ChE 645—Chemical Engineering Kinetics

Description:
Review of homogeneous kinetics, including kinetics of homogeneous reactions and interpretation of reactor data; reactor design for single and for multiple reactions. Nonideal flow and models.

Instructor:
Bill Crockett 746-2040 and **bcrockett@marshall.edu**

Text:
Davis, Mark and Robert Davis, Fundamentals of Chemical Reaction Engineering, McGraw-Hill, 2003

Topics:
Basics of Reaction Kinetics
Rate Constants of Elementary Reactions
Reactors for Measuring Reaction Rates
The Steady-State Approximation: Catalysis
Heterogeneous Catalysis
Effects of Transport Limitations on Rates of Solid-Catalyzed Reactions
Microkinetic Analysis of Catalytic Reactions
Nonideal Flow in Reactors
Nonisothermal Reactors
Reactor Accomplishing Heterogeneous Reactions

Requirements for the course:
There will be homework for each topic covered. Homework will be done individually. Final grade will be determined by grades obtained on the homework. For an A: Work 30 problems, at least 2 from each chapter; For a B: Work 22 problems with at least 2 from each chapter; for a C: Work 15 problems, with at least 1 from each chapter.

Note: If there are less than 5 students, the course will be done as an independent study with students meeting with the instructor at their request; homework can be submitted through the internet or by fax if desired. The fax number is 746-2063.