



THE UNIVERSITY OF ARIZONA

Mel & Enid Zuckerman
College of Public Health

**Mel and Enid Zuckerman College of Public Health
University of Arizona**

EHS 518 Introduction to Human Health Risk Assessment

Catalog Description: The purpose of this course is to enhance student's knowledge and skills related to environmental risk assessment, including hazard assessment, exposure assessment, toxicity assessment, and risk characterization. Graduate-level requirements include conducting a case study that will require them to collect secondary data in the field. (3 units)

Course Topics:

- Risk Assessment
- Dose Response
- Toxicology
- Microbial Risk Assessment
- Chemical Hazard Identification
- Exposure Assessment
- Risk Characterization/Simulations
- Risk Management, Perception, & Communication
- Regulatory Controls

Course Objectives: During this course, students will:

- Describe common, regulated, and emerging environmental contaminants and specific characteristics of each.
- List the various health effects/toxic endpoints associated with hazard exposures in healthy and sensitive populations.
- Identify primary and multiple exposure/transmission routes of environmental hazards.
- Understand the steps involved in, and be able to perform, a qualitative and quantitative risk assessment.
- Describe various approaches to risk analysis.
- Differentiate the pros and cons of epidemiological vs. risk assessment studies.
- Critique current research relative to methodological and statistical limitations and other assumptions or uncertainties.
- Perform simulation modeling exercises in Excel or other software program.
- Integrate computer modeling tools into public health risk assessments.
- Evaluate the use of risk assessment for regulatory development or other mitigations.
- Complete a formal risk assessment and present semester-long project results to the class.

Learning Outcomes (Competencies Obtained): Upon completion of this course students will be able to:

1. Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming and software, as appropriate
2. Interpret results of data analysis for public health research, policy or practice
3. Apply systems thinking tools to a public health issue
4. Demonstrate fundamental knowledge of the principles of environmental health sciences and be able to apply them
5. Utilize risk assessments and models

6. Demonstrate knowledge of local, federal and state regulatory programs
7. Develop effective written and oral communication skills