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# THE GEORGE WASHINGTON UNIVERSITY

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WASHINGTON, DC

Department of Sociology  
**SOC 2102: Techniques of Data Analysis**  
Spring 2026

Meeting Times:

Lecture:

Lab:

## **INSTRUCTOR:**

Professor Kaitlyn DaVisio

Email: [k.davisio@email.gwu.edu](mailto:k.davisio@email.gwu.edu)

Office Hours:

## **GRADUATE INSTRUCTIONAL ASSISTANT:**

## **COURSE DESCRIPTION**

This course is an introduction to statistical analyses using quantitative, social science data. In this applied course, students will learn inferential statistics tests, such as t-tests, chi-squares, analysis of variance, and Pearson's correlation. Students will practice interpreting descriptive and inferential statistics and effectively communicating quantitative results. The course provides students the opportunity to develop analytical and social science research skills, culminating in an empirical research project. It combines lecture, hands-on activity, and lab-based learning seminars to promote basic and accessible skills for quantitative data analysis. Completion of SOC 1001 or SOC 1002; and SOC 2101; and at least sophomore standing are prerequisites for this class.

## **COURSE LEARNING OBJECTIVES**

Throughout this course, students will...

1. Develop statistical reasoning and quantitative analysis skills.
2. Strengthen applied social science and research methodology skills.
3. Demonstrate the ability to critically evaluate the results of quantitative social science research.
4. Gain faculties in the use and interpretation of results from R.
5. Complete an empirical research project with the General Social Survey, applying inferential statistics and reporting and interpreting results.

## REQUIRED MATERIALS

### *Textbook:*

Frankfort-Nachmias, C., Leon-Guerrero, A., & Davis, G. (2019). Social Statistics for a Diverse Society (9th ed.). SAGE Publications, Inc. (US).

*Physical copies of the textbook have been placed on course reserve through the library.*

### *Statistical Software: R*

You **must** download R and RStudio to your personal computer. See the link below for download instructions dependent on your computer processing specifications:

<https://rstudio-education.github.io/hopr/starting.html#rstudio>

## COURSE EXPECTATIONS

### *Class Time:*

It is incredibly important for you to attend every class, save for illness or extenuating circumstances. Please make every effort to attend each class. Should unforeseen interferences arise, please notify your professor.

### *Outside Class:*

You are expected to dedicate time outside of class weekly to complete the required readings and any other assignments prior to attending class. You may struggle to grasp core course content or participate in discussions without actively reading all assigned materials.

According to school policy, students are expected to spend a minimum of 100 minutes doing out-of-class work for every 50 minutes of direct instruction. This 3-credit course has 150 minutes of in-class instruction, which equals **5 hours weekly of independent learning**. Find more information here: <https://provost.gwu.edu/resources>.

## GRADED REQUIREMENTS

Rubrics for all assignments will be posted to Blackboard. Your grade will be made up of the following:

| Assignment                              | Due Date                      | % of grade |
|-----------------------------------------|-------------------------------|------------|
| Attendance                              | <i>Ongoing</i>                | <i>5%</i>  |
| Laboratory Activities                   | <i>Weekly, on Wednesdays</i>  | <i>10%</i> |
| Learning Checks                         | <i>Biweekly, on Thursdays</i> | <i>10%</i> |
| Reflections                             | <i>Ongoing</i>                | <i>10%</i> |
| Empirical Analysis Project Proposal     | <i>April 9</i>                | <i>5%</i>  |
| Empirical Analysis Project Final Packet | <i>April 20</i>               | <i>30%</i> |
| Final Exam                              | <i>May 4-8</i>                | <i>30%</i> |

### *Grading Scale:*

Acceptable  
A = 93+

Unacceptable\*  
C+ = 75-79

Extenuating Circumstances\*  
F = <59

A- = 90-92

B+ = 85-89

B = 80-84

C = 70-74

D+ = 65-69

D = 60-64

Z = Withdraw

I = Incomplete (*with contract*)

*\* Should your grade (on any assignment or in the class overall) fall in the Unacceptable or Extenuating Circumstances category, please meet with me as soon as possible! I am here to help you succeed, but I can't help if I don't know what is going on.*

### **Attendance:**

Attendance will be taken each class through “exit tickets” – you will be asked to briefly respond to a question related to the lecture material. These responses will not be graded except for completion. Should you miss a class and want to make up your attendance point, you can choose from the list of bonus assignments to regain lost points. No more than **3** bonus assignments can be completed in a semester, and each assignment type can only be used **once**. Please submit all bonus assignments via Blackboard.

#### *Bonus Assignments*

- (1) Attend your professor's office hours with 2-3 *prepared* questions from course content – submit a short note to Blackboard with your questions and date attended.
- (2) Read an academic journal article (not discussed in class) and write a critique of the methodology used – should be no less than 350 words.
- (3) Read a recent news article (within the semester) and write a reflection connecting the content to research design in the social sciences – should be no less than 350 words.
- (4) Record a podcast-style discussion with a friend or family member about something you have learned in class for at least five minutes and submit the recording.
- (5) Go for a walk outside (should be at least 15 minutes) and send photo evidence of your walk.

### **Laboratory Activities:**

During weekly laboratory sections, you will have a short in-class assignment designed by the Graduate Instructional Assistant (GIA). Your assignment must be submitted by the end of the class period. These in-class activities are worth a combined 10% of your overall course grade.

Please contact your GIA to arrange an in-class activity makeup assignment. You will be able to make-up **2** activities throughout the semester, but a late work penalty will apply.

### **Learning Checks:**

We will have biweekly in-class open-note “quizzes” on your learning throughout the semester. These learning checks will begin in Week 3 and will be held on odd-week Thursdays throughout the semester. They are designed to be low-stake opportunities to assess your progress and learning of course content. Your lowest grade will be dropped, and these will cumulatively be worth 10% of your overall grade.

Learning check make-ups can be completed through your professor's office hours, but must be completed within a week. You should make use of the course resources (i.e., your textbook, lecture slides, class notes, and other resources) provided. You are not allowed to use Google, AI, or your peers.

### **Reflections:**

Between Weeks 2-13, you will be asked to provide a short, written reflection on that week's material, for 10 of the 12 included weeks. Reflections should include thoughts on a reading, class discussion, and/or lecture from that week. To receive maximum credit, reflections should clearly demonstrate thoughtful engagement with course content. Reflections will be due at 11:59pm each Friday, and worth 10% of your overall grade.

### **Empirical Analysis Project:**

Midway through the semester, you will get into groups to work on an empirical analysis project. Groups should be made up of 2-4 students. The empirical analysis project is an opportunity to apply the statistical techniques we learn in class to answer a real-world social science research question, using the General Social Survey (GSS). This project will synthesize your learning of course concepts throughout the semester.

#### *Project Proposal*

Your project proposal will outline the question you plan to address through your empirical analysis project. It should: 1) Include the names of all group members; 2) Present a clear research question; 3) Identify the relevant variables from the GSS to answer the research question; and 4) Discuss the analytical method you plan to use to answer the research question. Your proposal will be graded for completion and will be worth 5% of your grade.

#### *Final Project Packet*

Your final project packet will consist of two components: a project report and a presentation slide deck. This will be worth 30% of your overall course grade.

The report will analyze and answer your research question using statistical analysis methods. Specifically, it should: 1) Present your research question(s); 2) Describe the data, variables and analysis methods; 3) Analyze your data using 2-3 statistical tools learned in class; and 4) Interpret your findings as they relate to your research question. It should be approximately 4 pages long.

The presentation slide deck should follow the format typical of a social science research presentation, and include: 1) The research question; 2) Data and methodology; 3) Present the results through tables and charts; and 4) Interpret the findings. Slide deck should demonstrate collaboration between all group members.

### **Final Exam:**

We will have a final exam at the end of the semester to gauge your learning of course material. It will be cumulative in nature. This will be a virtual exam proctored on Blackboard. It will be available to be taken anytime during the university final exam period but must be taken in one sitting. It will be worth 30% of your final course grade.

A study guide will be posted to Blackboard in advance. You should make use of the course resources (i.e., your textbook, lecture slides, class notes, and other resources) provided. You are not allowed to use Google, AI, or your peers.

## **COURSE POLICIES**

#### *Classroom Etiquette:*

We will generate classroom community guidelines in the first week for both the students and the professor. These guidelines are intended to ensure the classroom remains a safe and

comfortable environment for everyone involved. It will be expected that students adhere to these guidelines throughout the duration of the class, in-person and virtually. The agreed upon classroom community guidelines will be posted to the course Blackboard page. Though unexpected, students who behave unacceptably may be asked to leave.

#### *Late Work Policy:*

I allow a 24 hr. grace period following assignment deadlines (*NOTE: Learning Checks, Laboratory Activities, and the Final Exam are excluded*). Any assignments submitted after the grace period *without prior approval from your professor* will lose 10 points for every additional day it is late (i.e., if you turn in an A assignment two days past the deadline, it will be graded as a C). Learning Check and In-Class Activity make-ups can be completed only during in-person office hours, and will have a single 2 point deduction.

**I will not accept any assignment that is more than 2 weeks late** – this includes any learning check and in-class activity make-ups.

#### *Academic Integrity:*

Violations of academic integrity occur when students fail to cite research sources properly, engage in unauthorized collaboration, falsify data, or use artificial intelligence (AI) to create text for a written submission. Academic integrity is an essential part of the educational process, and all members of the GW community take these matters very seriously. Any violations of this Academic Integrity policy will result in a zero for the assignment and will be considered as violations of the university's Academic Integrity Code of Conduct.

#### *The Use of Artificial Intelligence (AI):*

With the recent developments of AI and large language model (LLMs), it has become a useful technological tool; but it is incredibly important to remember that it is just that – a *tool*. Over the duration of the semester, we will discuss the responsible use of artificial intelligence as a student.

However, **direct use of AI or any LLMs to complete assignments (in whole or in part) is strictly prohibited**. Should a submitted assignment be suspected of inappropriate AI usage, an in-person meeting with your professor and TA will be required to discuss how to proceed – this may include, but is not limited to, escalating the matter to investigation for Academic Integrity Code of Conduct violation.

The information derived from these tools as they relate to statistics are often incomplete or inaccurate. My expectations for the quality of your work is much higher than what any current LLM can produce – why even risk it?

#### *Diversity and Inclusion:*

I am committed to creating a learning environment and experience that is accessible, safe, and comfortable to all students, regardless of their gender identity, sexual orientation, religion, abilities, etc. Should you require any accommodations throughout the course, such as for learning differences or religious observances, please communicate them to me as early as possible.

How you identify and your personal experience is integral to forming your view of the world and of yourself, so it is recognized and encouraged that each individual will bring something wonderful and unique to the classroom! Students should feel comfortable to discuss how their identity shapes their world views and stances on what we are learning, but you should not feel pressured to disclose anything you do not wish to. If you do wish to share parts of your identity

(i.e., your preferred name or nickname, pronouns, sharing personal experiences, etc.), this classroom will be a safe space to do so.

### **TIPS FOR SUCCESS!**

1. Come to class with self-assurance and an open-mind!
2. Do the readings thoroughly and ahead of time.
3. Ask questions – you’re here to learn and it is more than okay to not know or understand everything, and chances are someone else has the same question!
4. Know your work style – if you need to take notes to be fully engaged, do that. If you prefer to just listen and return to the lecture slides later, do that! You know yourself best.
5. Enjoy it! Education is one of the best things you can do for yourself – it truly is a privilege! Knowledge is the one thing no one can take from you.

## CLASS SCHEDULE

*Should any changes be necessary, your professor will communicate them with you via Blackboard.*

**\*\* Thursday Learning Check**

| Week         | Day    | Lecture Topic                        | Lab Topic                                  | Reading        | Assignments<br><i>Due at 11:59pm</i> |
|--------------|--------|--------------------------------------|--------------------------------------------|----------------|--------------------------------------|
| Week 1       |        |                                      |                                            |                |                                      |
|              | Jan 13 | Course Introduction                  | NO LAB                                     |                |                                      |
|              | Jan 15 | Social Science Research & Intro to R |                                            |                |                                      |
| Week 2       |        |                                      |                                            |                |                                      |
|              | Jan 20 | Variables, Data & Measurement        | Getting to know R                          | Chapter 1      |                                      |
|              | Jan 22 |                                      |                                            |                |                                      |
| Week 3       |        |                                      |                                            |                |                                      |
|              | Jan 27 | Zoom: Visualizing data               | Loading data                               | Chapter 2      |                                      |
|              | Jan 29 |                                      |                                            |                |                                      |
| Week 4       |        |                                      |                                            |                |                                      |
|              | Feb 3  | Measures of central tendency         | Summary statistics                         | Chapter 3      |                                      |
|              | Feb 5  |                                      |                                            |                |                                      |
| Week 5**     |        |                                      |                                            |                |                                      |
|              | Feb 10 | Measures of variability              | Variable transformations and data cleaning | Chapter 4      |                                      |
|              | Feb 12 |                                      |                                            |                |                                      |
| Week 6       |        |                                      |                                            |                |                                      |
|              | Feb 17 | The normal distribution              | Z-scores & t-distribution                  | Chapter 5      |                                      |
|              | Feb 19 |                                      |                                            |                |                                      |
| Week 7**     |        |                                      |                                            |                |                                      |
|              | Feb 24 | Sampling & the Central Limit Theorem | Sampling & Histograms                      | Chapter 6      |                                      |
|              | Feb 26 |                                      |                                            |                |                                      |
| Week 8       |        |                                      |                                            |                |                                      |
|              | Mar 3  | Parameters & Confidence intervals    | Confidence intervals                       | Chapter 7      |                                      |
|              | Mar 5  |                                      |                                            |                |                                      |
| Spring Break |        |                                      |                                            |                |                                      |
| Week 9**     |        |                                      |                                            |                |                                      |
|              | Mar 17 | Hypothesis testing & T-tests         | T-tests & Bar charts                       | Chapter 8      |                                      |
|              | Mar 19 |                                      |                                            |                |                                      |
| Week 10      |        |                                      |                                            |                |                                      |
|              | Mar 24 | Chi-Squares Tests                    | Chi-squares & Crosstabs                    | Chapter 9 & 10 |                                      |
|              | Mar 26 |                                      |                                            |                |                                      |
| Week 11**    |        |                                      |                                            |                |                                      |
|              | Mar 31 | Analysis of Variance (ANOVA)         | ANOVA & Bar charts                         | Chapter 11     |                                      |
|              | Apr 2  |                                      |                                            |                |                                      |
| Week 12      |        |                                      |                                            |                |                                      |
|              | Apr 7  | Correlations                         | Correlations & Scatterplots                | Chapter 12     | Group Report Proposal Due 4/9        |
|              | Apr 9  | Analyzing Data                       |                                            | Chapter 12     |                                      |
| Week 13**    |        |                                      |                                            |                |                                      |
|              | Apr 14 | Regression                           | Group project workshop                     | Chapter 12     |                                      |
|              | Apr 16 |                                      |                                            |                |                                      |
| Week 14      |        |                                      |                                            |                |                                      |

|                           |                        |                   |  |                       |
|---------------------------|------------------------|-------------------|--|-----------------------|
| Apr 21                    | Research Presentations | Final Exam Review |  | Group Report Due 4/20 |
| Apr 23                    | Research Presentations |                   |  |                       |
| Week 15                   |                        |                   |  |                       |
| Apr 28                    | Final Exam Review      | NO LAB            |  |                       |
| Final Exam Week (5/4-5/8) |                        |                   |  |                       |

## **University Policies**

### *Academic Integrity Code*

Academic integrity is an essential part of the educational process, and all members of the GW community take these matters very seriously. As the instructor of record for this course, my role is to provide clear expectations and uphold them in all assessments. Violations of academic integrity occur when students fail to cite research sources properly, engage in unauthorized collaboration, falsify data, and otherwise violate the Code of Academic Integrity. If you have any questions about whether particular academic practices or resources are permitted, you should ask me for clarification. If you are reported for an academic integrity violation, you should contact Student Rights and Responsibilities (SRR) to learn more about your rights and options in the process. Consequences can range from failure of assignment to expulsion from the University and may include a transcript notation. For more information, refer to the SRR website at [studentconduct.gwu.edu/academic-integrity](http://studentconduct.gwu.edu/academic-integrity), email [rights@gwu.edu](mailto:rights@gwu.edu), or call 202-994-6757.

### *University policy on observance of religious holidays*

Students must notify faculty during the first week of the semester in which they are enrolled in the course, or as early as possible, but no later than three weeks prior to the absence, of their intention to be absent from class on their day(s) of religious observance. If the holiday falls within the first three weeks of class, the student must inform faculty in the first week of the semester. For details and policy, see [provost.gwu.edu/policies-procedures-and-guidelines](http://provost.gwu.edu/policies-procedures-and-guidelines).

### *Use of Electronic Course Materials and Class Recordings*

Students are encouraged to use electronic course materials, including recorded class sessions, for private personal use in connection with their academic program of study. Electronic course materials and recorded class sessions should not be shared or used for non-course related purposes unless express permission has been granted by the instructor. Students who impermissibly share any electronic course materials are subject to discipline under the Student Code of Conduct. Contact the instructor if you have questions regarding what constitutes permissible or impermissible use of electronic course materials and/or recorded class sessions. Contact Disability Support Services at [disabilitysupport.gwu.edu](http://disabilitysupport.gwu.edu) if you have questions or need assistance in accessing electronic course materials.

## **Academic Support**

### *Academic Commons*

Academic Commons is the central location for academic support resources for GW students. To schedule a peer tutoring session for a variety of courses visit [go.gwu.edu/tutoring](http://go.gwu.edu/tutoring). Visit [academiccommons.gwu.edu](http://academiccommons.gwu.edu) for study skills tips, finding help with research, and connecting with other campus resources. For questions email [academiccommons@gwu.edu](mailto:academiccommons@gwu.edu).

### *GW Writing Center*

GW Writing Center cultivates confident writers in the University community by facilitating collaborative, critical, and inclusive conversations at all stages of the writing process. Working alongside peer mentors, writers develop strategies to write independently in academic and public settings. Appointments can be booked online at [gwu.mywconline](https://gwu.mywconline).

### *Disability Support Services (DSS)*

202-994-8250

Any student who may need an accommodation based on the potential impact of a disability should contact Disability Support Services at [disabilitysupport.gwu.edu](https://disabilitysupport.gwu.edu) to establish eligibility and to coordinate reasonable accommodations.

### *Student Health Center*

202-994-5300, 24/7

The Student Health Center (SHC) offers medical, counseling/psychological, and psychiatric services to GW students. More information about the SHC is available at [healthcenter.gwu.edu](https://healthcenter.gwu.edu). Students experiencing a medical or mental health emergency on campus should contact GW Emergency Services at 202-994-6111, or off campus at 911.

## **GW Campus Emergency Information**

### *GW Emergency Services*

202-994-6111

For situation-specific instructions, refer to [GW's Emergency Procedures guide](#).

### *GW Alert*

GW Alert is an emergency notification system that sends alerts to the GW community. GW requests students, faculty, and staff maintain current contact information by logging on to [alert.gwu.edu](https://alert.gwu.edu). Alerts are sent via email, text, social media, and other means, including the Guardian app. The Guardian app is a safety app that allows you to communicate quickly with GW Emergency Services, 911, and other resources. Learn more at [safety.gwu.edu](https://safety.gwu.edu).

### *Protective Actions*

GW prescribes four protective actions that can be issued by university officials depending on the type of emergency. All GW community members are expected to follow directions according to the specified protective action. The protective actions are Shelter, Evacuate, Secure, and Lockdown (details below). Learn more at [safety.gwu.edu/gw-standard-emergency-statuses](https://safety.gwu.edu/gw-standard-emergency-statuses).

#### Shelter

- Protection from a specific hazard
- The hazard could be a tornado, earthquake, hazardous material spill, or other environmental emergency.
- Specific safety guidance will be shared on a case-by-case basis.

Action:

- Follow safety guidance for the hazard.

### Evacuate

- Need to move people from one location to another.
- Students and staff should be prepared to follow specific instructions given by first responders and University officials.

Action:

- Evacuate to a designated location.
- Leave belongings behind.
- Follow additional instructions from first responders.

### Secure

- Threat or hazard outside of buildings or around campus.
- Increased security, secured building perimeter, increased situational awareness, and restricted access to entry doors.

Action:

- Go inside and stay inside.
- Activities inside may continue.

### Lockdown

- Threat or hazard with the potential to impact individuals inside buildings.
- Room-based protocol that requires locking interior doors, turning off lights, and staying out of sight of corridor window.

Action:

- Locks, lights, out of sight
- Consider Run, Hide, Fight