INQ 240 A1 A4: Here's To Your Health
Miller 113, MWF 9:40-10:40, 2:20-3:20, Spring 2024

Instructor: Dr. Michael Weselcouch
Office: Trex #270J
Student Hours: M 8:30-9:30, Tu 1:00-2:00, Th 1:20-2:20 or by appointment.
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Course Description. This course is an introduction to statistical reasoning and basic statistics techniques focusing on the examples and data sets dealing with health related issues. You will learn how to collect, organize and present data and study quantitative measures which will allow you to draw conclusions and make inferences from the data. Some probability will be discussed as a precursor to the "inferential" statistics.

Attendance Policy. Class attendance is a very important aspect of a student's success in this course. The student is expected to attend every class and is accountable for missed content and assignments.

Learning Outcomes.

(1) Students will be able to use the methodologies of statistics to
   (a) Investigate a topic 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 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.

Course Materials.

(1) *Textbook: Statistics* available free on Inquire.
(2) *Calculator:* A scientific or graphing calculator is recommended but not required.
(3) *Minitab:* A statistical software package available on most Roanoke College computers. To be clear, this is not something you need to purchase.
(4) *Laptop:* used for in-class computations.

(5) *Classroom Stats:* a data collection and analysis application for your smart phone available at https://www.classroomstats.com
(6) *YouTube:* I will be posting supplementary videos to my YouTube channel.
(7) *MyOpenMath:* Homework will be posted here.

Structure and Grading. A grade scale will be determined after final grades are computed, but will be no worse than the scale given below. Attendance and class participation will be considered when determining marginal grades.

Grading Scale

	93-100 A	90-92.99 A-
87-89.99 B+	83-86.99 B	80-82.99 B-
77-79.99 C+	73-76.99 C	70-72.99 C-
67-69.99 D+	63-66.99 D	60-62.99 D-

The final course grade is determined in the following way:

Homework	15%	Written Assignments	15%
Mastery Test	60%	Final Exam	10%

Mastery Tests. We will use Mastery-Based Testing rather than Points-Based Testing. Mastery-based testing is very different from what you are used to - do not hesitate to ask me questions! You will only receive credit for answers that demonstrate you completely understand (have mastered) a topic. But you will get FOUR chances to display mastery throughout the semester with NO PENALTY for earlier attempts.

- The course has been summarized by 15 topics.
- You will have two in-class attempts at each topic. You can schedule an addition two attempts outside of class hours in my office or during a Mastery Test day. If you are planning to use one of your additional attempts in class, you need to let me know 24 hours in advance.
- Each problem submitted is graded as either "Mastered" or "Not Mastered". A grade of Mastery indicates that you have demonstrated a full understanding of the concept being tested and further work on the topic is unnecessary.
- Once you have mastered a topic, you need not attempt it again.
- There is no penalty for multiple attempts taken to achieve mastery.
- Mastery does not mean perfect! It means you understand and can demonstrate all fundamentals of the topic and are proficient at the level desired for the course you do not need to study the topic further.
- Your overall test grade is determined by the number of topics you have mastered illustrated in the table below:

Mastered	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Grade	60	56	52	48	44	40	36	32	28	24	20	16	12	8	4

Homework. There will be one homework assignment for each Mastery Topic. These assignments are on our class's MyOpenMath page. All work submitted for a grade must be your own (for instance, you cannot use internet resources aside from my own YouTube videos or other videos linked on Inquire and, if you do work and study with others, the final writeup must be done by yourself). You will be granted 5 late passes at the beginning of the semester. You may apply these to any of the online assignments for an automatic 24 hour extension with no late penalty. Note that if you try to use a late pass on an assignment due say 14 days prior, you will not be able to as you would need an extension of over 14 days. You therefore need to keep up with the online homework. When you're finished with your homework assignment, you will post a PDF of your work to Inquire.

Written 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. Late work will be accepted, but loses .5 percentage points for every hour (or partial hour) past the deadline.

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. The schedule for the talks is posted on Inquire. Within one week of attendance you must submit a response to the talk. This will replace your lowest homework grade.

Test Make-up Policy. Test make-ups are 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-ups will be given.

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

Final Exam. The final exam will be comprehensive and will be taken in person on the date listed on the Roanoke College Academic Calendar.

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 your calculator during class. There will be times when we will use laptops to assist with computations. (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! Any assignment that requires an Inquire upload will not be accepted in any other form. **Also, to receive credit for uploads, the file must be readable on the instructor's college computer.** 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! This means that you cannot use any websites or apps that give step-by-step solutions to the problems. No collaboration is allowed on Mastery Tests. Unless otherwise stated, you many work together on the homework, but should write up your solutions separately. 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.

Artificial Intelligence. There are situations when the use of generative AI may be appropriate and educational. If you believe that your use of generative AI is appropriate for a given assignment, please contact me (via email, or in person at least 3 days before the due date) to explain your rationale for its use. No use is permitted without prior permission.

Accommodations. If you may require an accommodation in 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 made. (Check with the Center for Learning and Teaching for their scheduling guidelines.)

Subject Tutoring. 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 friendly, highly-trained Roanoke College students who offer free, one-on-one tutorials in a variety of general education and major courses such as: Business, Economics, Mathematics, INQ 240, Modern Languages, Lab Sciences, INQ 250, and Social Sciences (see all available subjects at www.roanoke.edu/tutoring). Tutoring sessions are available in 30 or 60-minute appointments. Schedule an appointment at www.roanoke.edu/tutoring, or contact us at (540)375-2590 or subject tutoring@roanoke.edu. We hope to see you soon!

Writing Center. The Writing Center @ Roanoke College offers tutorials focused on writing projects and oral presentations for students working in any field. Writers and presenters at all levels of experience may consult 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. Schedule an appointment at www.roanoke.edu/writingcenter, where our staff members and workshops are also posted. Questions? Email writingcenter@roanoke.edu.

AES. 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. To schedule an appointment, call (540)375-2247 or e-mail aes@roanoke.edu. If you have registered with AES in the past and would like to receive academic accommodations for this semester, please contact the AES at your earliest convenience to schedule an appointment and/or obtain your accommodation letter for the current semester.

Mastery Topics

Topic	Chapter	Description
(1)	2	Visualizing Data with Graphs and Charts
(2)	2	Describing Distributions with Numbers
(3)	6	Normal Distribution
(4)	12	Linear Correlation and Regression
(5)	3	Venn Diagram Probabilty
(6)	3	Conditional Probability
(7)*	4	Binomial Distribution
(8)*	7	Central Limit Theorem
(9)*	8 – 9	One Population Mean
(10*	10	Two Populations Means
(11)*	8 – 9	One Population Proportion
(12)*	10	Two Population Proportions
(13)*	11	χ^2-test
(14)*	12	Inference about Linear Regression
(15)*	13	ANOVA F Test

*Laptop or calculator needed

Course Schedule

Week	Dates	Lecture Material	Assignments
1	1/17, 1/19	Topic 1	
2	1/22, 1/24, 1/26	Topics 2, 3	
3	1/29, 1/31, 2/2	Topic 4	WA 1 (1/31) Mastery 1-4 (2/2)
4	2/5, 2/7, 2/9	Topic 5	
5	2/12, 2/14, 2/16	Topic 6	WA 2 (2/14) Mastery 1 - 6 (9/29)
6	2/19, 2/21, 2/23	Topics 7, 8	
7	2/26, 2/28, 3/1	Topic 8	Mastery 5-8 (3/1)
		Spring Break	
8	3/11, 3/13, 3/15	Topics 9, 10	
9	3/18, 3/20, 3/22	Topics 10, 11	WA 3 (3/20)
10	3/25, 3/27, 3/29	Topic 12	Mastery 7-11 (3/25)
11	4/1, 4/3, 4/5	Topics 12, 13	
12	4/8, 4/10, 4/12	Topic 14	Mastery 9-13 (4/8)
13	4/15, 4/17, 4/19	Topic 15	Mastery 12 - 15 (4/19)
14	4/22, 4/23	Final Exam Review	Mastery 14-15 (4/22)
	4/25 4/25	8:30 - 11:30 2:00 - 5:00	Block 2 Final Exam Block 6 Final Exam