TENTATIVE CHM 1301 SYLLABUS (Winter 2022)

Organic and Synthetic Polymer Chemistry

I. TEACHING TEAM

Instructor: Prof. Dwight Seferos
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Prof. Helen Tran
Email: tran@utoronto.ca
Office: Lash Miller Laboratories LM 514

Student hours: Dwight: By appointment
Helen: By appointment, preferably Thursday, 3:30 pm ET
Student hours are designated times to clarify concepts, review course aims, discuss ideas, or just chat about fellowships, careers, research etc! They will be held in each professor's office.

Course meeting: Wednesdays, 10 am - 12 pm ET
Location: LM 123

II. COURSE OVERVIEW

Course description: Synthetic polymers have dramatically changed the world around us over the last 60 years and these materials are expected to play an increasingly crucial role in determining technological progress in the future. The aim of this course is to provide an overview of the methods used to synthesize macromolecules and how synthetic methodology allows their material properties to be controlled.

Prerequisites: None needed.

Readings: There is no dedicated text for this course.
Articles will be made available to complement lecture notes.
Important course materials will be regularly delivered on Quercus.
Check your email or Quercus daily for updates.

Honor code: Students are expected to contribute to a mutually respectful learning environment though intellectual honesty, dynamic discussions, and openness for peers, course assistants, and the instructor. Details are outlined at the end of the syllabus.

II. COURSE ORGANIZATION

The content of the lectures may change depending on course progress. Due to the interactive nature of the course, student must be present for modules 6, 8, 9, and 12 at minimum, as it will involve providing feedback and asking questions during the presentation. It is highly recommended that the students attend lecture in-person.

Text in blue/italics indicates item related to grading. Assignments are due the following Monday at 5 pm ET unless stated otherwise.

Module	Dates	Topics - Tentative
1	Jan. 12	Joint: Course introduction + brainstorm *Partners for the collaborative project will be assigned.*
2	Jan. 19	Dwight: Polyolefins *Assignment: create a quiz question*
3	Jan. 26	Dwight: Conjugated polymers *Assignment: create a quiz question*
4	Feb. 2	Dwight: Dynamic covalent chemistry, vitrimers, and cross-linking *Assignment: create a quiz question*
5	Feb. 9	Dwight: Supramolecular chemistry: COFs + MOFs *Assignment: create a quiz question*
6	Feb. 16	Joint: collaborative project tutorial
	Feb. 23	No class
7	Mar. 2	Joint: Python tutorial + automate something in your lab *Bring your laptop to class*
8	Mar. 9	Joint: collaborative project tutorial
9	Mar. 16	Helen: Mechanochemistry *Assignment: create a quiz question*
10	Mar. 23	Helen: Green chemistry *Assignment: create a quiz question*
11	Mar. 30	Helen: How to break down polymers: degradability, self-emolative, and recycling *Assignment: create a quiz question*
12	Apr. 6	Helen: Automation and machine learning for polymers *Quiz*
13	TBA	Exam week: 25 minute presentations

IV. EVALUATION

Overview: Assignments – 35%
Quiz – 15%
Python project – 10%
Collaborative project – 40%

Assignments: Based on the content material presented in the course and reported literature, students will create a quiz question for each lecture. These questions will be kept private.

Quiz: The quiz will be administered online. Quizzes are to be completed independently.

Python project: Students do not need to know Python for this course. Students will learn how to use Python with this introductory project with step-by-step directions. The Scientific Spotlight will help students start using Python, if they did not previously use it. Students will use Python to automate something in their own research project.

Collaborative project: On the first day of lecture, we will collectively decide on the format of the collaborative project. Students will be paired up for the collaborative project, and their partner will not be from the same research group. Students will work on a literature review or research proposal, where the work will be divided and shared. There will be an individual component and collaborative component, as well as attestation of work. Potential topics for a literature review include single molecule conductance for understanding polymer molecular design, catalysts for ROMP, in-vivo polymerizations, photochemistry and 3D printing.

IMPORTANT: if an unexpected technical issue occurs with a university system (e.g., Quercus services, network outage) that affects availability or functionality, it may be necessary to revise the timing or weighting of the quizzes/term tests. Moreover, new content may be made available or new circumstances arise, which may slightly alter the course schedule and content.

V. COURSE POLICIES

Announcements will be made on Quercus, so please check the website regularly for updates. All course content presented synchronously will be uploaded to Quercus for asynchronous learning. Notably, important engagement from group work from synchronous learning enhances the students understanding of the course material; it is recommended student attend all course meetings, if possible. Students will need to collaborate (either asynchronously or preferably synchronously) on certain assignments, and will be expected to complete a presentation (different time zones will be accommodated).

VI. TECHNOLOGY REQUIREMENTS

Specific guidance from the U of T Vice-Provost, Students regarding student technology requirements is available at https://www.viceprovoststudents.utoronto.ca/covid-19/tech-requirements-online-learning/. Advice for students more broadly regarding online learning is available at https://onlinelearning.utoronto.ca/getting-ready-for-online/. This course requires the use of computers. Computer viruses, crashed hard drives, lost or corrupted files, incompatible file formats, and similar mishaps are common issues when using technology, and are not acceptable grounds for a deadline extension.

VII. INSTITUTIONAL POLICIES AND SUPPORT

On academic integrity:
Academic integrity is essential to the pursuit of learning and scholarship in a university, and to ensuring that a degree from the University of Toronto is a strong signal of each student's individual academic achievement. As a result, the University treats cases of cheating and plagiarism very seriously. The University of Toronto's Code of Behaviour on Academic Matters (governingcouncil.utoronto.ca/secretariat/policies/code-behaviour-academic-matters-july-1-2019) outlines the behaviours that constitute academic dishonesty and the processes for addressing academic offences. Potential offences include, but are not limited to:

On quizzes and term tests:
1. Using or possessing unauthorized aids. Please note that the use of websites (such as Chegg.com or the course discussion board) to post quiz/term test questions or to post/access answers to questions is an academic offence under the University of Toronto's Code of Behaviour on Academic Matters. Alleged instances of this nature are forwarded to the Faculty of Arts & Science Student Academic Integrity office.

2. Looking at someone else's answers or collaborating/discussing answers during a quiz or term test.
3. Misrepresenting your identity.

In general academic work:
1. Falsifying institutional documents or grades.
2. Falsifying or altering any documentation required by the University.
All suspected cases of academic dishonesty will be investigated following procedures outlined in the Code of Behaviour on Academic Matters. If you have questions or concerns about what constitutes appropriate academic behaviour or appropriate research and citation methods, you are expected to seek out additional information on academic integrity from your instructor or from other institutional resources (www.academicintegrity.utoronto.ca/).

Plagiarism detection:
When appropriate, students will be required to submit their course essays to the University's plagiarism detection tool for a review of textual similarity and detection of possible plagiarism. In doing so, students will allow their essays to be included as source documents in the tool's reference database, where they will be used solely for the purpose of detecting plagiarism. The terms that apply to the University's use of this tool are described on the Centre for Teaching Support & Innovation web site (https://uoft.me/pdt-faq).

Copyright:
If a student wishes to copy or reproduce course content provided by instructors, the instructor's written consent must be obtained beforehand. Otherwise all such reproduction is an infringement of copyright and is absolutely prohibited. More information regarding this is available at https://teaching.utoronto.ca/ed-tech/audio-video/copyright-considerations/.

Accessibility Needs
Students with diverse learning styles and needs are welcome in this course. The University of Toronto is committed to accessibility: if you require accommodations for a disability, or have any other accessibility concerns about the course, please contact Accessibility Services (https://studentlife.utoronto.ca/department/accessibility-services/) as soon as possible.

Accommodations for religious observances
Following the University's policies, reasonable accommodations will be made for students who observe religious holy days that coincide with the due date/time of an assignment, tutorial, class or laboratory session. Students must inform the instructor before the session/assignment date to arrange accommodations.

Additional services & support
- The following are some important links to help you with academic and/or technical service and support:
- General student services and resources at Student Life
- Full library service through University of Toronto Libraries
- Resources on conducting online research through University Libraries Research
- Resources on academic support from the Academic Success Centre
- Learner support at the Writing Centre
- Information for Technical Support/Quercus Support

Acknowledgement of traditional lands
We wish to acknowledge this land on which the University of Toronto operates. For thousands of years, it has been the traditional land of the Huron-Wendat, the Seneca and, most recently, the Mississaugas of the Credit River. Today, this meeting place is still the home to many Indigenous people from across Turtle Island and we are grateful to have the opportunity to work on this land.