

INQ 240 A5 Statistical Reasoning: Here's to Your Health! Spring 2023

Instructor: Dr. Mostofa

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Class Time: Tu/Th 10.10 – 11.40 AM

Classroom: Lucas Hall, Room-114

Office Hours: TU/TH 12:00 – 1.30 pm

and by Appointment

Office: 238, West Hall

Final Exam: Monday 05/01, 8.30 AM– 11.30 PM

Course Description: Statistical Reasoning: This course contains the same major subject and content areas as a traditional statistics course include descriptive statistics, graphical methods, probability, sampling, estimation, inferential statistics, and linear regression. It differs from most traditional statistics courses because one emphasis is relevance of statistics to health. From this course, students will gain an understanding of how decision making is accomplished using modern statistical techniques.

Specific Area of Inquiry: Students will apply the techniques of data analysis to data sets and statistical studies that deal with health-related issues.

Learning Outcomes:

1. Students will be able to use the methodologies of statistics to
 - a. Investigate related topics of interest and make decisions based on the results.
 - b. Design and carry out a simple statistical experiment.
 - c. 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.
2. Students will be able to articulate the importance and limitations of using health data and statistical methods in decision making.
3. Students will be able to write about course topics clearly and effectively.
4. Students will be able to interpret quantitative information related to the course topic.
5. Students will be able to connect course content to communities beyond the classroom.

Course Materials

Required Text: Statistics: The Exploration & Analysis of Data, 7th Edition by Roxy Peck, Jay L. Devore.

Calculator: A scientific or graphing calculator is recommended but not required

Minitab: a statistical software package available at <https://forms.roanoke.edu/ minitab-license>

The final course grade is determined in the following way:

Task	Grading policy
Quizzes (Average)	10 %
HomeWorks	10%
Writing Assignments	10%
Final Project	15%
Tests	40%
Final Exam	15 %

Grading Scales

Percentage	Final Grade
93 % and above	A
90 -----92.9 %	A ⁻
87-----89.9 %	B ⁺
83-----86.9 %	B
80-----82.9 %	B ⁻
77-----79.9 %	C ⁺
73-----76.9 %	C
70-----72.9 %	C ⁻
67----- 69.9 %	D ⁺
63-----66.9%	D
60-----62.9 %	D ⁻
59.9% and down	F

Writing Assignments: There will be three writing assignments on health-related statistical topics. More specific instructions will be given for each piece when it is assigned. See the course schedule for due dates.

HomeWorks: You will have practice problems from the textbook and assigned readings from various sources. You will also analyze additional health related datasets. From time to time, you will have a quiz on the assignments. Quiz grades will be averaged. **Homework submitted after the keys have been posted will receive a grade of 0.**

MCSP Conversations: The MCSP department offers a series of talks designed to appeal to a broad audience. Members of this class are encouraged to attend many of these meetings, however attending at least one session is mandatory. Within one week of attendance, you must submit a response to the talk. This will count as one quiz grade.

Final Project: In small groups you will perform your own statistical study: ask a health-related question, gather, and analyze data to answer it, and form conclusions based on your analysis. More specific instructions will be given when the project is assigned.

Test Schedule Tests are closed book. Calculators are required.

Tests	Block 10
Test 1	Tuesday, Feb 14
Test 2	Tuesday, March 14
Test 3	Thursday, April 6
Final Exam	Monday, May 1, 8:30 am-11.30 am

Test Make-up Policy. Test make-up is administered in accordance with college policy. Anticipated, excused absences must be reported to the instructor with appropriate certification *well before* the scheduled test date. Legitimate emergency absences must be reported with appropriate documentation within one week of returning to class. No other make-up will be given.

Corrections to Grading. If you think an error may have been made in the grading of your test, carefully review the answer key posted on Inquire and then contact the instructor **within 1 week of the test's return** with your question. **Do NOT alter the original work.** The entire test may be re-graded, and the test grade is *subject to remain the same, increase or decrease* at the discretion of the instructor.

Final Exam. The final exam will be comprehensive. As with the tests, it will emphasize critical thinking, some calculations, Minitab output, and writing.

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

Electronic Devices. You can use only your calculator during class unless we are using Classroom Stats. (This means no cell phones - please set them on silent and leave them in your bag.)

Inquire Policy. Students are required to be knowledgeable of all postings on Inquire. It is each student's responsibility to consistently monitor Inquire for course information. This means every day! It is the student's responsibility to make successful submissions. It is the student's responsibility to resolve technology problems through the college's IT department.

Academic Integrity. I expect all of you to follow the Academic Integrity policies of Roanoke College. All graded work should be your own work! If you ever have questions about how these policies apply to our class, please contact me. Any violations of our AI policies will automatically be turned over to the Academic Integrity Council.

Accommodation. If you may require accommodation on this course, please provide me with your documentation within the first 2 weeks of the semester. I must have your documentation at least 48 hours prior to any accommodation booked. (Check with the Center for Learning and Teaching for their scheduling guidelines).

Extra Resources: To get extra help with writing issues, take advantage of the writing center in Fintel Library.

Subject Tutoring, located on the lower level of Fintel Library (Room 5), is open 4 pm – 9 pm, Sunday – Thursday. We are a Level II Internationally Certified Training Center through the College Reading and Learning Association (CRLA). Subject Tutors are highly trained Roanoke College students who offer one-on-one tutorials in a variety of general education and major courses. Tutoring sessions are available in 15, 30, or 45-minute appointments. Feel free to drop by for a quick question or make an appointment at www.roanoke.edu/tutoring for a longer one-on-one

appointment. For questions or concerns, contact us at 540-375-2590 or subject_tutoring@roanoke.edu.

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 Laura Leonard, Assistant Director of Academic Services for Accessible Education, at 540-375-2247 or by e-mail at 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 Laura Leonard at your earliest convenience to schedule an appointment.

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!

Tentative Schedule

(You will be notified in case of any changes and this syllabus will be updated.)

Week	Dates	Lecture Materials	Assignments
1	1/17 - 1/19	Chapters 1, 2	
2	1/24 - 1/26	Chapter 2, 3,	
3	1/31 - 2/2	Chapter 4	Writing 1 Assigned
4	2/7 - 2/9	Chapter 5,6	

5	2/14 - 2/16	Chapter 6, 7	Test # 1 (2/14)
6	2/21 - 2/23	Chapter 7, 8	Writing 1 Due (2/23)
7	2/28 - 3/2	Chapter 8, 9	Writing 2 Assigned
8	3/14- 3/16	Chapter 9,10	Test #2 (3/14)
9	3/21 - 3/23	Chapter 10, 11	Writing 2 Due (3/23)
10	3/28 - 3/30	Chapter 11, 12	Final Project Assigned (3/30)

11	4/4 - 4/6	Chapter 13	Test #3 (4/6)
12	4/11 - 4/13	Chapter 13, 15	
13	4/18- 4/20	Chapter 15	
14	4/25	Wrap-up materials	Final Project Due (4/26)
Monday	5/1	8.30 —11.30 am	FINAL EXAM