

The University of Western Ontario  
Chemistry 9663S, Winter 2025  
Advanced Polymer Chemistry II

**NOTE:** This course outline is tentative and subject to change based on course enrollment.

**Instructor:**

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**Description:**

This 0.25 course will build on the topics covered in Chem 9653 or related undergraduate polymer chemistry courses including a detailed look at block copolymer synthesis, characterization, and self-assembly and other special topics. Through the discussion of recent examples from the literature, the ability of these synthetic techniques to provide tailor-made functional materials for various applications will be explored. Students are recommended to have taken Chem 9653 or an equivalent undergraduate polymer chemistry course before enrolling. If there is uncertainty surrounding previous courses, please discuss them with Dr. Gilroy.

**Topics:**

1. Brief refresher of living polymerization techniques
2. Cyclic polymers - how and why do they form?
3. Block copolymers - synthesis, purification, and characterization
4. Thin-film and solid-state self-assembly (including nanoconfinement, reactive-ion etching, and applications)
5. Solution self-assembly of coil-coil block copolymers
6. Solution self-assembly of crystalline-coil block copolymers
7. Additional selected topics (topics may vary depending on who is enrolled in class).

**Resources:**

The course notes are the primary resource for this course. Journal articles related to the course content will be circulated via OWL. There is no required textbook for this course.

**Lectures / seminars:**

Days: tba

Time: tba

Mode of instruction: In person

## **Evaluation**

Assignments (2 × 30%)	60%
Literature Presentation (on a recent paper)	30%
In-Class Participation	10%

## **Course Attendance and Missed/Late Assignments**

If you are unable to meet a course requirement due to illness or other serious circumstances, you must contact your instructor immediately. It is the student's responsibility to make alternative arrangements with their instructor once the accommodation has been approved and the instructor has been informed. The late penalty for Chem 9663S will be 10% per day with the weekend counting as 1 day.

## **Notes on Academic Honesty**

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site:

[www.uwo.ca/univsec/pdf/academic\\_policies/appeals/scholastic\\_discipline\\_grad.pdf](http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_grad.pdf)

All required papers may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com (<http://www.turnitin.com>).

## **Notes on the Use of Artificial Intelligence Tools**

While clearly an important and emerging resource, the use of generative Artificial Intelligence (AI) tools/software/apps is unacceptable for the completion of assignments and tests for this course.

## **Health and Wellness**

As part of a successful graduate student experience at Western, we encourage students to make their health and wellness a priority. Western provides several on campus health-related services to help you achieve optimum health and engage in healthy living while pursuing your graduate degree. For example, to support physical activity, all students, as part of their registration, receive membership in Western's Campus Recreation Centre.

Numerous cultural events are offered throughout the year. For example, please check out the Faculty of Music web page <http://www.music.uwo.ca/>, and our own McIntosh Gallery <http://www.mcintoshgallery.ca/>. Information regarding health- and wellness-

related services available to students may be found at <http://www.health.uwo.ca/>. Students seeking help regarding mental health concerns are advised to speak to someone they feel comfortable confiding in, such as their faculty supervisor, their program director (graduate chair), or other relevant administrators in their unit. Campus mental health resources may be found at [http://www.health.uwo.ca/mental\\_health/resources.html](http://www.health.uwo.ca/mental_health/resources.html).

### **Statement on Gender-Based and Sexual Violence**

Western is committed to reducing incidents of gender-based and sexual violence (GBSV) and providing compassionate support to anyone who is going through or has gone through these traumatic events. If you are experiencing or have experienced GBSV (either recently or in the past), you will find information about support services for survivors, including emergency contacts at the following website: [https://www.uwo.ca/health/student\\_support/survivor\\_support/get-help.html](https://www.uwo.ca/health/student_support/survivor_support/get-help.html). To connect with a case manager or set up an appointment, please contact [support@uwo.ca](mailto:support@uwo.ca).