

INQ 240: Statistical Reasoning: Here's to Your Health

Instructor: Jonathan Bayer
Office: 161-C Trexler Hall
Office Hours: Before/After class
3:50-4:00, 5:30-5:40
Tuesday/Thursday
Email: bayer@roanoke.edu

Course Description:

From College Catalog:

“Provides an inquiry-focused introduction to statistical methodologies. Questions and applications will be drawn from one of Western Perspectives, Global Perspectives, or the Natural World. Students will gain an understanding of how decision making is accomplished using modern statistical techniques. Topics include descriptive statistics, graphical methods, estimation, elementary probability, and statistical inference; students will apply the techniques of data analysis to data sets and statistical studies that address questions of the perspective.” We will specifically be using statistics to analyze health related data and research.

Learning Outcomes:

At the conclusion of this course students should 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.

Textbook and Materials :

A First Course in Statistics by McClave and Sinich (Pearson), 11th edition; ISBN #9780321891921
(The 10th edition will work)

A Writer's Reference, Diana Hacker RC Custom Edition

Minitab stats package (available on Roanoke College Remote Computing)

You may use any calculator in this course. A scientific calculator may make some of the calculations easier.

Grade Policy:

The grades will be weighted according to the following table.

Assessment/Assignment	Percentage of Weighted Average
Homework	5%
Chapter Quizzes	15%
Tests	40%
Projects	20%
Final Exam	20%

Grades are assigned based upon the following percentages:

92.5%-100%	A
89.5%-92.49%	A-
87.5%-89.49%	B+
82.5%-87.49%	B
79.5%-82.49%	B-
77.5%-79.49%	C+
72.5%-77.49%	C
69.5%-72.49%	C-
67.5%-69.49%	C+
62.5%-67.49%	D+
59.5%-62.49%	D
0%-59.49%	F

Assessments/Assignments:

Homework: Homework questions come from the notes and the textbook. They are worded in a manner which may make them slightly easier to understand than some of the questions from the textbook.

Chapter Quizzes: The chapter quizzes come directly from the textbook. Each question includes the section in which it can be found in the textbook. You have two submissions for the chapter quizzes. After your first submission you will be told which questions you missed so that you can go back and get them correct the second time.

Projects: You will complete at least 2 projects in this course. These projects will allow you to explore some of the ways statistics can be applied to health related topics.

Tests: You will take four tests in this course. You will receive specific instructions for each test. Tests will focus primarily on statistical content and concepts covered in the lectures, chapter quizzes, and homework. Test questions will be a mix of multiple choice and free response and may also include some writing as well.

Final Exam:

The final exam is comprehensive and will be administered during your scheduled exam time. Prior to the final exam you will receive specific instructions about taking it. **The final exam will be given on Tuesday December 15th from 6:30 to 9:30.**

Test Policy:

If you know in advance that you will be missing a test, you must make arrangements to take the test prior to the test day or **you will receive a ZERO** for that test. If you miss one test it will be replaced by the Final Exam because your lowest test grade will be replaced by the Final Exam if it is higher. **If you miss two tests I encourage you to withdraw from the course because one test will be a zero and it is likely you will fail.**

Attendance Policy:

Attendance is mandatory for all classes. If you want to be successful in this course I suggest you attend each and every class. If you miss class it is assumed you will get the information you missed from one of your class mates. I do not recover material because you are absent. I will not redo a lecture during office hours because you cannot make it to class. If you know you are going to miss a day I can tell you the content/concepts we will cover prior to class on that day.

Academic Integrity Policy:

You are expected to adhere to the Academic Integrity policies of Roanoke College. If you submit work it must be your own. You must not use any cell phones during class or testing times. Looking at a cell phone during a testing time is considered to be a violation of Academic Integrity.