

Spring 2021

CHE 782-102: Polymer Structures and Properties

Kathleen McEnnis

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CHE 782 – Polymer Structure and Properties Spring 2021

Instructor: Dr. Kathleen McEnnis

PhD, Assistant Professor in CME Department

She/Her/Hers pronouns

Email: mcennis@njit.edu

Office Hours via WebEx: Tuesdays 1-2pm & Fridays 10-11am.

Schedule an appointment through Canvas Office Hours
tool. Please email me for other times.

Text: Polymer Physics, Michael Rubinstein and Ralph H. Colby, ISBN: 9780198520597

Class: Wednesday 6:00 PM-8:50 PM via Webex

Course: The course provides an overview of polymer structures and properties and their relationships from the molecular viewpoint to phenomenological descriptions. Topics include thermodynamics of a single molecule, dynamic theory and viscoelasticity of polymers, polymer solids and mechanical properties, rubbers, polymer blends and composites, biological polymers, and special applications. New areas and innovative applications of polymers will be introduced.

Pre or Corequisite: CHE 611

Withdraw Deadline: April 5, 2021

Course Administration: Administration of this course will be done through Canvas where links to Webex can be found.

Homework: Homework assignments will be given in class or posted on Canvas. Homework is for you to practice and will not be graded.

Exams: There will be two exams and one final exam. All exams are closed book and closed notes, however an equation sheet will be provided. If you miss an exam or final, you must contact the Dean of Students with your excuse. No makeup exams or finals will be granted unless the Dean of Students contacts me about your reason for missing and it is deemed an acceptable excuse. Exams will be given online through the Canvas Quiz Tool during class time and will be proctored through Respondus Lockdown & Monitor and Webex on a mobile device.

Project: Details of the project will be announced in class.

GRADING

2 Exams	50%
Final	30%
Project	<u>20%</u>
	100%

Grades will be based on:

A: 90 – 100%
B+: 80 – 89%
B: 70 – 79%
C+: 60 – 69%
C: 50 – 59%
F: 0 – 49%

Electronic Device Policy: The exams and final for this class will be administered online through Respondus Lockdown & Monitor, so a computer with a webcam is required. In addition, a second electronic device with a camera (such as a cell phone or tablet) will be used to proctor using Webex and for uploading your work at the conclusion of the exam. If you are lacking any of these devices please reach out to either me or the Dean of Students office. During exams calculators are permitted, but use of cell phones or other devices are not allowed except for using Webex for proctoring purposes or for uploading work at the end of the examination time.

Webex Meeting Etiquette – This class meets synchronously online through Webex and attendance is expected and will be collected. During class, please remain muted unless speaking. You may ask questions by unmuting and speaking, typing in the chat box, or using the ‘raise your hand’ feature. Please note that I may miss a question in the chat or a raised hand, so unmute and speak up if I have missed the question. Though use of your webcam is not required during lecture, it is strongly recommended to make class more interactive. Please have your webcam on during lecture if you are able to. Note that Webex has virtual backgrounds to afford you more privacy during class time (though these are not allowed during proctoring of exams).

Academic Integrity Policy: Academic Integrity is the cornerstone of higher education and is central to the ideals of this course and the university. Cheating is strictly prohibited and devalues the degree that you are working on. As a member of the NJIT community, it is your responsibility to protect your educational investment by knowing and following the academic code of integrity policy that is found at:

<http://www5.njit.edu/policies/sites/policies/files/academic-integrity-code.pdf>.

Please note that it is my professional obligation and responsibility to report any academic misconduct to the Dean of Students Office. **Any student found in violation of the code by cheating, plagiarizing or using any online software inappropriately will result in disciplinary action. This may include a failing grade of F, and/or suspension or dismissal from**

the university. If you have any questions about the code of Academic Integrity, please contact the Dean of Students Office at dos@njit.edu.

Use of “homework help” sites such as Chegg.com to complete class work is prohibited. Any student found to have used one of these sites on an assignment will be reported to the Dean of Students Office for a potential academic integrity violation.

Topics

Single Chain Conformation
Dilute Solutions
Semidilute Solutions
Concentrated Solutions/Blends
Chain Dynamics
Glasses
Crystals
Rubber Elasticity

Key Dates

Project Selection Due Feb 17
Exam 1 March 3
Project Due March 31
Exam 2 April 14
Final Exam TBA
(will take place during the May
7 – May 13 Final Exam period)

Dates and topics may be subject to change.

If you need accommodations due to a disability please contact Chantonette Lyles, Associate Director of Disability Support Services, Fenster Hall Room 260 to discuss your specific needs. A Letter of Accommodation Eligibility from the Disability Support Services office authorizing your accommodations will be required.