

## Chemistry 482

### Polymer chemistry II

Text: L. H. Sperling, *Introduction to Physical Polymer Science* 4<sup>th</sup> edition

#### Topics:

1. Chapter 1: Basics
  2. Chapter 2: Chain structure and configuration
  3. Polymer reactions
  4. Chapter 3: Polymer solutions and molecular weights
  5. Chapter 4: Phase separation
  6. Chapter 5: Amorphous state
  7. Chapter 6: Crystalline state
  8. Chapter 7: Liquid crystalline state
  9. Chapter 8: Glass transition
  10. Chapter 9: Rubber elasticity
  11. Chapter 10: Viscoelasticity
  12. Chapter 11: Mechanical behavior
  13. Chapter 12: Surfaces
  14. Chapter 13 Multicomponent materials
  15. Chapter 14 Modern topics
- Polymer microscopy (laboratory)

**Grading:** Grading will be based upon weekly quizzes, homework and preparation for class.

#### Objectives:

- To attain a greater understanding of physical polymer science.
- To acquire language needed to understand engineering, materials science and physical areas of polymer science.
- To understand theories of polymer thermodynamics, kinetics and viscoelasticity.
- To survey topics of current interest such as composites, nanomaterials, conductivity, optical properties of polymers.

#### Absence policy:

Absences are excused for a) personal illness, b) death or critical illness in the family, c) participation in a university-sponsored activity, d) jury duty, e) military duties, or f) religious holidays, if acceptable written documentation of the reason is provided. The instructor should be notified in advance of the absence, if possible.

The student is responsible for arranging to make up work from any class or lab you miss, whether your absence is excused or not. Labs, quizzes and exams may be made up, at the instructor's convenience, only if the absence is excused. Work must be made up within one week of student's return, unless otherwise directed by instructor.