Syllabus for STAT 630: Statistical Methods
Fall 2018

Instructor: Dr. Eric Fox
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Lecture:

Section 1	Tu 3:15PM – 4:55PM at SC-N 321 Th 3:15PM – 4:55PM at SC-S 146
Section 2	Tu 8:00PM – 9:40PM at SC-N 321 Th 8:00PM – 9:40PM at SC-S 146

Office Hours: Tu, Th 5-7PM or by appointment

Website: Course materials will be posted on Blackboard.

Textbook (required): Ott and Longnecker, *An Introduction to Statistical Methods and Data Analysis*, Seventh Edition, Cengage Learning, 2018.

Software:
R, can be downloaded here `https://www.r-project.org/`
RStudio, can be downloaded here `https://www.rstudio.com/`

Course Topics: This course will provide an introduction to statistical methods and their applications. We will cover most of the material in chapters 1–11 of the textbook. Weekly computer labs will provide training in the use of R and RStudio; no prior experience with computer programming is necessary. A list of topics is given below.

- Data collection: sampling designs and experimental studies
- Descriptive statistics
- Probability distributions (binomial, normal, t, Chi-square)
- Sampling distributions
- Central Limit Theorem
- Confidence intervals
- Hypothesis testing
- Bootstrap methods

- Simple linear regression and correlation
- Chi-square tests for goodness-of-fit and independence

Grading: There will be weekly problem sets and lab assignments. There will also be two midterm exams, a final exam, and a final project. For the exams please bring a scientific or graphing calculator and Student ID. For the final project you will need to find a data set of interest and analyze that data set using methods studied in this class. Attendance and completion of all assignments is essential for your success in this class.

- 20% Homework
- 20% Computing Labs
- 30% Two Midterm Exams (15% each)
- 20% Final Exam: Tu Dec 11, 3-5PM (section 1), 8-10PM (section 2)
- 10% Final Project

Policy on Make-up Exams and Late Assignments: If you miss an exam due to an emergency or illness and provide documentation I may agree to a make-up, or count your other exams proportionally more. Late homework and labs will not be accepted. However, your lowest scoring homework and lab assignment will be dropped.

Student Learning Outcomes: Upon successful completion of this course, students will be able to:

- Apply statistical methodologies, including (a) descriptive statistics and graphical displays, (b) hypothesis testing and confidence intervals, and (c) linear regression and correlation.
- Derive and understand basic theory underlying these methodologies.
- Use R and RStudio to analyze data sets and implement statistical methods.
- Communicate statistical concepts clearly and appropriately to others.

Common Syllabus Items: Items such as policies on academic dishonesty, disability, and handling emergency situations can be found under "University Policies" on Blackboard.