

SYLLABUS: POLYMER PHYSICS (MSE: 20-261-753)PDF File: (Click to Down Load): [Syllabus.pdf](#)[=> Back to TOC](#)Quarter: Fall, 2000: **1:00 - 1:50 MWF 513 Rhodes Hall**Instructor: Prof. Greg Beaucage
gbeaucag@uceng.uc.edu

556-3063(Office)/-5152 (Lab)/-9305(Lab)

540 ERC/410 Rhodes

Textbook:

1) "The Physics of Polymers, 2'nd Edition, Concepts for Understanding Their Structure and Behavior" G. Strobl, Springer Press 1997.

2) "Introduction to Polymer Physics" M. Doi, Clarendon Press 1996.

3) Class Notes Posted on the Web at:**<http://www.eng.uc.edu/~gbeaucag/BeaucageResearchGroup.html>**

4) "Scaling concepts in polymer physics" P. G. de Gennes 1979.

5) "The theory of polymer dynamics" Oxford University Press, 1986.

6) "Principles of polymer chemistry." P. J. Flory, 1953.

Level: Graduate (Undergraduate by petition)

Synopsis of Course: The Dynamics section of this course gives students a basic level of knowledge of the terminology and mathematics involved in the physical understanding of the dynamics of polymers. Most of the topics deal with post-1970 concepts involving the dynamics of polymeric materials. The course is intended for graduate students who would like to gain an understanding of modern approaches to polymer physics. The course will closely follow Strobl's Book listed above. Introductory courses in polymers and thermodynamics would be sufficient preparation for the course. The syllabus follows Strobl's Chapters 5, 6, and 7 with supplementary material.

**Parts:
html and pdf**

Syllabus.html	Syllabus.pdf
Mechanical Basis for Dynamics.html	Mechanical Basis for Dynamics.pdf
Modes of Relaxation.html	Modes of Relaxation.pdf
Specific Relaxations.html	Specific Relaxations.pdf
Flow.html	Flow.pdf
Dissipation of Fluctuations.html	Dissipation of Fluctuations.pdf
Rouse Model.html	Rouse Model.pdf
Entanglements.html	Entanglements.pdf
Hydrodynamic Interactions.html	Hydrodynamic Interactions.pdf
Stress Optical Coefficient.html	Stress Optical Coefficient.pdf

Course requirements:**Quizzes (Equal Weight)**

8 to 10 Weekly Quizzes

End of each Wednesday Class, 1 problem (usually with 5 parts)

20 minutes

Final Exam

During Finals Week. (3 *Quizes*)