

## STAT 202, Fall 2016: Probability and Statistics

---

Instructor	Maggie Rahmoeller Email: rahmoeller@roanoke.edu (preferred method of contact)	Phone: (540) 375-2505 Office: Trexler 270J
Class Meetings	M/W/F 2:20-3:20PM in Trex 374	
Office Hours	Mondays 3:30-5PM Wednesdays 3:30-5PM Thursdays 10:30AM-12PM Or by appointment (just shoot me an email!)	
Course Objectives	The objective of this course is to apply calculus to the subject of probability in order to form a strong foundation for statistical methods. We will begin the course by discussing set theory and its application to discrete and continuous random variables. Armed with the tools of probability theory we will explore the relationship between probability theory and statistics.	
Intended Learning Outcomes	By the end of this course, successful students will be able to: <ul style="list-style-type: none"><li>• understand and interpret a probability distribution.</li><li>• distinguish the difference between continuous and discrete random variables and understand how to use them to describe random processes.</li><li>• understand the role of randomness in decision-making processes.</li><li>• distinguish among different statistical tests, and know which to use in a given situation.</li><li>• distinguish among different distributions, and know which to use in a given situation.</li><li>• use integration and sums as appropriate to determine probabilities.</li></ul>	
Required Materials	Textbook: <i>Mathematical Statistics with Applications</i> , by Wackerly, Mendenhall, and Scheaffer, 7th edition Technology: scientific calculator, Minitab, and Mathematica Mathematica Free Download: see <a href="https://webapps.roanoke.edu/www/it/mathematica/">https://webapps.roanoke.edu/www/it/mathematica/</a>	
Course Content	We will cover most of the first 4 chapters of the textbook and an introduction to statistical inference. Included in these topics is: <ul style="list-style-type: none"><li>• An Introduction to Descriptive Statistics</li><li>• Probability</li><li>• Discrete Random Variables and Their Distributions</li><li>• Continuous Random Variables and Their Distributions</li><li>• Confidence Intervals</li><li>• Hypothesis Testing</li><li>• Correlation and Regression</li></ul>	
Commitment Hours	This course expects you to spend at least 12 hours of work each week inside and outside of class.	

Course Grades The following table lists the weights for the various forms of assessment for this class.

Tests	50%
Assignments/Quizzes/Labs	30%
Final Exam	20%

A grade scale will be determined after final grades are computed, but will be no worse than the scale given below:

	B+	87-89	C+	77-79	D+	67-69		
A	93-100	B	83-86	C	73-76	D	63-66	F 0-59
A-	90-92	B-	80-82	C-	70-72	D-	60-62	

Homework Homework will be assigned regularly in this class (virtually every class period) and may take several forms. Typically, it will be due at the start of the class period immediately following the assigning of the homework. Homework will be graded partly on effort and partly on correctness. Late homework is not accepted. If you miss class, get a friend to turn in your homework for you.

Quizzes There may be written quizzes in this class. They may either be in-class quizzes or take-home quizzes. I may occasionally warn you about an upcoming quiz but you should be prepared to take a quiz on any given day, including lab days.

Labs Throughout the semester we will be completing labs in Mathematica to better understand the material we learn in the classroom.

Tests Five tests will be given in this course. They are scheduled for the following dates:

- Wednesday, Sept 14
- Wednesday, Sept 28
- Wednesday, Oct 12
- Wednesday, Nov 2
- Monday, Nov 21

Each test will focus on the material learned since the last test, but as with most mathematics/statistics classes, the exam will necessarily require you to understand and remember things from the past. Note that weather and other changes in the course schedule may affect the material covered on tests, but unless a test day is canceled due to weather, the tests will happen as scheduled.

**Final Exam** The final exam will be comprehensive and given during the scheduled time for the final exam for **Block 6, i.e. Tuesday, Dec 13 from 2-5PM**. The best way to review for the final is to review your performance on the five tests: focus on material that you did not master the first time around, and review the topics that you did master.

**Attendance & Make-Up Work** Attendance is critical to the understanding of the material in the course; it is both required and expected. Any absence that is not discussed with the instructor prior to the missed class is considered unexcused. Unexcused absences may result in the lowering of the final grade (for example, a B to a B-). When absent, excused or unexcused, you are responsible for all material covered in class. **You will not be allowed to make up any work missed due to an unexcused absence.**

MCSP  
Conversation  
Series

The Department of Mathematics, Computer Science and Physics offers a series of discussions that appeal to a broad range of interests related to these fields of study. These co-curricular sessions will engage the community to think about ongoing research, novel applications and other issues that face our discipline. Members of this class are invited to be involved with all of these meetings; however participation in **at least three** of these sessions is mandatory. After attending, students will submit a one page paper reflecting on the discussion **within one week of the lecture**. This should **not** simply be a regurgitation of the content, but rather a personal contemplation of the experience. This reaction paper will be counted as a quiz and should be uploaded to Inquire using the appropriate link. If you are caught leaving the talk early or being disruptive, you will receive a 0 on the assignment.

Disability  
Support Services

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 must 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 (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. Also, please note that arrangements for extended time on exams, testing, and quizzes in a distraction-reduced environment must be made at least 48 hours before every exam.

Academic  
Integrity

Students are expected to adhere to the Academic Integrity policies of Roanoke College. All work submitted for a grade is to be your own work! No electronic devices other than calculators can be taken out during any class or testing period (this includes cell phones; please turn them **off** before class). Note that looking at or using your cell phone during a test or quiz is considered a violation of Academic Integrity regardless of your purpose or intent in doing so.

Subject Tutoring

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 log on 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).