Primary Textbook:
_Polymer Chemistry, 3rd Edition_, Heimenz and Lodge

Optional Textbooks (Do not need to buy. Stevens has more breadth, and Odian has more depth)
1) _Polymer Chemistry, 3rd Edition_, Stevens
2) _Principles of Polymerization, 4th Edition_, G. Odian

Office Hours, TA, and instructor information
Instructor: Prof. Evans, cme365@illinois.edu, 217-300-9949
Office hours: Wednesday, 1:30-2:30 pm
TAs: Peng Lan, Chan Song
TA Office hours: Monday 2-3 pm, and Thursday 4-5 pm

Grading
Homeworks are worth 15% (~10 homeworks) and will be submitted on Gradescope (Entry Code WV7JV6). If you don’t do the homework, you will likely have serious difficulties on the exams. Over the course of the semester, you are allowed to drop 1 HW for any reason. _Late homeworks will be accepted with a reduction of 10% per hour late._ Although you are encouraged to talk about the problems with your classmates, you must submit an original homework. _Homeworks which exhibit copying or plagiarism will receive zero points._

You have _2 weeks to ask for a regrade on all HW and exams_. Students must first look at the posted solutions before requesting a regrade. Requests made on the same day that an assignment is handed back will not be accepted.

There will be _two midterm exams (20% each) and one final (30%)_. Weekly _quizzes_ will be posted online and these will be worth _15%_ of the grade.

_Midterm 1:_ Friday, September 22, 11-11:50
_Midterm 2:_ Friday, November 3, 11-11:50
_Final Exam:_ Friday December 10, 1:30-4:30
_Quiz Schedule (all on Friday, due 11:59 pm):_ 9/1, 9/8, 9/15, 9/29, 10/13, 10/20, 10/27, 11/10, 12/1

_Homework due dates (all on Wednesday, due 11:59):_ 8/30, 9/6, 9/13, 9/20, 9/27, 10/4, 10/11, 10/18, 10/25, 11/1, 11/8, 11/15, 11/29

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_MSE 457/CHEM 480_  
“Polymer Chemistry”  
Instructor: Prof. Christopher Evans  
Fall Semester 2023  
2310 Everitt Hall  
web page: Canvas
4-credit option:
The four credit option for this class requires both a written proposal and oral presentation on a topic covered in the course. More details will be given later in the semester.

Course outline and corresponding book chapters (Hiemenz and Lodge)

Module 1 (3 Lectures): Introduction and nomenclature, Molecular weight definition, Organic Chemistry Review (Chapter 1 of H&L)

Module 2 (11 Lectures): Step growth polymers, branching and network formation, kinetics, interfacial polymerization, dendrimers (Chapter 2 of H&L)

Module 3 (6 Lectures): Chain growth polymerization, free radical polymerization, initiation, emulsions (Chapter 3 of H&L, Chapter 4 of Odian for emulsions)

Module 4 (4 Lectures): “Living” radical methods (ATRP, NMCRP, RAFT), Anionic and Cationic polymerization, ring opening polymerization (Chapter 4 of H&L)

Module 5 (4 Lectures): Copolymers, microstructure, characterization, catalytic and stereo-controlled polymerization (Chapter 5 of H&L)

Module 6 (3 Lectures): Assorted current and emerging topics in polymer science (conductive polymers, solid state synthesis, sequence specific polymers, dynamic polymer networks, frontal polymerization)