Course Objectives: The overall objective of this course is to introduce students to concepts and skills necessary for success in science classes and scientific research. These include:

1) Basic methods of data summary and analysis; using Excel and R for graphing and statistical analyses

2) The scientific method - What is it? How is the scientific method of knowing different than others? What topics can and cannot be addressed using the scientific method?

3) The scientific style of writing and the parts of a scientific paper

Textbooks: There is no required text for this online course. All materials will be posted on this course site through Canvas. If you wish to have a text for reference, I recommend:

*Principles of Biostatistics*, Second Edition
Marcello Pagano and Kimberlee Gauvreau
ISBN: 0-534-22902-6

*Biostatistics with R: An Introduction to Statistics Through Biological Data*
Babak Shahbaba

Course content outline:

Methods of Scientific Inquiry

- What is "science"
- The basic assumptions of science
- The "rules" of the scientific method
- Differences between various ways of knowing; comparison between science and religion
- Differences between science and pseudoscience
Methods of collecting, analyzing, and presenting data

- Presenting data graphically
- Descriptive statistics
- Inferential statistics
  - Confidence intervals
  - One-sample tests
  - Two-sample tests
  - Linear Correlation and Regression

Scientific Writing

- The scientific style of writing
- The parts of a scientific paper
- Critical evaluation of scientific works

**Course Schedule:** download here.

Assignments: Each module will contain homework assignments (ten total) worth 10 points each (10% of your total grade)

Quizzes: 5 total quizzes, 20 points each (10% of your total grade)

Exams: 3 total exams, 100 points each (80% of your total grade)

- First Exam (25% of total grade) -
- Second Exam (25% of total grade) -
- Final Exam (30% of total grade) -

Final grade will be determined as follows: Your final grade will be determined by the average of assignments and quizzes (20% of total grade), two mid-term exams, and a final exam. The overall average will be calculated using this formula:

\[
\text{Average} = [0.2 \times \text{(Average of assignments and quizzes)}] + (0.25 \times 1\text{st Exam}) + (0.25 \times 2\text{nd Exam}) + (0.30 \times \text{Final Exam})
\]

Letter grades will be determined as follows:

- A = 90-100
- B = 80-89.99
- C = 70-79.99
- D = 60-69.99
- F = 0-59.99

*Library support*
The Libraries at UAB provide access to materials and services that support the academic programs. The address of the UAB Library Website is http://www.mhsl.uab.edu. This site provides access to the resources of all Campus and Regional Libraries, as well as to resources such as the Library’s Catalog and Databases. Please be sure to utilize these resources to their fullest.

Communication

UAB email- All students are required to obtain and use the UAB e-mail address that is automatically assigned to them as UAB students. All official correspondence will be sent ONLY to the address provided in BlazerNet and Canvas. All students are responsible for ensuring that the correct e-mail address is listed in Canvas by the beginning of Week 2. The course instructor will periodically send messages through Canvas e-mail that will be directed to the e-mail address you have listed. It is your responsibility to ensure that a valid UAB e-mail address is provided. Failure on your part to do so can result in you missing important information that could affect your grade.

DSS Statement

UAB is committed to providing an accessible learning experience for all students. If you are a student with a disability that qualifies under Americans with Disabilities Act (ADA) and Section 504 of the Rehabilitation Act, and you require accommodations, please contact Disability Support Services for information on accommodations, registration and procedures. Requests for reasonable accommodations involve an interactive process and consist of a collaborative effort among the student, DSS, faculty and staff. If you are registered with Disability Support Services, please contact me to discuss accommodations that may be necessary in this course. If you have a disability but have not contacted Disability Support Services, please call 934-4205 or visit http://www.uab.edu/dss.

Academic Responsibility

The academic community is operated on the basis of honesty, integrity, and fair play. The Code of Academic Misconduct applies to cases in which cheating, plagiarism, or other academic misconduct has occurred in an instructional context. Students found guilty of academic misconduct are subject to penalties, up to and possibly including suspension and/or expulsion. Academic misconduct or dishonesty includes, but is not limited to cheating, helping someone else cheat, fabrication, misrepresentation of work, and plagiarism (presenting someone else’s work as your own). Violations will be dealt with to the fullest extent allowed by UAB policies on academic misconduct. Please see the Academic Honor Code: http://main.uab.edu/Sites/undergraduate-programs/general-studies/academic-success/67537/

"Veterans and student soldiers with special circumstances or who are activated are encouraged to notify the instructor in advance."

**The instructor reserves the right to change/update this syllabus to enhance the course.**