
<p><b>Name:</b> Dr. Maggie  <b>Pronouns:</b> She/Her/Hers  <b>Email:</b> rahmoeller@roanoke.edu</p>	<p><b>Office:</b> Trexler 270B  <b>Student Hours (Drop In!):</b>                  Tues 10AM - NOON                  Wed 2:30-4:00PM</p>	<p><b>Location:</b> Miller 113  <b>Days:</b> MWF  <b>Time:</b> 10:50-11:50AM</p>

**Student Hours Comments:**

- The given times above will be consistently available unless emergencies arise.
- These are opportunities for you to ask me questions about material and/or class, including celebrations and concerns.
- Please come prepared to ask your questions – examples of more useful questions include, “I really don’t understand how to use the calculator to calculate the effective discount rate. Can you explain it again?” or “What is an annuity? Can you give another example?” Examples of questions that are less useful include, “I’m completely lost. I don’t know where to begin. Can you help?” or “I haven’t looked at the homework...can you help me?”
- It’s always ok to pop by and say, “HI!” – I love getting to know you and chatting with you! But, these have to be short, fun visits 😊 Sadly, none of us have time to sit back and chill anymore. But – please pop by any time for a short 5-10 minute hello. And – never be afraid to come by if you need help 😊

**Course Description:** We will focus on learning how to obtain and interpret results obtained from sets of data by using techniques of statistics. You will be introduced to the methods of collecting, organizing, and presenting data. You will also study various quantitative measures for data and how to draw conclusions and make inferences from that data. Some probability will also be discussed as a precursor to the “inferential” statistics.

**Subject Tutoring**, located on the lower level of Fintel Library (Room 5), is open 4-9 PM, Sunday-Thursday. Subject Tutors are highly trained, current students who offer free, one-on-one (and small

group) tutorials in over 80 courses taught at Roanoke College, including: Business, Economics, Mathematics, INQ 240, Modern Languages, Lab Sciences, and Social Sciences. Check out all available subjects and schedule 30- or 60-minute appointments at [www.roanoke.edu/tutoring](http://www.roanoke.edu/tutoring). If you have a question, feel free to stop by, or contact us at [subject\\_tutoring@roanoke.edu](mailto:subject_tutoring@roanoke.edu) or 540-375-2590. See you soon!

**Student Learning Outcomes:** By the end of this course, successful students will be able to:

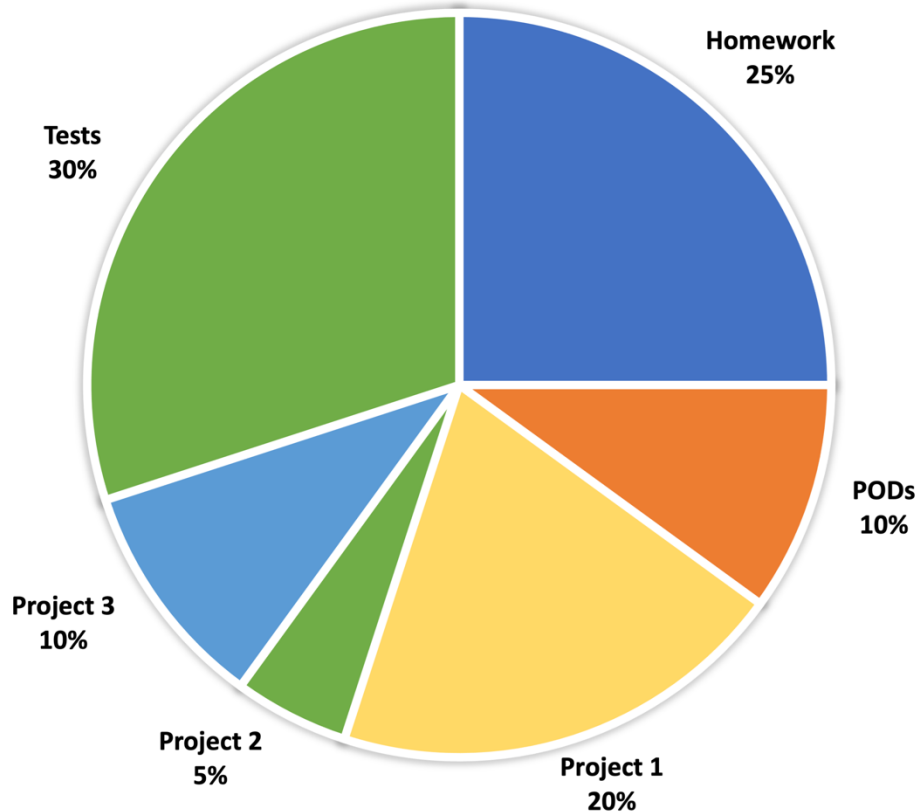
- use the methodologies of statistics to investigate a topic of interest and make decisions based on the results,
- use the methodologies of statistics to design and carry out a simple statistical experiment,
- use the methodologies of statistics to critique news stories and journal articles that include statistical information. In the critique, students will recognize variability and its consequences, identify potential sources of bias and both proper and improper cause and effect inference,
- articulate the importance and limitations of using data and statistical methods in decision making,
- write about course topics clearly and effectively, and
- interpret quantitative information related to the course topic.

Your success in this class is important to me! We all learn differently and bring a variety of strengths and needs to the class. If there are aspects of the course that prevent you from learning or that make you feel excluded, please let me know as soon as possible. Together we'll develop strategies to meet both your needs and the requirements of the course.

**Required Materials:**

- *OpenIntro Statistics*, 4<sup>th</sup> edition, by David Diez, Mine Cetinkaya-Rundel, and Christopher Barr, which is a **FREE**, ONLINE text from OpenIntro (download a PDF!!)  
<https://leanpub.com/os>
- FREE online statistical software - Minitab  
<https://app.minitab.com/>
- FREE online reference book: Writing Guide with Handbook  
<https://open.umn.edu/opentextbooks/textbooks/1125>

**GRADE DISTRIBUTION:**



**Commitment Hours:** This course expects you to spend at least 12 hours of work a week inside and outside of class.

A:	94-100	B:	83-86	C:	73-76	D:	63-66
A-:	90-93	B-:	80-82	C-:	70-72	D-:	60-62
B+:	87-89	C+:	77-79	D+:	67-69	F:	Below 60

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**COURSE EXPECTATIONS**

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**Classroom Environment:** You are expected to treat all students in the class and me with courtesy and respect. Your comments to others should be factual, constructive, and free from harassing statements. You are encouraged to disagree with other students, but such disagreements need to be based upon

facts and documentation (rather than prejudices and personalities). My goal is to promote an atmosphere of mutual respect in the classroom. Please let me know if you have suggestions for improving the classroom environment. (Source: Iowa State University)

### **Diversity and Inclusivity**

I consider this classroom to be a place where you will be treated with respect, and I welcome individuals of all ages, backgrounds, beliefs, ethnicities, genders, gender identities, gender expressions, national origins, religious affiliations, sexual orientations, ability – and other visible and nonvisible differences. All members of this class are expected to contribute to a respectful, welcoming and inclusive environment for every other member of the class.

**Attendance Policy:** Our course's success depends on you attending class! If you miss class, you will miss community building, engaging conversations, and information that I deem worthy of your time! Plus, we will miss you!

However, life happens! You may get sick, have a game scheduled, or have something else come up. It will not be the end of the world if you miss a class *very occasionally*. At some point, though, missing class can be detrimental to success. So, do your best to be in class! Strive for perfect attendance!

What should you do if you have to miss class? Let me know ASAP! Communication is key! I don't need details (please, spare me the details!) but do let me know ahead of time, so we can make plans, if needed. If you cannot let me know ahead of time (emergencies do happen!), just let me know as soon as you can. Email is typically the best form of communication for me.

If you are sick (and contagious), please either stay home OR come to class wearing a mask. Please use Health Services to determine whether or not it is safe to attend class with a mask. Sometimes it is better to stay home and get caught up later than to try to attend class – so be smart about it! And, if you are unsure, email me! I'll do my best to get back to you ASAP.

**Late Work:** Whether or not to accept late work is always a tough decision. Life happens – and occasionally we need more time to complete tasks! But, sometimes turning in an assignment late causes more complications than benefits.

- **PODs** cannot be made up. But don't worry, I drop your 2 lowest PODs at the end of the semester. If you miss more than 2 PODs, we will need to have a conversation about why and whether we need to determine a different solution. **You are in charge of setting up a meeting to determine if a different solution could be found and agreed upon.** Why? You are in charge of your success – not me! I'm here to help but I can't make this class a success for you.
- **HW** could technically be turned in late if I know ahead of time. The further in advance you let me know, the greater a chance I won't take off points for it being late. So, an email a day before the assignment is due most likely will result in points being taken off. Should you still do the assignment? Heck yeah!! Some points is WAY better than no points! Another thing that helps – emailing me what you have so far and then asking for an extension to complete it. **Once solutions to homework are up online, I cannot accept late homework.** Note – HW 2 is submitted the class before Test 1, which means late homework is more likely NOT able to be accepted. HW 3 has a little more leeway – the other assignments even more time. So, keep that in mind.
- **TESTS** can be rescheduled. If you have accommodations associated with testing, you need to schedule those through the testing center **at least 2 days before the test day.** If you don't have accommodations, but you know you will be missing a test due to some scheduled conflict, you must meet with me to determine a plan at least 2 days BEFORE the test is schedule. If an emergency comes up day of, you must reach out to me ASAP to determine a plan.
- **PROJECTS** depend on which project we are talking about. Project 1 is individual, with some in-class components and some out-of-class components. I can be a little lenient with some components, as long as you communicate what you need and don't fall behind. Project 2 requires a partner and most will be completed in class (then you have an additional week to complete it). Project 3 cannot be turned in late – it's a presentation given during your final exam slot.

**\*\*In summary, the best thing you can do is *communicate* with me.** Let me know if you have concerns about turning in an assignment on time – I will do my best to work with you.\*\*

**Academic Integrity:** Students are expected to adhere to the Academic Integrity policies of Roanoke College ([https://www.roanoke.edu/inside/a-z\\_index/academic\\_integrity](https://www.roanoke.edu/inside/a-z_index/academic_integrity)). All work submitted for a grade is to be your own work!

A few comments:

- You may work with A partner on homework. However, you must write up your answers individually, meaning you may chat with each other, brainstorm together, look over notes together, and/or ask each other clarifying questions. Your meetings should be a two-sided conversation, not one in which one person tells the other how to do the problem. No copying from another person or entity. **ACTIVE COLLABORATION!!** Please include your partner's name on your homework.
- If you are studying or looking over notes, you may ask for help from peers, me, subject tutoring, and yes, even artificial intelligence or “homework help” sites. If you are working on homework problems, taking a test, or completing a POD, you may NOT use these resources (other than the peer for homework, as noted in the bullet above).
- If you are completing a project, you may ask artificial intelligence to edit your work as long as you do NOT have it write any new material (only tweak!) and you read over its tweaks for approval / disapproval. You may have a peer, me, the writing center, or a subject tutor review your work and offer suggestions.
- You may use your book for anything except during a test or POD.
- Why on any of this? Our student learning outcomes include the goal of having you learn how to successfully communicate your statistical findings (both oral and written) and to learn how

to use statistics and analyze data. By using artificial intelligence or other resources in ways I deem inappropriate, you wouldn't be giving yourself the chance to learn these skills. If you don't achieve these skills, you shouldn't get credit for this course. We want degrees at Roanoke College to mean you've mastered certain skills, rather than you've mastered cheating...we don't want Roanoke College to have a reputation as a "cheating school" – imagine how hard it would be to get a job, should that happen.

Besides, I like to be helpful. Ask me for help 😊 I'm only an email away!

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## COURSE ASSIGNMENTS

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**Interactive Textbook Reading:** You should attempt as many of the problems in the book as possible. All odd-numbered problems have answers in the back of the book. Remember, reading a math textbook must be done interactively. Try the examples, work the "Try it" problems, and work through problems at the end of each section.

**Homework:** Expect to see about 5 HW sets assigned throughout the semester. Some of these problems are tricky: start early and ask questions! You may work in pairs but write up your work individually – include your partner's name should you work with someone. See the *Academic Integrity* section of this syllabus.

**PODs:** Most days, we will start with a Problem of the Day. You will have from 10:50AM until 10:57AM to work the problem before turning it in. We will then talk through the problem as a class. If you are late to class, you still only have until 10:57AM to complete the problem. Two PODs will be dropped from your grade at the end of the semester.

**Projects:** There will be three projects that help you demonstrate collecting, analyzing, and communicating findings about data, and critiquing and assessing statistical research and proper usage of statistics. More details will be shared through Inquire.

**Tests:** There will be 5 tests this semester – all are cumulative. Tests are scheduled for 9/18, 10/2, 10/28, 11/22, and 12/6. Test 5 should be considered your final exam in that it covers all the material fairly equally. Each test will include new material and old material – about 30-40% of each test will be old material. Should you do well on this old material section, it could help improve a previous test score.

**Final Exam Time Slot:** Your final exam time slot is scheduled for Tuesday, Dec 10 from 8:30-11:30AM. Instead of having a test during this time slot, you will each be presenting your Project 3.

**MCSP Conversation Series:** The MCSP+ department and Roanoke College offer many opportunities to engage with mathematical ideas outside of classes. Members of this class are encouraged to attend many of these activities, however attending at least one **related to statistics / data** is mandatory. Examples include MCSP Conversation Series talks, campus-wide academic events, and student research showcases - if you're unsure if a given activity makes sense for this purpose, please email me to ask.

**Within one week of attendance** (to help you remember the event), you must submit a brief response to the activity. This should not simply be a regurgitation of the content, but rather a personal contemplation of the experience.

## MCSP Tea Time

Thursdays, 2:20 – 3:20PM

Trexler 271

A chance to chill with peeps while munching on cookies and sipping tea! Often cards make an appearance – or other games! Take an opportunity to relax, have fun, and hang with other students and professors!



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## RESOURCES

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**Accessible Education Services (AES)** is located in the Goode-Pasfield Center for Learning and Teaching in **Fintel Library**. AES provides reasonable accommodations to students with documented disabilities. To register for services, students must self-identify to AES, complete the registration process, and provide current documentation of a disability along with recommendations from the qualified specialist. Please contact Dustin Persinger, Assistant Director of Academic Services for Accessible Education, at 540-375-2247 or by e-mail at [aes@roanoke.edu](mailto:aes@roanoke.edu) to schedule an appointment. If you have registered with AES in the past and would like to receive academic accommodations for this semester, please contact Dustin Persinger at your earliest convenience to schedule an appointment and/or obtain your accommodation letter for the current semester.

**IF YOU HAVE ACCOMODATIONS THAT YOU WOULD LIKE TO USE THIS SEMESTER, YOU MUST SCHEDULE A MEETING WITH ME BEFORE YOU REQUEST THEM FOR OUR CLASS.**

**The Writing Center @ Roanoke College**, located on the Lower Level of Fintel Library (Room 15), offers free tutorials focused on writing projects and oral presentations for students working in any field. Writers and presenters at all levels of competence may visit the Writing Center at any point in their process—including brainstorming, drafting, organizing, editing, or polishing presentation skills—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 at [www.roanoke.edu/writingcenter](http://www.roanoke.edu/writingcenter). Questions? Email [writingcenter@roanoke.edu](mailto:writingcenter@roanoke.edu) or call 540-375-4949.

**Student Health & Counseling Services** supports students through in-person health appointments, in-person counseling, 24/7 telehealth (TimelyCare), Therapy Assistance Online, as well as resources related to general wellness, LGBTQ+, sexual assault, substance abuse, and suicide prevention. Unmet health needs can negatively impact your performance in this course. Student Health & Counseling

Services can help. Please see <https://www.roanoke.edu/shcs> for more information and to access services.

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## TENTATIVE COURSE SCHEDULE

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Week	Date	Content	Assignments
<b>Week 1</b>	Aug 28	Introduction to Class	
	Aug 30	Raw Datasets (Section 1.2)	
<b>Week 2</b>	Sep 2	Research Questions & Variables (Sect 1.2)	
	Sep 4	Project 1 Introduction <b>Bring Computer!</b>	Proj 1 – Data Sheet *should be complete
	**Sep 5	**Proj 1 - Start Data Collection**	
	Sep 6	Designing Statistical Studies (Sect 1.3)	<b>HW 1 Due</b>
<b>Week 3</b>	Sep 9	Sampling (Sect 1.3)	
	Sep 11	Experiments (Sect 1.4)	
	**Sep 12	**Proj 1 – Last Day Data Collection**	Proj 1 – Data Collect *should be complete
	Sep 13	<b>NO CLASS</b>	<b>Proj 1 – Complete Dataset Due!</b>
<b>Week 4</b>	Sep 16	Graphs Intro – <b>Bring Computer!</b>	<b>HW 2 Due</b>
	Sep 18	<b>Test 1 (Chapter 1)</b>	
	Sep 20	Numerical Graphs (Sect 2.1)	
<b>Week 5</b>	Sep 23	Categorical Graphs (Sect 2.2)	
	Sep 25	Numerical Descriptions (Sects 2.1 & 2.2)	
	Sep 27	Proj 1 – Create graphs & numerical stats <b>Bring Computer!</b>	<b>HW 3 Due</b>
<b>Week 6</b>	Sep 30	Posing Questions + Project 1 work <b>Bring Computer!</b>	
	Oct 2	<b>Test 2 (Chapter 2 + Research Questions)</b>	
	Oct 4	How does Statistics Answer Questions?	<b>Proj 1 – Draft Due</b>
<b>Week 7</b>	Oct 7	Probability (Sect 3.1 & 3.2)	
	Oct 9	Random Variables (Sect 3.4)	
	Oct 11	Distributions & Probability (Sect 3.5, 4.1, 4.3)	
<b>FALL BREAK!!!!</b>			
<b>Week 8</b>	Oct 21	Central Limit Theorem (5.1)	<b>HW 4 Due</b>
	Oct 23	Confidence Intervals (5.2)	

	Oct 25	Confidence Intervals (5.2) + Proj 1 <b>Bring Computer!</b>	
<b>Week 9</b>	Oct 28	<b>Test 3 (Chapter 3, 4, 5.1, 5.2)</b>	
	Oct 30	Hypothesis Testing - 1 Prop (Sect 5.3 & 6.1)	
	Nov 1	<b>NO CLASS</b>	
<b>Week 10</b>	Nov 4	Hypothesis Testing - 1 Mean (Sect 7.1)	
	Nov 6	Questions + Hypothesis Testing (Ch 6 & 7)	Proj 1 – Pose Qs
	Nov 8	Ch 6 & 7 continued	Proj 1 – Pose Qs
<b>Week 11</b>	Nov 11	Proj 1 – Run Hypothesis Tests & Analyze <b>Bring Computer!</b>	<b>HW 5 Due</b>
	Nov 13	Regression (Ch 8)	
	Nov 15	Regression (Ch 8) <b>Bring Computer!</b>	<b>Proj 1 – Draft Due</b>
<b>Week 12</b>	Nov 18	Proj 2 – Research Article Assessment w/ Partner <b>Bring Computer!</b>	
	Nov 20	Review + Lingering Qs	
	Nov 22	<b>Test 4 (Chapter 6, 7, 8)</b>	
<b>Week 13</b>	Nov 25	Design Class Experiment	<b>Project 2 Due!</b>
<b>THANKSGIVING BREAK!!!!</b>			
<b>Week 14</b>	Dec 2	Run Class Experiment & Collect Data	<b>Project 1 Due!</b>
	Dec 4	Analyze Class Data <b>Bring Computer</b>	
	Dec 6	<b>Final Exam</b>	
<div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> <p><b>Final Exam Slot</b> Tuesday, Dec 10 8:30 – 10:30AM</p> </div> <div style="width: 30%; text-align: center;"> <p><b>Project 3 Presentations!</b></p> </div> </div>			