

INQ 240E — STATISTICAL REASONING: HERE'S TO YOUR HEALTH



SEMESTER TERM:	Spring 2025	COURSE INSTRUCTOR:	Dr. Nuel des-Bordes
CLASS TIME:	M & W 4:00 — 5:30 PM	OFFICE LOCATION:	Trexler 180 Bldg
UNIT OF CREDIT:	3 Lecture Hours	EMAIL:	desbordes@roanoke.edu
MEETING ROOM:	Lucas 107 Bldg Face—2—Face Mtg	PHONE:	540 — 375 — 2013 ☎

STUDENT ENGAGEMENT HOURS

- M & W 1:00—2:00 and 5:30—6:00 PM or by appointment via virtual conferencing.

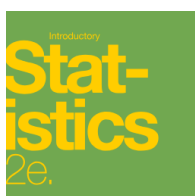
EMAIL (PREFERRED METHOD OF CONTACT)

- Please keep your email short and to the point – perhaps 3–4 sentences and always include your **name, course, and section number**.
- Expect your email to be responded within 24 hours (Monday through Friday). Do not expect a response to emails at night, on weekends, or on holidays.

ANNOUNCEMENT

- Class announcement will be sent to the class email list. Please check your Roanoke Email regularly.

COURSE TEXT & MATERIAL



- Introductory Statistics by Barbara Illowsky and Susan Dean. Published by Rice University under their OpenStax College offerings and can be accessed for free at [🔗 Introductory Statistics](#)
- Open Introductory Statistics by David M. Diez, Christopher D. Barr, and Mine C. etinkaya-Rundel Published by a Creative Commons license offerings and can be accessed for free at [🔗 Open Introductory Statistics](#)

SOFTWARE PACKAGE

- Microsoft Excel
- Minitab statistical software
- Laptop for in-class computations
- Graphing calculator is recommended but not required
- Magazines and newspapers in Fintel Library
- Health data is available on sites like the CDC and WHO

METHODS OF INSTRUCTION & COURSE DESCRIPTION

- Methods employed will include lecture/demonstration, discussion, problem solving, analysis, and reading assignments. This course is designed to provide a comprehensive study of how decision making is accomplished using modern statistical techniques. The students of this class will study **Statistical Reasoning** and apply the techniques of data analysis to data sets and statistical studies that deal with health related issues. Topics include:

■ Descriptive Statistics	■ Graphical Methods	■ Elementary Probability
■ Estimation	■ Statistical Inference	■ Linear Correlation and Regression

COURSE OBJECTIVES

- Upon completion of this course, the student should be able to:

CHAPTER COURSE OBJECTIVES

1 — 10

- Investigate a topic of interest and make decisions based on the results.
 - Design and carry out a simple statistical experiment.
 - 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.
 - Interpret quantitative information related to the course topic.
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METHODS OF ASSESSMENT & WORK POLICY

WEEKLY HOMEWORK ASSIGNMENT

Weekly homework assignments will accompany each chapter or lecture and can be accessed on our class’s Inquire page. It is essential that all submitted work is completed independently and represents your own understanding and effort. Each late pass grants an automatic extension of 2 – 3 days on any online assignment without incurring a late penalty. To ensure timely completion and to avoid falling behind, it is crucial to keep up with the weekly homework schedule.

WRITTEN ASSIGNMENT

There will be 3 written assignments centered on health-related statistical topics. Specific instructions for each assignment will be provided upon its assignment. Please refer to the course schedule for the respective due dates.

MCSP CONVERSATIONS

The MCSP department organizes a series of talks intended to engage a wide audience. While attendance at multiple sessions is encouraged, at least one session is mandatory for this course. The schedule for these talks is available on Inquire. Within one week of attending a session, you are required to submit a response to the talk. This response will serve as a replacement for your lowest homework grade.

END-OF-CHAPTER TESTS

In this course, assessments will mainly consist of End-of-Chapter tests, each focusing on 1 – 2 specific topics or lecture materials. Students will have 2 attempts to complete each test, with the highest score being recorded. The course is structured around 12 distinct topics, and students should expect to take 5 – 6 End-of-Chapter tests over the semester. Understanding of each topic will be evaluated through problem-solving activities scheduled for designated test days. All end-of-chapter tests will take place in class to create a focused and collaborative environment. If there are unforeseen circumstances, we will move the test online to provide flexibility and support during difficult situations.

MISSING ASSIGNMENT OR TEST

At the beginning of the semester, you will receive 4 late passes for all assignments, which offer you some flexibility. After you use these passes, a 5% penalty will apply for each week an assignment is late. If you encounter an illness or a family emergency that prevents you from completing an assignment, please reach out to me as soon as possible. Then I can give you a make-up at a later date.

FINAL EXAMINATION

The final examination will be comprehensive covering all topics in the course. The examination will primarily include both theoretical and application and will be given in person on the date listed on the Roanoke College Academic Calendar. To be successful in this course, you should therefore work on tests problems and homework assignments. you got less than 90%.

COLLABORATION

You are encouraged to work on Homework or Written Assignments in study groups of your choice; however, you must always submit the solutions on your own. Similarly, you should write your homework or written assignment solution strictly by yourself so that your hands and eyes can help you internalize this material.

EVALUATION & REQUIREMENTS

Your final grade will be based on the following component weighting:			Your final grade will be determined according to the following unrounded Roanoke College grading scale:	
CATEGORY		WEIGHT BY %	LETTER GRADE	
• Homework Assignments	(HA)	30%	A: 93 – 100% and A-: 90 – 92%	
• Written Assignments	(WA)	20%	B+: 87 – 89%, B: 83 – 86%, and B-: 80 – 82%	
• End-of-Chapter Tests	(ET)	40%	C+: 77 – 79%, C: 73 – 76%, and C-: 70 – 72%	
• Final Exam	(FE)	10%	D+: 67 – 69%, D: 63 – 66%, and D-: 60 – 62%	
• Total	(T)	100%	F: 0 – 59%	

GRADING POLICY

The student of this class total weighted grade or total class percentage will be determined by the following mathematical formula:

$$\bullet \text{ Final Grade} = 0.30\text{HA} + 0.20\text{WA} + 0.40\text{ET} + 0.10\text{FE}$$

DISTRIBUTION OF POINTS

Faculty will assign both in-class and online work to assess students' knowledge and abilities. I reserve the right to add or delete items, as needed. Your class grades will be stored in Inquire, the official learning management (LMS) of Roanoke College. Please understand that your Inquire grades must only be used for informational (unofficial) purposes and can not be interpreted as official.

GRADE DISCUSSION

Please be advised that grades will not be discussed over the phone or through email. Issues of this caliber should be talked over with me during arranged student engagement hours.

COURSE ETIQUETTE**CHEATING & INSTRUCTOR'S PLAGIARISM POLICY**

Claiming someone's work as your own is a very serious offense which has no place in higher education. Make your own mistakes and learn from them.

TALKING IN CLASS

Do not talk during class. Remain quiet and attentive while the instructor is talking. You should make sure that you cell phone is turned off during class. Do not take a call during class or text message.

COURSE PARTICIPATION AND ATTENDANCE

Attending classes regularly is crucial for achieving academic success. Being present allows you to actively engage in learning activities, discussions, and assessments. Your attendance, preparation, and participation all contribute to your overall class grade. If you are going to be absent for any reason, please email me as soon as possible to inform me.

MISSING CLASS

Additionally, if you miss class, for whatever reason, you are responsible for getting notes from a classmate or contacting me immediately.

MEETING WITH THE INSTRUCTOR

If you make arrangements to meet with your instructor via video conferencing, be sure to email the instructor to cancel if you are unable to make it to the meeting.

STUDY HABITS

You should expect to spend about **2** hours per lesson outside of class studying and doing assignments for this class. Make sure that you attempt to do your homework. Do not wait until the day before the end-of-chapter to study. You should be studying every day as we go along. Working problems is the best way to learn. Watching the instructor working problems is not the same as doing it yourself. Practice is the most important thing.

INSTITUTIONAL POLICIES & SERVICES**ACCESSIBLE EDUCATION SERVICES**

AES is located in the Goode-Pasfield Center for Learning and Teaching in Fintel Library at [📍 Accessible Education Services](#). 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 [📧 Academic Education Services](#) to schedule an appointment and/or obtain your accommodation letter for the current semester.

ACCOMMODATION

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.

SUBJECT TUTORING & WRITING CENTER

The tutoring services at Roanoke College are located on the lower level of Fintel Library (Room 5) and are open from **4 – 9 PM**, Sunday through Thursday. Subject Tutors are highly trained current students who offer free, one-on-one and small group tutorials in over 80 courses, including MATH-111 and INQ-240 among others. To view all available subjects and to schedule 30 or 60 minute appointments, please visit [📍 Tutoring](#). If you have any questions, feel free to stop by or contact us at [📍 Tutoring](#) or 540-375-2590.

Additionally, the Writing Center, located on the lower level of Fintel Library (Room 15), provides free tutorials focused on writing projects and oral presentations for students in any field. Students at all skill levels are welcome to visit the Writing Center at any stage of their process, including brainstorming, drafting, organizing, editing, or polishing their presentation skills. The Writing Center is open Sunday through Thursday from **4 – 9 PM**. You can simply walk in or schedule an appointment at [📍 Writing Center](#). For questions, please email [📍](#) or call 540-375-4949.

ACADEMIC INTEGRITY SYSTEM

Academic integrity is an important aspect of Roanoke College's academic program. Students are expected to produce original work, cite sources appropriately, and avoid plagiarism, cheating, and dishonesty. A violation, including falsifying data or submitting others' work as one's own, may result in disciplinary action, including failing grades or expulsion, depending on the severity. As part of the policy, students are encouraged to uphold academic excellence by maintaining integrity and taking personal responsibility. Please refer to the Academic Integrity Handbook which can be found at [📍 Academic Integrity Handbook](#) for additional policies, information, and resources available to you.

ARTIFICIAL INTELLIGENCE (AI)

There are certain situations where using generative AI can be appropriate and educational. If you think that using generative AI is suitable for a specific assignment, please contact me via email or in person at least three days before the due date to explain your reasoning. No use of generative AI is allowed without prior permission – [📍 Violations](#).

ATTENDANCE POLICY

The attendance policy at Roanoke College emphasizes the importance of attending classes and completing academic assignments on time. It is expected that students take advantage of the many opportunities that are available to them, including attending classes and completing academic assignments on time. Furthermore, the college has a policy regarding first-day attendance. Students are required to attend the first class session unless the course instructor grants prior permission to miss it. Please refer to the Student Handbook and Policy which can be found at [📍 Attendance Policy](#) for additional policies, information, and resources available to you.

FINAL COURSE GRADE APPEAL POLICY

Students who have concerns about their grades are encouraged to discuss these issues first with their instructors. If the matter is not resolved, they should then speak to the chair of their department or the program director. If the issue remains unresolved, a formal written appeal can be submitted to the Assistant Vice President for Academic Operations. This office will review the case, consult with all parties involved, and issue a final decision. Please refer to the Student Handbook and Policy which can be found at [📍 Student Policies of Interest to the Faculty](#) for additional policies, information, and resources available to you.

TITLE IX POLICY & PROCEDURES

Roanoke College is committed to creating an educational environment that is free from sex discrimination and sexual misconduct, in accordance with Title IX regulations. The College's Sexual Misconduct and Title IX Policy specifies the behaviors that are prohibited, the procedures for reporting incidents, and the resources available to the campus community. Individuals are encouraged to report any incidents to the Title IX Coordinator or Deputy Coordinators. The policy highlights the importance of prompt reporting, fair treatment, and providing supportive measures to all parties involved. Additionally, retaliation against anyone participating in the reporting process is strictly prohibited. Please refer to the Student Handbook and Policy which can be found at [📍 Title IX Policy & Procedures](#) for additional policies, information, and resources available to you.

MAROON ALERTS

Roanoke College utilizes the Maroon Alerts system to promptly inform students, faculty, and staff about emergencies or critical situations. This system delivers notifications and updates to you on all your devices – [📍 Maroon Alerts](#).

ACADEMIC CALENDAR

The academic calendar gives the start and end dates for semester sessions and important deadlines for withdrawing from classes https://www.roanoke.edu/inside/registrar/academic_calendars/spring_2025.

CLASS SCHEDULE AND SEQUENCE OF INSTRUCTION

WEEK	DATE	MATERIALS COVERED	HOMEWORK ASSIGNMENTS & TESTS
Week 1	January 13 — 17	Chapters 1.1 — 1.6 — Sampling & Data	
Week 2	January 20 — 24	Chapters 2.1 — 2.4 — Frequency Dist. & Graphs	Homework Assignment 1 is due January 26
Week 3	January 27 — 31	Chapters 2.5 — 2.8 — Numerical Rep. of Data	- Written Assignment 1 — Article Analysis - Test 1 (Chapters 1 & 2) is scheduled for February 5 - Homework Assignment 2 is due February 2
Week 4	February 3 — 7	Chapters 3.1 — 3.6 — Basic Probability Theory	Homework Assignment 3 is due February 9
Week 5	February 10 — 14	Chapters 4.1 — 4.3 — Discrete Probability Dists.	- Test 2 (Chapters 2 & 3) is scheduled for February 12 - Homework Assignment 4 is due February 16
Week 6	February 17 — 21	Chapters 5.1, 6.1 & 6.2 — Continuous Probability Dists.	- Written Assignment 2 — Data Analysis - Homework Assignment 5 is due February 23
Week 7	February 24 — 28	Chapters 7.1 — 7.3 — Sampling Distributions & CLT	- Test 3 (Chapters 4 — 6) is scheduled for February 26 - Homework Assignment 6 is due March 2
Week 8	March 3 — 7		Spring Break
Week 9	March 10 — 14	Chapters 8.1 — 8.3 — Confidence Intervals	Homework Assignment 7 is due March 16
Week 10	March 17 — 21	Chapters 9.1 — 9.6 — Hypothesis Testing I	- Test 4 (Chapters 7 & 8) is scheduled for March 19 - Homework Assignment 8 is due March 23
Week 11	March 24 — 28	Chapters 10.3 — 10.5 — Hypothesis Testing II	- Written Assignment 3 — Statistical Consulting - Homework Assignment 9 is due March 30
Week 12	March 31 — April 4	Chapters 11.1 — 11.4 — Chi-Square Distribution	- Test 5 (Chapters 9 & 10) is scheduled for April 9 - Homework Assignment 10 is due April 6
Week 13	April 7 — 11	Chapters 12.2 — 12.4 — Linear Regression & Correlation	Homework Assignment 11 is due April 13
Week 14	April 14 — 18	Chapter 13.1 — One Way ANOVA	- Test 6 (Chapters 11 & 12) is scheduled for April 16 - Homework Assignment 12 is due April 20
Week 15	April 21 — 25	Revision	- Reading Day - Thursday, April 24 Block 8 Final Exam: 6–9 PM

* The above schedule is an estimate and can be modified at any time

* We will cover the sections in the order listed but not necessarily on the dates listed