



THE UNIVERSITY OF ARIZONA

Mel & Enid Zuckerman
College of Public Health

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

BIOS 576C Applied Biostatistic Analysis

Catalog Description: Integrate methods in biostatistics (e.g., BIOS 576A, B) and epidemiology (e.g., EPID 573A) to develop analytical skills in a health research project setting. (3 units)

Course Topics:

- Logistic Regression
- Predictor Selection
- STROBE
- Complex Surveys
- Longitudinal Analysis

Course Objectives: During this course, students will:

- Gain practical experience in statistical analysis, including identifying the appropriate scientific question, determining the appropriate method(s) of analysis, developing an analysis plan, and performing an appropriate statistical analysis. E
- Extend basic statistical modeling approaches to address complex survey data, analyzing data from repeated measures experiments, and assessment of missing data.
- Develop effective oral and written presentations of statistical results; teamwork and collaboration; and ability to interact with a variety of collaborators.

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

1. Undertake appropriate statistical analyses that align with the scientific question
2. Perform sensitivity analysis to assess robustness of results to analytical assumptions
3. Manage real data; use a data dictionary; restructure and/or reformat data in order to perform analyses
4. Engage in collaborative research with scientific mentors and peers
5. Deliver oral and written communication skills for disseminating scientific and statistical findings
6. Ability to identify appropriate statistical tools to address specific scientific questions
7. Demonstrate excellent presentation skills and the ability to explain statistical concepts and findings to a general scientific audience
8. Demonstrate skills in data management to handle a variety of practical problems in data format and structure
9. Demonstrate the ability to skillfully engage in statistical collaboration with mentors, colleagues, and clients
10. Suggest preferred methodological alternatives to commonly used statistical methods when assumptions are not met