THE UNIVERSITY OF ARIZONA
Mel & Enid Zuckerman College of Public Health

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University of Arizona

EHS 653 Applied Exposure Assessment

Catalog Description: Students learn processes to develop and implement a comprehensive strategy to anticipate, recognize, and evaluate environmental hazards. Course project involves practicum where students conduct a comprehensive hazard assessment and communicate findings. (3 units)

Course Topics:

- Exposure Assessment
- Hazard Assessment
- Regulatory Considerations
- Hazard Rankings
- Exposure Calculations
- Evaluation of Controls
- Data Analysis
- Stochastic Exposure Modeling

Course Objectives: During this course, students will:

- Develop and implement a comprehensive strategy to anticipate, recognize, and assess hazardous exposures in the occupational environment using the following steps:
    - Conduct a site investigation
    - Conduct a literature review
    - Rank hazards
    - Measure and model exposures
    - Develop sampling plans and budgets
    - Evaluate controls
    - Analyze data
    - Communicate findings

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

1. Utilize basic strategies for evaluating or measuring exposure to chemical, physical and biological agents
2. Utilize appropriate technical approaches for conducting environmental and industrial assessments
3. Utilize various sources of information to identify chemicals commonly employed in industry and their toxicity
4. Assess agents, factors, and stressors generated by unit operations on workplace safety
5. Describe qualitative and quantitative aspects of generation of agents, factors, and stressors
6. Assess chemical exposure assessments and dose-response based on applicable pathways and modes of entry
7. Recommend and evaluate engineering, administrative, and personal protective equipment controls and/or other interventions to reduce or eliminate hazards
8. Demonstrate fundamental knowledge of the principles of environmental health sciences and be able to apply them
9. Develop and implement a basic study design addressing a testable hypothesis
10. Implement assigned research or work tasks including, data collection and management, evaluation,

and data analysis

11. Utilize risk assessments and models
12. Demonstrate knowledge of local, federal and state regulatory programs.
13. Identify and communicate to the appropriate people the need for resources to minimize health and safety risks
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 protocol(s)
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)
20. Develop effective external written and oral communication skills for use with the public, government, and other professionals.
21. Develop the critical thinking and evaluation skills