

MS/ME/BE 504 Polymers and Soft Materials
T/Th 2-4pm GCB206, Spring 2012

Professor Catherine Klapperich, catherin@bu.edu

Office Hours: W 1-3 pm, Room 725 ERB

BlackBoard 8 Website MS/ME/BE 504

Textbook: Introduction to Polymers, Young and Lovell (1991, CRC Press)

Grading: Attendance 5%, HW 15%, Midterms 20% each, Final 40%

Lecture	Date	Topic	Reading
1	17-Jan	Introduction, polymerization	Y&L, 1.1, 1.2, 2.1, 2.2, 2.4, 2.10
2	19-Jan	Chains, thermodynamics of polymer solutions	Y&L, 3.1-3.3
3	24-Jan	Molecular weight distributions	Y&L, 3.5
4	26-Jan	Flory-Huggins and lattice theory, mixing I	Y&L, 3.2
5	31-Jan	Mixing II	
6	2-Feb	Phase diagrams I	
7	7-Feb	Phase diagrams II	
8	9-Feb	Polymer blends, viscosity	
9	14-Feb	Osmometry, SEC, GPC	Y&L 3.6-3.7, 3.17
10	16-Feb	Midterm #1	
	21-Feb	No Class - MONDAY CLASSES	
11	23-Feb	Glass transition temperature	
12	28-Feb	Diffusion, reptation, elasticity	
13	1-Mar	Rubber elasticity	
14	6-Mar	Gels	
15	8-Mar	Self organization, micelles, etc.	
	13-Mar	No Class - Spring Break	
	15-Mar	No Class - Spring Break	
16	20-Mar	Chain architecture and microdomains	
17	22-Mar	Block co-polymers and blends	
18	27-Mar	Semicrystalline microstructures	
19	29-Mar	Mechanical properties - microscale	
20	3-Apr	Mechanical properties - linear viscoelasticity	
21	5-Apr	Dynamic mechanical response	
22	10-Apr	Midterm #2	
23	12-Apr	Yielding in polymers	
24	17-Apr	Surface properties	
25	19-Apr	Polymer surface characterization	
26	24-Apr	Application: Tissue Engineering	
28	26-Apr	Overview of polymer processing	
28	1-May	Review/wrap up	
	9-May	Final Exam 9am -11am	

1. Homework will be turned in but not graded.
2. Academic dishonesty of any kind will not be tolerated.
3. Attendance is part of your grade.