CHE 538  Environmental Exposure and Risk Assessment

Credit Structure:  (3-0)  3

Importance of the Course:

Two primary goals of environmental regulation are to protect public health and environment from the adverse effects of pollutants. The degree of the required protection is dependent upon the level of risk posed. Determining the risk to humans posed by environmental contaminants involves consideration of several steps. These steps are: (1) pollutant sources, (2) concentrations in environmental media, (3) human exposure to pollutants, (4) amount of contaminant that enters the human body, i.e., dose, (5) resulting health effects. Each step is affected by the previous one; therefore, understanding each is fundamental.

Catalog Description:


Course Objective:

The objective of this course is to enable the student to understand concepts of human exposure and associated health risks, and to use information from the other three steps involved and assess risk levels. The secondary objective is to introduce concepts of ecological risk assessment.

Prerequisites:

None

Textbook(s):


Tentative Course Outline

1. Evaluation of Toxicological Data
   Epidemiological studies, animal studies, route of exposure, determination of the weight of the evidence, health information resources

2. Human Exposure Assessment
   Assessment methods, routes of exposure and their quantitative expression, pharmacokinetic and physiological factors, exposure pathways, human dose calculations, chemical-specific considerations, input parameters, scenarios, characterization of population

3. Risk Assessment

4. Ecological Risk Assessment
   Basic paradigm and approaches, hazard assessment, exposure assessment, dose-response relationships, risk characterization

Homework, Projects:
Several homework, Term paper

Instructor:
Asst. Prof. Dr. Sait C. Sofuoğlu