

CRIM5305: Data Analysis

Spring 2025

Online Asynchronous



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Student Hours: Mondays from 1:30pm-2:30pm, Wednesdays from 12:30pm-1:30pm, and by appointment

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Course Description

This course is an introduction to social science statistics used in criminological and criminal justice research. Through this course, you will learn how to summarize data, draw inferences about data, and test hypotheses with data. You will also learn how to use the statistical programming language R.

Objectives

Learning Objectives

By the end of this course, you should be able to:

1. **Summarize** the properties of a sample using descriptive statistics
2. **Infer** features of a population using inferential statistics
3. **Summarize** and infer the relationships between variables
4. **Conduct** appropriate statistical technique(s) for a given variable or set of variables, using the statistical program R, and interpret the output

Texts

Required Texts

Bachman, R. D., Paternoster, R., & Wilson, T. H. (2021). *Statistics for criminology and criminal justice* (5th Ed.). SAGE Publications.

Recommended texts:

Gillespie, B. J., Hibbert, K. C., & Wagner III, W. E. (2020). *A Guide to R for Social and Behavioral Science Statistics*. SAGE Publications.

Graded Work

Points for the course are allocated as follows:

Assignments:	700 points
Discussion:	200 points
<u>Final Exam:</u>	<u>100 points</u>
Total:	1000 points

Assignments

Purpose: To give you hand-on practice applying statistical techniques both by hand and via R.

- There will be fourteen (14) assignments worth 50 points each.
- Assignments will cover both theoretical and practical content from the course readings, lectures, and videos.

- Assignments will be submitted online via Blackboard. The assignment for each week will “unlock” (i.e., become available) on Friday evenings and be due the following Friday by **11:59pm**.

Discussion

Purpose: To teach you how to independently problem-solve.

- There will be eleven (11) weekly discussion boards worth 20 points each.
- Each discussion board will be the same: it will ask you to identify one problem that you faced in the course that week and how you were able to solve it independently.
- Assignments will be submitted online via Blackboard. The discussion board for each week will “unlock” (i.e., become available) on Friday evenings and be due the following Friday by **11:59pm**.
- I will drop the lowest discussion grade at the end of the semester.

Final Exam

Purpose: To test your mastery of conceptual course content.

- There will be one cumulative final exam worth 100 points.
- The exam will be administered via Blackboard. Once you begin the exam, you cannot pause it.
- Because it is online, it is open-book and open-note, but you are expected to complete this exam *independently*—you may not work with a partner.

Course Policies and Procedures

Grading Policies

Letter Grade Ranges and Descriptions. Graded assignments and final grades are administered on the following scale:

Table 1. Letter grade ranges and descriptions

Letter Grade	Grade Range	Description
A	90-100	Excellent
B	80-89	Good
C	70-79	Average
D	60-69	Passing
F	> 60	Failure
FN	> 60	Failure (Non-Attendance)

Rounding. Final grades are rounded according to normal rounding rules (e.g., a 79.5 [C] would be rounded up to an 80 [B], but a 79.4 would not).

Late Work. Late work will not be accepted for any reason outside of official accommodations. Students who need an extension may use one of their two “life happens” tokens (see below). Otherwise, late work will receive an automatic zero.

“Life Happens” Tokens. Students are allotted two (2) “life happens” tokens to accommodate common life mishaps. Each token provides the student a 72-hour extension on out-of-class assignments. They cannot be used for the final exam.

- **To use:** The student must email me to let me know they are using this token *before* the assignment is due.
- Good uses of this token include technological mishaps (e.g., bad internet), spreading out assignments (if multiple from different classes are due in the same time frame), or a life circumstance which hinders progress. However, **students do not need to provide a justification for using their token.**

Contesting grades. Students will have **3 days** to contest grades beginning on the day they are released. Students should only contest grades in a situation where a specific mistake has been made (e.g., a miscalculated grade).

Course & Communication Policies

How I Contact You. Most communication from me will be through Blackboard Announcements. You are responsible for keeping up with Blackboard notifications, so please **check it daily.**

How You Contact Each Other. In addition to the weekly graded discussion boards, I encourage you all to help each other by utilizing the premade discussion forums titled **Peer-to-Peer Coding Help** and **Peer-to-Peer Statistics Help**. If you have a question about coding or statistics that you can't solve yourself, post here first! I will monitor and respond to these discussion boards, but I will delay responding to provide your peers an opportunity to answer first. Don't be shy about asking! Students almost always have the same questions, so your peers will be grateful if you are the one to ask it.

How You Contact Me. If you have not received an answer on the discussion boards or need to contact me about something more personal, email me at educate@tamusa.edu. **Please include the course number at the beginning of the subject** of the email and use [proper email etiquette](#). **Do not use Blackboard messages.**

I usually check my email twice a day between 10am and 4pm on weekdays and do not check email on the weekends. If I have not responded to your e-mail within 24 hours (excluding Sat and Sun), **please send another e-mail with a reminder.**

Students who do not send professional emails will receive a **form email** in response encouraging them to revise their email to be more appropriate. This is not because I'm a jerk—it is

because it is good professional development and makes it easier for me to answer your question quickly. **Well-formatted emails with clear questions will get a much faster answer from me.**

Before you send an email, please see the following checklist. Have you...

- ⇒ Ensured that the answer to your question cannot be found in the syllabus or supporting documents?
- ⇒ Put “CRIM 5305:” followed by a simple summary in the subject line (e.g., **CRIM 5305: Error on Assignment 2**)?
- ⇒ Opened your email with a salutation (e.g., **Hello Dr. Ducate**)?
- ⇒ Begun your opening paragraph on a new line?
- ⇒ Ensured that your question is clear and to the point?
- ⇒ Ended your email with a closing (e.g., **Thank you,**)?
- ⇒ Put your signature (i.e., your name) on the line below the closing?

How to Meet with Me. I hold weekly student (i.e., office) hours to allow students to come ask questions about material they are struggling with. If none of the available times work with your schedule, email me to work out a time. I do my best to work with students to find a time that works for both of us, but it is the student’s responsibility to ensure they have some availability during normal working hours (i.e., 8am-5pm).

This is a difficult course, so **I encourage you to attend office hours.** However, I expect you to come prepared. This means you should **come with *clear* questions** about the material you do not understand. If you have questions about the assignments, you must have the assignment open and with the work you’ve already tried available for me to review.

Work and Submission Policies

General Assignment Requirements

- Assignments should be submitted as Word documents or .jpg/.png/.pdf files where indicated.
 - I will not accept raw RMD files.
- **Whatever you submit on your first attempt is what I will grade.** It is your responsibility to upload the correct document. Be sure to check the document preview **BEFORE** submitting.

Academic Integrity & AI Use. As a TAMUSA student, I expect you to follow the Student Code of Conduct (see Section 14 of the [Student Handbook](#)). **When you submit an assignment with your name on it, you are signifying that the work contained therein is yours and only yours** unless otherwise cited or referenced. This includes both assignments and exams. This means that **all work submitted by students must be generated by the students themselves**, working individually or in groups (as specified in the assignment).

What is Allowed:

- Using AI technologies, such as ChatGPT, **in the form of a tutor**. In other words, you can use it as a resource the same way you would use me as a resource. You **cannot**, therefore, ask it to answer specific assignment questions for you or submit any of its answers as your own. If you aren't sure whether you are violating this rule, I recommend not using it.
- Studying with fellow classmates.

What is Not Allowed

- Having another person/entity do the writing of any portion of an assignment for them, which includes hiring a person or a company to write assignments and/or using artificial intelligence (AI) tools like ChatGPT. This includes *ideas* as well as *written text*.

To ensure academic honesty, you will be expected to be able to **defend your work**. This means that you need to **maintain a version history** of your work and **be able to explain your submission verbally**. If I suspect plagiarism or cheating of any kind, I reserve the right to question you about your knowledge of your submitted work. When a student is suspected of plagiarism or cheating, they will receive a **temporary 0** on the assignment until they arrange a meeting with the professor to discuss the assignment. Students who cannot demonstrate the origins of their submission either through verbal mastery or clear documentation (e.g., edit history on Google docs) will be considered to have plagiarized.

Consequences

- **Strike one:** Fail the assignment and be reported to the university on the first strike in accordance with TAMUSA policies.
- **Strike two:** Fail the class.

Disability Accommodation. Students with disability accommodations should **set up a one-on-one meeting with me ASAP** to discuss the specifics of their accommodations. Don't worry—you do not need to disclose anything about your disability! I just want to be sure you're getting what you need. What DSS sends me about your accommodations is usually vague, so this meeting ensures that I understand exactly what it is you need. Students who suspect they need accommodations can visit the [DSS website](#) to discuss their options. Students who need extra time can also arrange exam proctoring via that website.

Expectations

Academic Expectations

Independent Problem-Solving. Try to solve problems on your own first. Check the syllabus, ask classmates, Google it. I am always here if you need me, but ensure you try to find the solution on your own first.

Part of learning, especially when coding and doing statistics, involves trying to solve problems yourself. As such, I expect you to become comfortable using Google to search for solutions to problems. In fact, most of being a good coder is just Googling problems. I have been coding in R for years, and I still rely heavily on Google: “Move column to end of dataset R,” “Merge dataset R.” If you find yourself constantly Googling when coding, that means you are doing something right.

Frustration Tolerance. Both data analysis and programming in R come with steep learning curves. *Everyone* struggles at first. As Master’s students, I expect you to not be deterred by the initial discomfort you will inevitably experience at first. Instead, I expect you to persevere in the face of the discomfort, to wrestle with the material until it finally makes sense. Anyone can learn statistics; it just requires practice.

Passion. I do not expect this to be your favorite class (though I will be delighted if it is!). However, as Master’s students, I expect you to have passion for the field of criminology and criminal justice more broadly. That means I expect you to bring your A-game to this class—not because it is your favorite class, but because you are passionate about being the best student you can be.

Technology Expectations

Tools. You should have the following technological tools:

- A functional and reliable laptop or desktop—CANNOT be a Chromebook, tablet, or mobile phone
 - Need to be able to run newer versions of Windows 10 or MacOS X. For Macs, you need a MINIMUM of Mac OS 10.13, but I recommend you have at least Mac OS11.
- A web camera (for office hour meetings if using Zoom)
- An email client
- A PDF reader (e.g., Adobe Acrobat)
- The Respondus browser (for the final exam)
- Microsoft Office 365 (especially Microsoft Word)
 - Note: TAMUSA students can use MS365 for free. [Log in to their online portal here.](#)

Skills. You are also expected to have the following technological & digital literacy skills:

- Using Blackboard
- Using email
- Downloading files from the Internet
- Installing programs to their computer
- Understanding how their files are organized on their computer
- Creating and submitting documents using .doc or .docx formats
- Downloading and reading PDFs from Blackboard
- Using web conferencing tools and software (e.g., Zoom)

If you aren't confident in these skills, **visit the Writing Center ASAP** (see [here](#) for how to make an appointment) or visit the library and ask for assistance with creating digital objects.

Technical Issues

Technical and logistical problems, such as being unable to access a computer, computer failure, problems with internet connections (such as speed or quality of the connection) or browser, difficulty printing, failure to check that your assignments have properly uploaded, etc., will not result in additional accommodations.

To avoid last minute problems, it is highly recommended that you complete your work as ***early as possible*** during each module. If you have a question about using Blackboard as a student, **please check the help page first**: <https://tinyurl.com/tamusastudentbbhelp>. If you have difficulty accessing Blackboard or using, please contact IT here: <https://www.tamusa.edu/information-technology-services/index.html>. You can also **call them** at (210) 784-4357.

Course Schedule

This course schedule is tentative and subject to change. All changes will be announced via Blackboard. Chapters listed refer to the required book, *Statistics for Criminology & Criminal Justice (5th Ed.)*. Additional required materials (e.g., readings, lectures, videos) will be posted on Blackboard.

WEEK	DATE	TOPICS	READING	WORK DUE
1 & 2	01.21 - 01.31	Intro to Course Intro to R & RStudio	Chapter 1	Assignment 1 Assignment 2 Discussion 1
3	02.01 – 02.07	Sampling and Aggregation	Chapter 2	Assignment 3 Discussion 2
4	02.08 – 02.14	Data Distributions and Graphing	Chapter 3	Assignment 4 Discussion 3
5	02.15 – 02.21	Measures of Central Tendency	Chapter 4	Assignment 5 Discussion 4
6	02.22 – 02.28	Measures of Dispersion	Chapter 5	Assignment 6 Discussion 5
7	03.01 – 03.07	Probability Theory; Hypothesis Testing	Chapter 6	Assignment 7 Discussion 6
8	03.08 – 03.15	NO CLASS – SPRING BREAK		
8	03.16 – 03.21	Review Week		Assignment 8
10	03.22 – 03.28	Point Estimation; Confidence Intervals	Chapter 7	Assignment 9 Discussion 7
11	03.29 – 04.04	One Population Hypothesis Tests	Chapter 8	Assignment 10 Discussion 8
12	04.05 – 04.11	Hypothesis Tests with Categorical Data	Chapter 9	Assignment 11 Discussion 9
13	04.12 – 04.18	Two Population Hypothesis Tests	Chapter 10	Assignment 12 Discussion 10
14	04.19 – 04.25	Bivariate Correlations & Linear Regressions <i>Note: Last day to drop for automatic W is 04/21</i>	Chapter 12	Assignment 13 Discussion 11
15	04.26 – 05.02	Future Directions & Review		Assignment 14
16	05.03 – 05.05	Final Exam		Final Exam due May 05 at 11:59PM