



THE UNIVERSITY OF ARIZONA

Mel & Enid Zuckerman
College of Public Health

Mel and Enid Zuckerman College of Public Health University of Arizona

EPID 646 Measurement Issues in Epidemiology

Catalog Description: This course will cover general principles and methods that can be applied to accurately measure a wide range of exposures (risk factors) in epidemiology. It covers the methods and quality control approaches for the most commonly used data collection methods in epidemiology. Major topics include methods to quantify the degree of measurement error, ways to reduce misclassification bias, methods to maximize response rates, and ethical issues in the conduct of epidemiologic research. This hands-on part of the course includes questionnaire design, data collection, and descriptive data analysis. (3 units)

Course Topics:

- Measuring Exposure
- Reducing Measurement Error
- Questionnaire Design
- Measurements in the Human Body and Environment
- Reliability, Validity and Misclassification
- IRB Overview
- Ethics and Informed Consent

Course Objectives: During this course students will:

- Expand on basic concepts and principles of epidemiology discussed in 573A and 576A and go into more depth in epidemiology methods.

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

1. Apply concepts to design a study that focuses on measurement of behavior and/or environmental exposures.
2. Develop an appreciation for qualitative research & its use in epidemiology through discussions and experience.
3. Develop a protocol to examine the reliability or validity of an exposure measure (biomarker or questionnaire).
4. Develop problem solving skills through addressing complications in recruitment and data entry.
5. Identify aspects of data quality in epidemiologic studies (wording, grammar, formatting, data checking, coding, and creating new variables and documentation) and how such quality relates back to design of questions.
6. Identify sources of major behavior or environmental based surveys.
7. Interpret these epidemiological analyses in the context of published literature and communicate key findings to various audiences.
8. Critique and synthesize appropriate literature and research findings to address a research question.
9. Identify potential sources of bias for various study designs and their impact on study quality.
10. Conduct descriptive and analytic analyses, to make statistical inferences regarding reliability and validity.
11. Organize and deliver clear presentations of research findings in varying professional formats to diverse audiences.
12. Develop research questions to address health problems by appraising and identifying gaps in the current scientific literature.
13. Evaluate the integrity, comparability, and limitations of data to make inferences related to analyses and results.
14. Organize and deliver clear presentations of research findings in varying professional formats to diverse audiences.