



THE OHIO STATE UNIVERSITY
COLLEGE OF ENGINEERING

Integrated Environmental Chemical Fate and Transport

ENVENG 4400

Credit Hours:

3.00 - 3.00

Course Levels:

Undergraduate (1000-5000 level)

Course Components:

Lecture

Course Description:

Fate and transport of pollutants within and between air, water, and soil. This requires an understanding of thermodynamics and mass transfer concepts related to environmental engineering, which is the focus of the first portion of the course. In the second portion, students apply these concepts to develop predictive fate and transport models.

Prerequisites and Co-requisites:

Prereq: Sr standing in Engineering, or permission of instructor.

Course Goals / Objectives:

- ? Understand what physicochemical properties influence the partitioning of chemicals between environmental media
 - ? Understand how mass is transported within air, water, and soil
 - ? Develop models to predict fate and transport of pollutants within and between environmental media
-

Course Topics:

- Review of background material – box models, mass balances, environmental chemistry, chemical kinetics, dimensionless groups
 - Environmental thermodynamics
 - Transport fundamentals – advection and diffusion, mass transfer
 - Numerical modeling of environmental systems
 - Fate and transport – aquatic systems; subsurface media; atmosphere; case studies
 - Chemical exchange between media – air and water, water and soil, soil and air
-

Designation:

Elective