I. Course Description

A basic study of polymer chemistry, with special emphasis on the effect of the structure of monomers upon the structure of the polymers is presented.

II. Prerequisites

CHEM 2024

III. Expanded Course Description

Chemistry 4293 is a course in the structure, functions, properties, nomenclature, synthesis, and reactions of synthetic and natural polymers. It includes history, morphology, rheology, solubility, molecular weights, characterization, natural polymers, step reaction polymerizations, chain reaction polymerizations, copolymers, additives, and reactions of polymers.

IV. Intended Student Learning Outcomes

Knowledge Outcomes

The student who successfully completes this course will be able to
A. understand the structural features of a typical polymer
B. understand the relationship between synthesis and structure
C. understand the relationship between structure and physical properties
D. understand how copolymers and additives affect properties
E. understand various concepts of polymer structure and function
Skill Outcomes

The student who successfully completes this course will be able to
A. relate the name to the structure of a synthetic polymer
B. define or illustrate key concepts of polymer chemistry
C. outline the steps in the synthesis of a polymer
D. calculate different types of molecular weights of polymers and relate to properties
E. compare and contrast synthetic and natural polymers as to structure and properties
F. use the chemical literature.

Value Outcomes

The student who successfully completes this course will
A. gain an appreciation for the ubiquity and importance of polymers
B. gain and increased appreciation for the power of how science works

V. Unless otherwise stipulated in this master syllabus by the department, the following items are subject to faculty discretion as described in each faculty member's individual course outline/ syllabus.

a) Course Requirements
Students are expected to attend all classes and complete all assigned homework and reading. Students will write and present a paper on an aspect of polymer chemistry. Grades will be calculated based on the paper, two exams, homework, and a final exam.

b) Required Textbook and Materials

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Department Head Signature / Date

___________________________________________  ___/ ___/ _____
Signature  month  date  year