

## **TENTATIVE: CHM 1307 SYLLABUS (Winter 2022)**

Soft Materials for Life, Energy, and the Environment

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<b>INSTRUCTOR:</b>	Prof. Helen Tran Email: tran@utoronto.ca Office: Lash Miller Laboratories 514 Student hours: Thursday, 4:30 pm ET; or by appointment ( <u>Tentative</u> ) <i>Student hours are designated times to clarify concepts, review course aims, discuss ideas, or just chat with Helen (about fellowships, careers, etc.)!</i>
<b>COURSE MEETING:</b>	Tuesday, 10 am - 12 pm ET Location: LM157
<b>PREREQUISITES:</b>	Recommended: 1300H
<b>TEXTBOOKS:</b>	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.
<b>OVERVIEW:</b>	Welcome to Soft Materials for Life, Energy, and the Environment! In the framework of a dry lab that takes place during lecture, students will analyze and interpret characterization data, extending their existing knowledge of chemical fundamentals and experimental techniques to polymeric systems. Through a combination of lectures, dynamic collaborations, and self-paced assignments, students will actively engage with peers to understand course materials (including published literature), explore how polymer innovations are commercialized, and develop a toolkit for leveraging instrumentation to investigate hypotheses in research. Students will prepare a pitch for a polymer start-up as part of the course. Note that this course will include interactions with peers, presentations to the group, and elements of a start-up pitch which may be unconventional for a chemistry course. At the end of the course, students will be able to link their knowledge of analytical techniques learning in the context of small molecules to polymers, identify an opportunity where polymer research may be translated for commercial applications, and analyze the efficacy of science literature to the general public.
<b>HONOR CODE:</b>	Students are expected to contribute to a mutually respectful learning environment through intellectual honesty, dynamic discussions, and openness for peers, course assistants, and the instructor. Details are outlined at the end of the syllabus.
<b>GRADING:</b>	Online assignments – 40% Quiz – 10% Python project – 10% Journal club – 20% Start-up Pitch – 20%  <i>The start-up pitch involves preparing a 2 page executive summary and slide deck presentation, which will be presented to the class and invited experts. Assignments will be accepted up to 2 days after for credit up to 70% (certain assignments are excluded).</i>

## COURSE SCHEDULE:

The content of the lectures may change depending on course progress. For the 10 minute literature review, students will explain published research to demonstrate their knowledge of previous lectures.

*Text in blue/italics indicates item related to grading. Assignments are due the following Monday at 5 pm (excepts have dates listed).*

Module	Dates	Topics
1	Jan. 11	Course introduction + notable polymer start-ups / companies <i>Assignment: introduce yourself, questionnaire, scientific spotlight</i>
2	Jan. 18	Purification and molecular weight characterization <i>Assignment: problem set</i>
3	Jan. 25	X-Ray scattering <i>Assignment: problem set</i>
4	Feb. 1	Electron conducting polymers <i>Assignment: mobility python script due February 22nd</i>
5	Feb. 8	Sequence-specific polymers <i>Assignment: submit a quiz question</i>
6	Feb. 15	Imaging <i>In-class quiz</i>
7	Mar. 1	Mechanical characterization <i>Journal club: all presentations due March 9th</i>
8	Mar. 8	<i>Peer presentations: 10 min literature review per group</i> <i>In class assignment: peer review and feedback</i>
9	Mar. 17	<i>Peer presentations: 10 min literature review per group</i> <i>In class assignment: peer review and feedback</i>
10	Mar. 22	Hydrogels and crosslinked networks <i>Start-up pitch: all presentations due March 30th</i>
11	Mar. 29	Recyclability and biodegradability
12	Apr. 5	<i>Peer presentations: 5 min VC pitch competition per group</i> <i>In class assignment: peer review and feedback</i>

## **MORE INFORMATION:**

### **Course policies:**

Each week, a new module will be released on Quercus and you are expected to review the lecture notes as needed, participate in class discussions and submit any assignments according to the deadlines. 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). Students are encouraged to additionally attend the student hours, which may rotate times to accommodate students in different time zones. If the student is unable to attend the designated times by the instructor or course assistants, please email to schedule an appointment.

### **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 outlines the behaviours that constitute academic dishonesty and the processes for addressing academic offences. Read about it <https://governingcouncil.utoronto.ca/secretariat/policies/code-behaviour-academic-matters-july-1-2019>. All suspected cases of academic dishonesty will be investigated following procedures outlined in the Code of Behaviour on Academic Matters. Read more about academic integrity: <https://www.academicintegrity.utoronto.ca/>

### **Use of Turnitin:**

Normally, students will be required to submit their course essays to Turnitin.com 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 Turnitin.com reference database, where they will be used solely for the purpose of detecting plagiarism. The terms that apply to the University's use of the Turnitin.com service are described on the Turnitin.com web site.

### **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.

### **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/departments/accessibility-services/>) as soon as possible.