

Statistical Methods

STAT 402/ Fall 2013

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Office Hours: 12:00-1:00 PM, Monday, Wednesday Friday,
11:00-12:00AM, Thursday,
and by appointment

Meeting Time: 2:20PM-3:20PM, Monday, Wednesday, Friday

Meeting Place: 362 Trexler Hall

Required Text: *The Statistical Slueth* (3rd Edition) by Ramsey and Schafer.

Course Objective: The objective of this course is to investigate techniques for analyzing data. We will discuss how to summarize and describe important features of the data and determine methods for drawing statistical conclusions based on this information.

Intended Learning Outcomes: By the end of this course, students will be able to

- ... use exploratory statistics to express characteristics of a set of data.
- ... use inferential statistics to draw conclusions from a set of data.
- ... use the methodologies of statistics to design and carry out a statistical experiment.
- ... articulate the importance and limitations of using data and statistical methods in decision making.
- ... express themselves clearly and effectively in writing using the concepts and language of statistics.

Course Content:

- Descriptive Statistics
- Hypothesis Testing
- Simulation
- Estimation of Parameters
- Sampling Procedures
- Non-Parametric Methods
- Regression and Correlation
- Simple Linear Regression
- ANOVA

Tests: There will be three tests during the semester.

Test 1	September 25 th
Test 2	October 30 ^h
Test 3	December 4 th

Assignments: Homework will be assigned daily and graded for both completeness and correctness. In addition to daily homework there will also be projects based in R, Mathematica and Minitab. These projects will require you to apply the methods we developed in class to real problems. You will be working in both individually and in groups on your projects.

Final Exam: The final exam will be cumulative and will be given on Tuesday, December 15th, 2:00PM-5:00PM.

Grading: Grades will be assigned based on written assignments, tests, and a final exam.

Tests	45%
Assignments	35%
Final Exam	20%

A *tentative* guideline for determination of grade will then be:

A	> 93	B	83 – 86.9	C	73 – 76.9	D	63 – 66.9
A-	90 – 93	B-	80 – 82.9	C-	70 – 72.9	D-	60 – 62.9
B+	87 – 89.9	C+	77 – 79.9	D+	67 – 69.9	F	< 60

MCSP Conversation Series: Attending at least **three** MCSP conversation series event is required. Within one week of the lecture, a one page reflection paper will be due and will count as a quiz grade.

Make-up Work: No make-up work will be accepted. Any excused work will be replaced by the final exam.

Expected Hours of Work: This course expects you to spend at least 12 hours of work each week inside and outside of class.

Technology: Scientific calculators and the statistical program Minitab will be used throughout the semester in the classroom and on assignments. Cell phones are expected to be turned off before entering the class. There is no appropriate reason for having a cell phone out in class. Computers will be used in the classroom exclusively for academic purposes.

Academic Integrity System: The Roanoke College Academic Integrity System applies to all graded work in this course. Students are responsible for understanding and adhering to the Academic Integrity System. Among other things the Academic Integrity System prohibits giving or receiving unauthorized aid, assistance, or unfair advantage on academic work. Please note that having a phone or unauthorized electronic device out during a test is an academic integrity violation.

The Writing Center @ Roanoke College, located on the Lower Level of Fintel Library, offers writing tutorials focused on written and oral communication for students working on writing assignments/projects in any field. Writers at all levels of competence may visit the Writing Center at any point in their process, from brainstorming to drafting to editing, to talk with trained peer tutors in informal, one-on-one sessions. The Writing Center is open Sunday through Thursday from 4 to 9 pm. Simply stop in, or schedule an appointment by going to www.roanoke.edu/writingcenter, where our schedule of writing workshops and creative writing playshops is also posted. Questions? Email writingcenter@roanoke.edu or call 375-4949. Like our Facebook page for updates!

Subject Tutoring is a CRLA Nationally Certified Program located on the lower-level of Fintel library in room 005. Subject Tutoring offers individual appointments in 30-minute intervals for Lab Sciences, Modern Languages, Math & CPSC, Social Sciences, and Business & Economics. Hours are Sunday - Thursday 4 p.m. - 9 p.m. For a list of tutorials or to make an appointment, go to www.roanoke.edu/tutoring.

The Office of Disability Support Services, located in the Goode-Pasfield Center for Learning and Teaching in Fintel Library, provides reasonable accommodations to students with identified disabilities. Reasonable accommodations are provided based on the diagnosed disability and the recommendations of the professional evaluator. In order to be considered for disability services, students must identify themselves to the Office of Disability Support Services. Students requesting accommodations are required to provide specific current documentation of their disabilities. Please contact Rick Robers, M.A., Coordinator of Disability Support Services, at 540-375-2247 or e-mail robers@roanoke.edu.

If you are on record with the College's Office of Disability Support Services as having academic or physical needs requiring accommodations, please schedule an appointment with Mr. Robers as soon as possible. You need to discuss your accommodations with him before they can be implemented. Also, please note that arrangements for extended time on exams, testing, and quizzes in a distraction-reduced environment must be made at least one week *before every exam*.