CHEM/ ChBE/MSE 6750
Molecular Sciences & Engineering Room 1201A

# Preparation and Reactions of Polymers
# (Alias Polymer Synthesis)

Professor John R. Reynolds
MoSE 2120B, Reynolds@chemistry.gatech.edu

Spring 2018 T/Th 12:00 p.m. to 1:15 p.m.

Text: *Principles of Polymerization* by George Odian (4th Edition)

Lectures: This course will present the fundamentals of synthetic polymerization chemistry via step-growth and chain-growth (radical/ionic) mechanisms. Topics will include polymerization reactions for most common classes of polymers, along with the thermodynamics and kinetics of polymerization. Lectures will, in general, follow the text with exclusion of specific portions. Supplemental material will be added to provide perspective in more recent developments and applications of polymers.

Readings: Assignments made for reading specific portions of the text and material from outside sources will be "fair game" on exams.

Homework: Specific problem sets will be assigned during the course. These will not be collected or graded. Problem solving will be an important part of the exams and the assigned problems will provide necessary exposure.

Grading: Grading will be based on a total point system with points accumulated from two mid-terms, one final exam and one Technical Position paper. Approximate standing during the course can be obtained by private discussion with the instructor.

Exams: Exams will be worth 100 points each. Dates for the exams are:

Exam 1 - Tuesday, February 13
Exam 2 - Thursday, March 29
Final Exam Monday, April 30, 11:30 a.m. – 2:20 p.m.
*(The final will be comprehensive but will still be worth 100 points.)*

Position Paper: A Technical Position paper (*ca.* 5-10 pages) will be required for this course and will be worth 100 points. Topic assignments will be made in late January and the paper will be due by Tuesday, April 3. A penalty of 10 points per class period will be assessed for late papers. It is expected that students will use primary journals, such as *J. Am. Chem. Soc., Macromolecules* and *Journal of Polymer Science,* in researching their topics.

Office Hours: MoSE 2120B, Tuesdays, 2:30 p.m. – 3:30 p.m., and by appointment. Contact via e-mail at Reynolds@chemistry.gatech.edu (subject line - Polymer Chemistry 6750)

Academic Honesty: Students are expected to adhere to the Georgia Tech honor code in all aspects of this course (see http://osi.gatech.edu/content/honor-code for details).