



THE UNIVERSITY OF ARIZONA

Mel & Enid Zuckerman College of Public Health

Mel and Enid Zuckerman College of Public Health University of Arizona

EHS 502 Environmental Monitoring Methods

Catalog Description: Introduction to sampling techniques and analytical methods to measure environmental contamination in the air, water, soils and food. Emphasis on instrument selection and quality control, including documentation, calibration, and sample management. (3 units)

Course Topics:

- Water Chemical & Biological
- Particulates
- Gas/Vapor
- Soil
- Fomites
- Biomarkers

Course Objectives: During this course, students will:

- Be introduced to multi-media sampling techniques and analytical methods for evaluation outdoor/indoor air, soil/surfaces, and water.

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

1. Recognize and classify the major types of chemical, physical and biological exposure agents capable of inducing disease in the public
2. Utilize basic strategies for evaluating or measuring exposure to chemical, physical and biological agents
3. Describe factors which influence the behavior of aerosols and their ultimate fate including deposition in the respiratory system
4. Utilize appropriate technical approaches for conducting environmental and industrial assessments
5. Utilize various sources of information to identify chemicals commonly employed in industry and their toxicity
6. Describe the base mechanism of toxicity and potential health effects and diseases caused by various chemical agents
7. Identify the steps involved in environmental and occupational health research
8. Describe qualitative and quantitative aspects of generation of agents, factors, and stressors
9. Demonstrate fundamental knowledge of the principles of environmental health sciences and be able to apply them
10. Develop and implement a basic study design addressing a testable hypothesis
11. Implement assigned research or work tasks including, data collection and management, evaluation, and data analysis
12. Demonstrate knowledge of local, federal and state regulatory programs
13. Identify barriers that impact project completion and communicate them effectively to the appropriate people

14. Develop effective written and oral communication skills
15. Exhibit a comprehensive knowledge of the principles of environmental health sciences
16. Develop new, innovative, applied or theoretical knowledge through research of health-related issues
17. Develop expertise in an environmental health science subspecialty
18. Comprehensively review and evaluate the scientific data, and gather and/or analyze preliminary data to develop testable hypotheses, study design(s) and research assessment protocols
19. Select and utilize appropriate tools of Environmental Health Sciences (may include exposure science, risk assessment modeling, risk management, risk communication and others depending on the project)