

Fall 2018

Polymeric Properties in Food

Instructor

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Time and Place

This is a three credits course. The course meets during the fall semester of 2018 on Wednesday from 7:15-10:05 pm in Room 101.

Office hours: 2:00 – 4:00pm, Wednesday

Topics [week(s)]

Lecture 1	Introduction to Polymer Science: Structure & MW	Sept. 5
Lecture 2	Polymer Conformation: Ideal Chains	Sept. 12
Lecture 3	Polymer Conformation: Real Chains	Sept. 19
Lecture 4	Thermodynamics of Polymer Solutions	Sept. 26
Lecture 5	Network and Gelation	Oct. 3
Lecture 6	Characterization of Polymer Structures: Scattering Techniques	Oct. 10
Mid-term:		Oct. 17
Lecture 7	Viscoelasticity and Elasticity of Polymers	Oct. 24
Lecture 8	Solid-State Properties of Polymers	Oct. 31
Lecture 9	Naturally Occurring Biopolymers	Nov. 7
Lecture 10	Impact of Water Activity on Food Biopolymers	Nov. 14
Lecture 11	Biopolymer Films & Nanocomposites	Nov. 28
Lecture 12	Biopolymers for Food/Drug Delivery Applications	Dec. 5
Final Exam		Dec. 12

Reading Materials

Book #1: “Polymer Physics”, M. Rubinstein & R. Colby, Oxford University Press: Oxford, UK, 2004.

Book #2: “Polymer Science & Technology”, 3rd ed., J. R. Fried, Prentice Hall, 2014.

#3: The instructor will also provide handouts from review articles and book chapters for related topics.

Grading

Grades will be based on a homework (20%), mid-term (40%), and final exam (40%).