

INQ 240-B3 Statistics & Sports Industry – Fall 2020

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Office Hours: Office Hours: 1:00-2:30 on Mondays & Fridays; 1:00-2:00 on Tuesdays & Thursdays *For the Fall 2020 semester, I will have limited time on campus due to COVID-19 concerns. Office hours will be conducted remotely through Zoom by appointment. Schedule using this website:

<https://professorkeller7.youcanbook.me>

Text: Introductory Statistics by Barbara Illowsky & Susan Dean (FREE!)
(available here: <https://openstax.org/details/introductory-statistics?Book%20details>)

Software: All students will need a MyOpenMath account. (FREE!)

Required Materials: All students will need a TI-83 or TI-84 graphing calculator.

Note: Students who have completed Stat 202 may not take this course for credit. Students must receive a C or better in this course or Math 111 to declare a major in Business Administration.

COURSE OBJECTIVE: Students will gain an understanding of how decision making is accomplished using modern statistical techniques with an emphasis on quantitative reasoning. Using sports as the content focus, the course will address descriptive statistics, graphical techniques, elementary probability, estimation, regression, and inferential statistics.

STATISTICS CONTENT: The following major topics will be covered in this course:

- Tables, Charts and Plots
 - Distribution Shapes
 - Measures of Location, Measures of Central Tendency, and Measures of Variation
 - Informal inference/Introduction to Probability (Data Explorations, Simulations, Basic Probability Models, Empirical Rule)
 - Sampling (parameters & Statistics, Sampling Distributions, Central Limit Theorem)
 - Formal Inference (Confidence Intervals, Hypothesis Testing for Means & Proportions, ChiSquare, and ANOVA)
 - Introduction to Linear Regression (Correlation; Least squares method; Regression coefficients)
- *A detailed list of topic coverage by textbook section is located on our Inquire course site.

LEARNING OUTCOMES: By the end of the course, successful students will be able to:

- Use the methodologies of statistics to o 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.

COURSE FORMAT: This class will be taught as a hybrid. What that means is that instruction will consist of a combination of asynchronous content (work you do on your own on your own schedule) and synchronous class sessions. These synchronous sessions will sometimes be in-person and sometimes be conducted on Zoom. Our synchronous sessions will always occur on Wednesdays from 12:00 – 1:00 pm during our regularly scheduled class meeting time. Outside of these class meetings, you are permitted to work on your own schedule to complete the course content. As this is a hybrid course, it will not be possible for me to teach all content in real time. You will be expected to read the text, review the notes, and watch videos prior to attending the synchronous sessions in order that you can participate fully. A detailed course calendar and pacing guide is located on our course Inquire site.

Per the Academic Catalog, “For each one-unit course, students are expected to complete 12 hours of work inside and outside of class each week.” Realistically, this may vary due to the strength of the background of each individual student with respect to course content.

GRADING POLICY: Grades are based on the following course activities:

Online Homework	5%
Quizzes	10%
Labs/Written Homework:	10%
Writing Assignments	10%
Tests:	40%
Final Exam:	25%

Grades will be assigned using the scale below:

A	93-100	C	73-76
A-	90-92	C-	70-72
B+	87-89	D+	67-69
B	83-86	D	63-66
B-	80-82	D-	60-62
C+	77-79	F	Below 60

ATTENDANCE: Attendance is critical to the understanding of the material in the course; it is both required and expected. Attendance will be taken in each synchronous class (live or on Zoom). You are expected to both be present and to participate; failure to do so will result in being marked absent for the day. Please see the section of this syllabus that refers to appropriate Zoom conduct.

HOMEWORK: Each textbook section we cover in the course will have an affiliated online problem set. These assignments are intended to help your grade and increase your mastery. As such, you are permitted unlimited attempts before the due date and your best scores will count. These assignments are also available for practice once the due date has lapsed (but will not count for credit if late). All students are granted 3 Late Passes at the start of the course which will extend the due date on any given assignment by 48 hours. All assignments will be instantly accessible (i.e. not time-released). You are permitted and

encouraged to work ahead. Homework assignments are due twice weekly on Tuesday and Friday evenings, by 11:59 pm.

QUIZZES: Each chapter we cover in the course will have an affiliated online quiz. These assignments are intended to test your mastery prior to the test as a means of monitoring your course progress. As such, you are permitted only one attempt (with two tries at each problem). These assignments are also available for practice once the due date has lapsed (but will not count for credit if late). All quizzes will be instantly accessible (i.e. not time-released). Like with the homework, you are permitted to work ahead, but it is advised that a quiz not be attempted until there is a reasonable expectation of mastery. Quizzes are always due by 11:59 pm on Sunday evenings.

LABS/WRITTEN HOMEWORK: During our synchronous sessions, we will engage in labs that involve data-collection activities (involving simulations, experiments, etc.). Each lab will require the completion of a lab report which will be submitted for credit. The labs will vary in length and complexity. Some will be finished in class while others will require extension activities to be completed outside of class. The lab reports will always be submitted electronically (file upload) and will be due by the end of the week in which the lab was conducted (11:59 pm Sunday).

WRITING ASSIGNMENTS: INQ240 is designed under the expectation that writing is a critical course component and will build on the foundation of the writing instruction begun in INQ110. In this class, there will be opportunities for informal journal-style writing to demonstrate quantitative reasoning and/or critical thinking as well as formal technical writing to demonstrate the statistical investigative process in action. The 10% of the overall course grade that is allocated to writing will be subdivided as follows: 2% each for the informal writing exercises that accompany each unit (due on the day before the unit test; 9/22/20, 10/27/20) and 6% for the formal research report that will be due on the last day of classes (11/17/20). The data analysis project (formal research report) will require you to use proper techniques to collect, organize, visualize, analyze and interpret data. You will use these results to write an interesting sports article which uses the results of your statistical study to prove or disprove a claim. More details on all writing activities will be outlined in a supplemental document. No late papers will be accepted without arrangements approved prior to the absence or without written documentation from a college official.

TESTS: There will be two unit tests for this course. The first test will cover Chapters 1-4 and will be administered on 9/23/20. The second test will cover Chapters 5-10 and will be administered on 10/28/20. No make-up tests will be given after the test date. Instead the final will replace one test you miss for a valid excuse which must be documented prior to the test. If you must miss a test for an official college function (pre-arranged conference, sporting event, military training,...), you will be permitted to take the test in advance of your absence, but only with proper documentation and authorization.

FINAL EXAM: The final exam is cumulative. It will cover the entire semester of material. **The final exam is scheduled for Thursday, 11/19/20, from 8:00 am – 12:00 pm.** The exact format of the final (inperson, online, hybrid) has yet to be determined and will be structured in accordance with COVID-19 guidelines. More specific information will be released closer to the course end date, but the final will either occur at our scheduled exam time or be due within that timeslot.

ZOOM CONDUCT: This class will use Zoom, which is a web and video conferencing tool. Please be sure you have Zoom installed and are familiar with using the tool. Below are tips for participating in a Zoom session:

- join the meeting early and test speaker, microphone, and camera settings;

- keep speakers away from microphones to avoid feedback; use a headset with microphone if possible; and do not join a meeting from multiple devices.

When we meet on Zoom, or in other digital formats, we are in a professional community. As professionals, you are expected to:

- show up on time, be appropriately attired, and be prepared for our collective work.
- try to limit distractions in our individual workplaces.
- Keep your video on, your microphone muted when not speaking, and focus your attention on the speaker.

ACADEMIC INTEGRITY: You are expected to be familiar with, and adhere to, the Academic Integrity Code outlined in the booklet, *Academic Integrity at Roanoke College* (found here: https://www.roanoke.edu/inside/a-z_index/academic_affairs/academic_integrity). As in life, ignorance of the law is not a defense for violating it. In general, the bottom line is that all work submitted for a grade must solely be the work of that student unless the instructor has given explicit permission otherwise.

- When completing online homework, students are permitted and encouraged to use their book, notes, videos, and any supplemental materials of their choosing. Classmate and tutors may also be consulted.
- When completing online quizzes, students are permitted to use their notes, but should not be utilizing any other resource (physical or electronic). Classmates and tutors may NOT be consulted.
- When completing labs/written homework, students are expected to work independently. Class resources (text, notes, videos) may be consulted in preparing these assignments, but no outside resources. Particular assignments will lend themselves to groupwork and thus collaborative submissions will be permitted occasionally; if and when that occurs, specific details will be explicitly provided. Do not assume collaboration is allowed.
- When completing writing assignments, students are expected to submit original work without assistance and avoid plagiarism. All outside sources must be cited appropriately. Students are permitted to consult with the Writing Center, but this must be documented.
- When taking tests, to include the final exam, no resources of any kind are permitted, unless otherwise stipulated. In an online testing environment, this means that no other websites may be accessed during the testing period (including our course website and resources). No consultation with classmates or tutors is permitted. Sharing the test, in whole or part, is expressly prohibited. In a physical testing environment, the use of any electronic device other than a calculator during the test is strictly prohibited. Calculator sharing is not allowed.
- These guidelines are meant to be instructive, but by no means exhaustive. If you are ever uncertain as to how the academic integrity guidelines pertain to this course, please ask for clarification. Do not make assumptions!

COURSE COMMUNICATION: The primary method of communication for this course will be the Inquire site. Students will be expected to check this site frequently and are responsible for the content therein. Announcements regarding policies and procedures (to include testing information and assignment due dates and requirements) will be posted here and course documents will be housed here. Students are also expected to check their college-issued email regularly and required to conduct all course communication via that channel.

All course policies (including topic coverage, grading scale, assignment due dates, etc.) are subject to change at the instructor's discretion. Students will be provided with updates as applicable.