Environmental Health Sciences 264

FATE AND TRANSPORT OF ORGANIC CHEMICALS IN THE AQUATIC ENVIRONMENT

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Text/Reader – Required

Exams: Final: In class, closed book  50% of grade

Homework: To be distributed

     2) Aquatic modeling Problem  30% of grade

Term Project: Fate and Transport of an Organic Chemical: Comparison of a Computer Model vs.Reality
A Student Assistant will help with the Computer modeling par to the course

Lecture Topics

I. Overview-Models and Calculations
   1. Introduction – Lecture 1
      A. "Normal" Element Cycles in the Environment
      B. Interactions between the Air and Water Environment - Sources, Sinks and Rates
      C. Pollutants - Chemical, Physical, Biological Fate
      D. Water - The mover and Shaker
   2. Models - Equilibrium Type - "CEPAC" Lecture 2-4
   3. The Nature of Organic Chemicals
      A. Vapor Pressure
      B. Solubility
      C. Structural Activity Relationship
   5. Models - Fugacity – Mackey Lecture 6
   6. Models - Multimedia – Cohen

II. Transport-Interfacial Phenomena Lectures 7-12
   1. Air-Water Interfacial Phenomena (Lectures 7-8)
   2. Water-Solid Interfacial Phenomena (Lectures 9-11)
   3. Air-Solid Interfacial Phenomena Lectures (12)

III. Chemical Processes Lectures 13-17
   1. Hydrolysis
   2. Photolysis

IV. Biological (Biochemical) Processes 18-20
   1. Bioaccumulation
   2. Biodegradation