THE OHIO STATE UNIVERSITY
COLLEGE OF ENGINEERING

Integrated Environmental Chemical Fate and Transport for Graduate Students

ENVENG 6400

Credit Hours:
3.00 - 3.00

Course Levels:
Graduate

Course Components:
Lecture

Course Description:
Fate and transport of pollutants within and between air, water, and soil. Understanding this fate and transport 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: Grad standing in Engineering, Earth Science, or Environmental Science, 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
- ? Write brief summaries and demonstrate critical thinking ability with respect to journal articles

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

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Designation:

Elective