

DATA 1220 Elementary Statistics

Course Information and Syllabus

Fall 2024

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Meetings

Time: MWF 1:30 - 2:20 pm

Location: Dolan E243

Office hours: MW 2:30 – 4:00 pm; Friday by appointment

Course Description

No prerequisite. Students will develop skills in describing data by graphs and measures, descriptive statistics, sampling distributions, confidence intervals and tests of hypotheses, and simple linear regression. Methods are illustrated in the context of quantitative research, with applications in disciplines such as sports, psychology, and social and natural sciences.

Textbook

This course is supported by OhioLink which encourages students to use an Open Educational Resource (OER). The textbook is *OpenIntro Statistics* - Fourth Edition. PDF is free to download at <https://www.openintro.org/book/os/>

More learning materials can be accessed at the website above, as well.

Software

You are required to use the R statistical programming environment in this course. RStudio is an open source and enterprise-ready professional software for R. Both R and RStudio are available in computer labs and in classrooms on campus. You may also download R and RStudio on your own computer, if you wish. R is available at: <http://www.r-project.org/>. RStudio is available at: <https://www.rstudio.com/>. To use RStudio, you must install R first.

Canvas

Our course Canvas site will be an important resource. You can log in at canvas.jcu.edu, and find our course under My Courses. Bookmark this site, and check it daily. Throughout the term, this is where you will find up-to-date information on assignments and announcements, and copies of handouts.

Specific Learning Outcomes

1. Find and pose questions that can be appropriately analyzed by quantitative methods.
2. Draw inference from data.
3. Represent data.

4. Think critically about quantitative statements.
5. Recognize sources of error.
6. Encounter ethical arguments and consider the ethical use of data.
7. Apply statistical methods in a variety of realistic research contexts.
8. Communicate statistical results using proper use of statistical notation and terminology.

This course satisfies the Quantitative Analysis requirement in the Core Curriculum as well as being a foundational course in the Statistics minor. As such, these course learning objectives align with the learning objectives for those categories. These goals also align with the program learning goals for Data Science and the broader learning goals at John Carroll University. Specifically, students will be able to develop their skills in creative thinking, critical analysis, communication, and collaborative skills. As well as demonstrate knowledge of the human and natural worlds and act competently in a global world. Student's ability to meet these enumerated goals will be evaluated across assignments, project and the final exam.

Grading Policies

Academic misconduct of any sort will NOT be tolerated. Components of your grade include the following.

- Attendance and Participation (5%)

Attendance and participation are crucial to your success in this course. I will be counting on you to be in class and to be prepared. The Undergraduate and Graduate Bulletins share common language regarding [attendance regulations](#). Please note that different types of absences follow different processes, due to the nature of the request and (in some cases) federal regulations. If you are unable to attend a class, you should contact me as soon as possible. The student is still responsible, however, for any material covered during the class period that was missed.

Active participation is strongly encouraged to demonstrate you are engaged in learning. Participation includes asking questions in class, contributing to lectures, and actively engaging in group discussions. Questions and comments are welcome!

- Homework (60%)

Homework will be given regularly upon the completion of each chapter. Homework problems may come from the textbook, online tutorials, or build on concepts covered in class. Grades for assignments turned in late will be penalized, with increasing penalties as time passes beyond the due date and for repeated occurrences, unless a legitimate excuse is approved by the instructor. All work should be done neatly and submitted to Canvas.

- Surveys (5%)

You will be asked to complete a survey at the beginning and end of the semester. They will be administered in class. These must be completed on time to receive credit. There are no late make-up surveys.

- Quiz (10%)

An in-class quiz will be given in November. The quiz will cover all the materials from the beginning of the semester to what you have learned in November. More details will be provided when it is close to November.

- Final Exam (20%)

The final exam is comprehensive. The date and time will be posted on Canvas.

Scale

Grade	Percentage	
A	93%	Outstanding scholarship
A-	90%	
B+	87%	
B	83%	Superior work
B-	80%	
C+	77%	
C	73%	Average
C-	70%	
D+	67%	
D	60%	Work of the lowest passing quality

Statement on Accessibility, Inclusion, Harassment and Bias

The current syllabus statement on Accessibility, Inclusion, etc., is available through <https://jcu.edu/about-us/values-and-jesuit-tradition/diversity/inclusive-excellence/syllabus-statement>.

For more information about the University's commitment to diversity, equity, inclusion, and accessibility, please visit the Diversity, Equity & Inclusion Division home page.

Policy on Academic Honesty

Academic honesty, expected of every student, is essential to the process of education and to upholding high ethical standards. Cheating, including plagiarism, inappropriate use of technology, or any other kind of unethical or dishonest behavior, may subject the student to severe academic penalties, including dismissal. All work submitted for evaluation in a course, including tests, term papers, and computer programs, must represent only the work of the student unless indicated otherwise. Material taken from the work of others must be acknowledged. Materials submitted to fulfill requirements in one course may not be submitted in another course without prior approval of the instructor(s). Concerns about the propriety of obtaining outside assistance and acknowledging sources should be addressed to the instructor of the course before the work commences and as necessary as the work proceeds.

Please read the full university policy from the Bulletin. Penalties, appropriate to the severity of the infraction, may include zero for the assignment or failure in the course. In cases of academic dishonesty where the student chooses to withdraw from a course rather than receive a course grade of F, the grade of F instead of W may be assigned at the faculty member's discretion. In

egregious cases and/or cases of repeat dishonesty, additional penalties may be determined by the dean, such as suspension or dismissal from the University. In a case of dismissal, Academic Dismissal will be noted on the transcript.

Any appeal by a student is to be made first to the instructor. If disputes of interpretation arise, the faculty member and chair will attempt to resolve the difficulty with the student. If this does not lead to a resolution, the appropriate associate academic dean of the College of Arts and Sciences or the Boler College of Business normally will rule in the matter.

A written report of the incident by the instructor or department chair will be sent to the dean of the College of Arts and Sciences, who will keep a written record of the complaint when it is filed, and will forward a copy of the complaint to the appropriate associate dean's office at the time. The associate dean will place a copy of this record in the student's file and provide the student with a copy. A written record of the complaint is kept for cases of repeat violations. The associate dean will review the case and determine if, in light of other information and records, further disciplinary action is warranted.

The student has the right to appeal the accusation of academic dishonesty if the student believes it to be in error. The Policy and Procedure for Appeal of a Charge of Academic Dishonesty will be followed if a student wishes to contest a finding of academic dishonesty.

Mental Wellness Statement

As a college student, there may be times when personal or life stressors interfere with your academic performance and/or negatively impact your daily life. If you or someone you know is experiencing mental health challenges at JCU, consider contacting the Counseling Center by calling 216-397-4283, or visiting their website at jcu.edu/counselingcenter and requesting an appointment in the online portal. The center also offers drop-in consultations with a therapist in their Let's Talk program – no appointment necessary. All services are free and confidential.

Tentative Schedule

Week	Topic
1	Intro to R; Chapter 1
2	Chapter 1
3	Chapter 2
4	Chapter 2
5	Chapter 3
6	Chapter 4
7	Chapter 4
8	Chapter 5
9	Chapter 6
10	Chapter 6

11	Chapter 7
12	Chapter 7
13	Chapter 8

This syllabus is subject to change.