

INTRO TO BIOSTATISTICS

Time: M,W,F, 8:00-10:00, BBRB 170

Instructor: Karen Gamble

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Office Hours: Wed 1:15-3:00, after class, or by App't

Course Text: **Discovering Statistics Using SPSS, 3rd Edition (Introducing Statistical Methods)** By Andy Field

The text is essential. Lecture Materials will mirror topics covered in periodic reading assignments. Homework assignments are often from the text. It is also a good reference after you have finished the course.

Software: The **SPSS** computer software is available from the UAB website (for free): <https://www.uab.edu/it/home/it-reports-and-publications/item/309-spss>

Grading Policy:

Homework/Lab component: Assignments will be given periodically. They will consist of problems to be solved by computer. It is very important that you attempt them. You are encouraged to work together. Answers will be provided during frequent in-class review sessions.

Take Home Tests: There will be three take home tests that will ask you to analyze a dataset in SPSS using recently learned principles and approaches. You will be given several days to complete them and you must **NOT** help one another on any graded take home problems.

In-Class Presentations: Every Friday, students will be asked to present a Hypothesis, Experimental Design, and to use the Statistics Flow chart to describe the appropriate analysis strategy.

Writing Assignment: Each graduate student will select a statistic used in your field, but not covered in this course, and write a short report on it. Reports will be graded on a pass/fail basis and will be worth 50 points.

Grades: Each test is worth up to 200 points and each in class presentation and writing assignment is worth 50 points. Therefore, the final grade will be based on a possible total of 700 points.

Computers: Most of the computer work will use the **SPSS** software. You are strongly encouraged to bring your laptop with you to class with SPSS installed, and to attend the one-hour lab component after the one-hour lecture each day.

Note: there will be no class on July 4 for the UAB holiday.

Topics:

- Variables, Measurement error, Validity and Reliability
- Getting to Know Your Data: Frequency Distributions & Descriptive Statistics
- Introduction to Statistical Models (Probability Distributions, Confidence Limits, Error, Effect Sizes, and Statistical Power)
- Assumptions
- Correlation
- Regression
- Hypothesis Testing & t-tests
- Single Classification Analysis of Variance (ANOVA)
- ANCOVA
- Factorial ANOVA
- Repeated Measures Designs and Analysis
- Nonparametric Statistics
- Categorical Data – Chi-square and Log Likelihood