

Statistics 406: Introduction to Statistical Computing

Meeting Times/Places:

Course: B760 East Hall, 10-11:30 Tuesday/Thursday

Lab: B760 East Hall, 4-5:30 Tuesday

Instructor: Kerby Shedden

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Office Hours: Thursday 5-6, Monday 11-12

GSI: Adam Rothman

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Office Hours: Thursday 11:30-1:30, Monday 12-1

Course web site: <http://www.stat.lsa.umich.edu/~kshedden/Courses/Stat406>

Description: The main goals of this course are to demonstrate how computational tools can be used to understand the performance of familiar statistical methods, and to introduce modern statistical methods that require computational tools for their application. Fundamentals of good numerical programming are also covered. Some of the topics covered are: means, variances and quantiles; central limit theorem; point estimation MSE and bias; coverage properties of confidence intervals; hypothesis tests and power; resampling and permutation distributions; bootstrapping; inference for contingency tables; classification and cross-validation; conditional probability; Bayes theorem.

Coursework: Grades will be based on problem sets and one examination. Problem sets will be given weekly, and account for 75% of the final course grade. The problem sets will primarily involve writing computer programs. There will be one written examination given in class on November 16. This exam accounts for 25% of the final course grade, and will test your ability to correctly construct computer programs similar to those in the problem sets. Practice problems for the exam will be available several weeks ahead of time.

Lab section: The lab section will be led by the GSI each Tuesday. Each week an assignment will be due, and the graded assignment from the previous week will be returned.

Programming: All coursework will involve programming using the numerical language R. You do not need to have prior experience with this or other programming languages. For your own benefit, and to make grading manageable for the instructor and GSI, you must adhere to certain style guidelines that will be provided in class.

Getting help: Feel free to e-mail the instructor or GSI at any time with questions. The instructor and GSI will hold office hours, and will be available at other times by appointment. You may discuss the homework problems in general terms with other students, but the code and written responses that you submit must be your own.