

# Statistical Methods

STAT 302/ Fall 2017

**Instructor:** Adam Childers / [childers@roanoke.edu](mailto:childers@roanoke.edu)

**Office:** Trexler 270G

**Phone:** 540-375-2449

**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:** 166 Trexler Hall

**Required Text:** *The Statistical Slueth* (3<sup>rd</sup> 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 22 <sup>nd</sup>
Test 2	October 27 <sup>th</sup>
Test 3	December 1 <sup>st</sup>

**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 12<sup>th</sup>, 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](http://www.roanoke.edu/writingcenter), where our schedule of writing workshops and creative writing playshops is also posted. Questions? Email [writingcenter@roanoke.edu](mailto:writingcenter@roanoke.edu) or call 375-4949. Like our Facebook page for updates!

**Subject Tutoring** is an Internationally Certified Tutoring Center through the College Reading and Learning Association (CRLA). Our highly trained staff offers individual tutoring appointments for the following subjects: Business, Economics, Mathematics, Modern Languages, Lab Sciences & Social Sciences. Subject Tutoring is located on the lower level of Fintel Library in room 05 from 4-9 p.m. Sunday – Thursday. Students can logon to make an appointment at [www.roanoke.edu/tutoring](http://www.roanoke.edu/tutoring) in 15, 30 or 45 minute intervals. For questions or concerns, please contact Shannon McNeal at 540-375-2247 or [mcneal@roanoke.edu](mailto:mcneal@roanoke.edu).

**The Office of Disability Support Services (DSS)**, is located in the Goode-Pasfield Center for Learning and Teaching in **Fintel Library**. DSS provides reasonable accommodations to students with documented disabilities. To register for Disability Support Services, students must self-identify to the Office of Disability Support Services, complete the registration process, and provide current documentation of a disability along with recommendations from the qualified specialist. Please contact JoAnn Stephens-Forrest, MSW, Coordinator of Disability Support

Services, at 540-375-2247 or e-mail her at: [stephens@roanoke.edu](mailto:stephens@roanoke.edu) to schedule an appointment. If you have registered with DSS in the past, and would like to receive academic accommodations for this semester, please contact Ms. Stephens-Forrest at your earliest convenience, to schedule an appointment.

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*.