policy. A list of standard sanctions in the Faculty of Science can be found here.

Additional details about this process can be found on the Faculty of Science Academic Integrity website.

Students are expected to familiarize themselves with and abide by Carleton University's Academic Integrity Policy.

Student Rights & Responsibilities

Students are expected to act responsibly and engage respectfully with other students and members of the Carleton and the broader community. See the 7 Rights and Responsibilities Policy for details regarding the expectations of non-academic behaviour of students. Those who participate with another student in the commission of an infraction of this Policy will also be held liable for their actions.

Student Concerns

If a concern arises regarding this course, **your first point of contact is me**: Email or drop in during student hours and I will do my best to address your concern. If I am unable to address your concern, the next points of contact are (in this order):

Note: You can also bring your concerns to Ombuds services.

