

**Psychology 611 (Section 003)**  
**Advanced Statistics and Research Methods for Psychology I**  
**FALL 2021**

**INSTRUCTOR** Leah M. Adams, Ph.D. [she/her/hers]  
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**LAB INSTRUCTOR** Emily Richard  
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**MEETINGS** Lecture: Tuesdays & Thursdays 10:30 – 11:45am  
Labs: Fri 12:30 – 2:20pm  
Fri 2:30 – 4:20pm

**OFFICE HOURS** Adams: Thurs 2:00 – 3:00pm (or by appointment) [in person or virtual]  
Richard: Available during lab time

**DEADLINES** August 30 is the last day to add this class;  
September 7 is the last day to drop this class with no tuition penalty  
September 27 is the last day to drop this class with 100% tuition penalty

**SAFE RETURN TO CAMPUS**

- All students taking courses with a face-to-face component are required to follow the university's public health and safety precautions and procedures outlined on the university Safe Return to Campus webpage (<https://www2.gmu.edu/safe-return-campus>). Similarly, all students in face-to-face and hybrid courses must also complete the Mason COVID Health Check daily, seven days a week. The COVID Health Check system uses a color code system and **students will receive either a Green, Yellow, or Red email response**. Only students who receive a **“green”** notification are permitted to attend courses with a face-to-face component. **If you suspect that you are sick or have been directed to self-isolate, please quarantine or get tested. Faculty are allowed to ask you to show them that you have received a Green email and are thereby permitted to be in class.**
- Students are required to follow Mason's current policy about facemask wearing. As of August 11, 2021, all community members are required to wear a facemask in all indoor settings, including classrooms. An appropriate **facemask must cover your nose and mouth at all times** in our classroom. If this policy changes, you will be informed; however, students who prefer to wear masks either temporarily or consistently will always be welcome in the classroom.

**TECHNOLOGY**

- **Official Communications via GMU E-mail:** Students must use their GMU email account to receive important University information, including communications related to this class. I will not respond to messages sent from or send messages to a non-Mason email address.
- **Class cancellation policy:** If the campus closes or class is canceled, students will be notified via their GMU email. The instructor will provide details regarding coursework and/or assignments.
- **Blackboard:** Activities and assignments in this course will regularly use the Blackboard learning system, available at <https://mymason.gmu.edu>. Students are required to have regular, reliable access to a computer with an updated operating system (recommended: Windows 10 or Mac OSX 10.13 or higher) and a stable broadband Internet connection (cable modem, DSL, satellite broadband, etc.).

- **Web-conferencing:** All class activities are currently expected to be in person. However, flexibility is a must as we continue to navigate the COVID-19 pandemic. If the University requires it, we will pivot to online instruction. If this happens, all activities and assignments in this course will regularly use web-conferencing software (Zoom). In addition to the requirements above, students are required to have a device with a functional microphone and camera. In an emergency, students can connect through a telephone call, but video connection is the expected norm.
- **Course Materials and Student Privacy:** All course materials posted to Blackboard or other course site are private to this class; by federal law, any materials that identify specific students (via their name, voice, or image) must not be shared with anyone not enrolled in this class. Video recordings – whether made by instructors or students – of class meetings that include audio, visual, or textual information from other students are private and must not be shared outside the class. Live video conference meetings (e.g., Zoom) that include audio, textual, or visual information from other students must be viewed privately and not shared with others in your household or recorded and shared outside the class.
- **Statistical Packages:** You will need to use a statistical package of your choice to complete assignments in this course; most students use SPSS or R. Students will have access to SPSS and R. As an open source software environment, R and R Studio are also available for free, direct download.

## COURSE OVERVIEW & OBJECTIVES

Psychology 611 focuses on the fundamentals of applied social science research. This course will emphasize the development of theoretical, conceptual, and practical knowledge of statistical techniques and research methods to enable you to effectively evaluate others' research and to design, conduct, and report on research of your own.

The theoretical and conceptual parts of the class will focus on grasping the logic underlying the research process, as well as understanding the central issues related to all things (or many things) data—from cleaning, to analyzing, to interpreting, through disseminating findings from the data. The practical parts of the class will focus on helping you learn how to create and prepare a dataset for analysis in SPSS (a statistical software package) or R, when and how to use particular statistical techniques, and how to interpret and report results. The synchronous class meetings will consist mostly of lectures and discussions. The lab assignments will focus on providing you with hands-on experience analyzing and interpreting data (using SPSS and other software).

## REQUIRED TEXT

There is no required textbook for this course, though required readings will be available on Blackboard for students. Students who wish to continue to deepen their knowledge of statistics (and I hope that's everyone!) can find a list of optional/recommended texts on Blackboard.

## COURSE REQUIREMENTS

- **Attendance:** Attendance and participation in class and laboratory sessions are required. Students should let instructors know in advance if they will be missing a class. Students are responsible for all material and announcements presented in class, including announcements about changes in the schedule and assignments--please make arrangements to exchange contact information with another classmate to ensure that you are "in the know!"
- **Lab Homework:** Weekly homework and lab activities will be assigned to deepen and reinforce students' understanding of key concepts and to develop competencies in statistical analysis and interpretation of results. It is expected that you will work on these assignments in lab and turn them in at the end of lab; this way, should any problems arise, your TA can help problem solve.

However, this doesn't always work out, so lab assignments are officially due by the BEGINNING of the next lab time. Late work faces a 5% deduction per day; assignments turned in more than a week late receive no credit.

- **Quizzes:** There will be twelve (12) short quizzes given throughout the semester via Blackboard. Quizzes will be due by Friday 11:59pm on the weeks in which they are assigned. Students will be given 15 minutes to complete the quiz. You are allowed to drop two (2) quiz scores (I suggest you choose your lowest ones, but it's up to you), thus only ten quiz scores will count toward your grade. There will be no makeup quizzes. If extenuating circumstances prevent you from taking a quiz by the scheduled deadline, then this is the quiz you drop.
- **Final Project:** The final exam will be a cumulative project that demonstrates students' mastery of material covered throughout the course. The project will require students to build upon and link primary ideas addressed in the class, and to use a statistical package of their choice to analyze, interpret, and write up the results in APA format. The final project will be due by **Friday, December 3.**
- **Final Exam:** The final exam will be cumulative and demonstrate students' mastery of material covered throughout the course. The exam will be given during finals week.
- **Doctoral Students: Literature Review & Proposal:** As part of the course, doctoral students are required (and masters students are invited) to identify a substantive area of interest, conduct a review of the relevant theoretical and empirical literature, formulate a specific research question, and develop a detailed research plan, culminating in a written research proposal. If you are a doctoral student, you should work to identify a research supervisor over the next few weeks and begin identifying an area of personal interest. If you are a masters student, you can opt for the Proposal Plan if you have identified a faculty member willing to serve as your research supervisor. Students enrolled in the Standard Plan complete all requirements for the course (lecture, lab, exams, etc.), but will not be required to conduct the literature review and proposal. Students should make sure their advisor knows that they are responsible for supervising work on the literature review and grading the review by **December 14.** Students must also ensure that their faculty advisor sends me an email by **September 30** stating that they are willing to supervise and grade the student's work on the literature review requirement for this course.
- **Human Subjects Training:** One final requirement for this course is the successful completion of the Collaborative Institutional Training Initiative (CITI) program. The program consists of an online exam that ensures that all persons who engage in work with human subjects understands the inherent risks you may expose those subjects to and how to avoid those risks. Additional information is available here <https://oria.gmu.edu/topics/human-subjects/training/>. All students **must** complete CITI. Once you complete your CITI training, please upload your certificate of completion to Blackboard. If you upload it in the first two weeks you will receive 1 extra credit point on the final exam. You must show documentation of completion at some point during the semester or you will not receive a grade for 611.

## **EXAM & HOMEWORK POLICY**

Without prior arrangement, there will be no extensions or make-ups without penalty except in instances such as the following:

- hospitalization or illness that has been documented and judged by your instructor as preventing you from a) preparing adequately for an exam or quiz or b) completing an assignment
- death or serious illness in your family
- court appearances

Decisions regarding extensions and make-ups under these circumstances will be made on a case-by-case basis. In general, quizzes are not eligible for make-up work; instead, your two lowest quiz grades are automatically dropped. Lab homework is penalized at 5% per day for late submission (i.e., starting when lab time begins) and receives no credit if it is submitted over a week late. When possible, I encourage

students to reach out as soon as you know that you may miss class and/or related work; it is much easier to develop a plan in advance than it is to do so later.

## EVALUATION & GRADES

	Standard Plan	Proposal & Literature Review Plan
<b>Quizzes</b>	40% (12 quizzes; 10 count @ 4% each)	30% (12 quizzes; 10 count @ 3% each)
<b>Final Exam</b>	10%	10%
<b>Final Project</b>	20%	20%
<b>Lab Homework</b>	30%	25%
<b>Research Proposal</b>	N/A	15%

A final grade of B denotes work that meets course objectives and demonstrates the level of comprehension and skill expected of graduate students. Note that a grade of C or lower denotes unsatisfactory level of achievement for a graduate student. It is worth trying to earn a grade higher than a C since this course will have to be retaken otherwise. However, it is not worth fretting about whether you get an A or A- since this distinction usually has little practical importance in graduate school or one's professional development – the most important thing is working to become competent and comfortable with statistics and statistical analysis. Please contact me if you believe your work has been graded improperly. Final grades will be assigned according to the following percentages (with typical rounding rules for decimals):

A	A-	B+	B	B-	C+	C	C-	F
93 – 100%	90 – 92%	87 – 89%	83 – 86%	80 – 82%	77 – 79%	73 – 76%	70 – 72%	< 70%

## ACADEMIC INTEGRITY & HONOR CODE

All students in this course are to become familiar with and follow the University's honor code, which does not tolerate any form of cheating and attempted cheating, plagiarism, lying, and stealing. Exams and assignments are expected to be individual efforts unless otherwise noted by the instructor or teaching assistant. Violations of the GMU Honor Code can result in failure of an assignment or exam, depending on the severity of violation. All violations will be reported to the Honor Committee. I reserve the right to enter a failing grade to any student found guilty of an honor code violation. For more information on the Honor Code please visit: <https://oai.gmu.edu/mason-honor-code/full-honor-code-document/>

## ACCOMMODATION OF DISABILITIES

Disability Services at George Mason University is committed to providing equitable access to learning opportunities for all students by upholding the laws that ensure equal treatment of people with disabilities. Note that this provision includes the range of disabilities, including physical, psychiatric, and learning disabilities. If you are seeking accommodations for this class, please first visit <http://ds.gmu.edu/> for detailed information about the Disability Services registration process. Then please discuss your approved accommodations with me. All academic accommodations **must** be arranged through Disability Services. Disability Services is located in Student Union Building I (SUB I), Suite 2500. Email: [ods@gmu.edu](mailto:ods@gmu.edu) | Phone: (703) 993 – 2474.

## **SEXUAL HARASSMENT, SEXUAL MISCONDUCT, AND INTERPERSONAL VIOLENCE**

As a faculty member and designated “Responsible Employee,” I am required to report all disclosures of sexual assault, interpersonal violence, and stalking to Mason’s Title IX Coordinator per university policy 1412. If you wish to speak with someone confidentially, please contact the Student Support and Advocacy Center (703-993-3686) or Counseling and Psychological Services (703-993-2380). You may also seek assistance from Mason’s Title IX Coordinator (703-993-8730; titleix@gmu.edu).

## **STUDENT SUPPORT SERVICES**

George Mason offers services to support students’ academic and emotional development. Counseling and Psychological Services, located in SUB I room 3129 ([caps.gmu.edu](https://caps.gmu.edu)), offers workshops in academic skills, stress management training, and virtual counseling for students who would like some help with social, emotional, or educational concerns. Consider taking advantage of these resources if you need them. For additional information about other student support services offered, visit:

<https://stearnscenter.gmu.edu/knowledge-center/knowning-mason-students/student-support-resources-on-campus/>

Week	Date	Topics	Readings available on Blackboard (Supplemental/optional readings also listed on Blackboard)	Quiz (due by Fri @ 11:59pm)
1	T 8/24	Overview of Course. Intro to variables & data.	<a href="https://qz.com/1664575/is-data-science-legit/">https://qz.com/1664575/is-data-science-legit/</a>	
	R 8/26			
2	T 8/31	Basic descriptive statistics. Normal curve, distributions & exploring assumptions.	Data Science Textbook: Descriptive statistics overview.	Quiz 1
	R 9/2			
3	T 9/7	Data cleaning. Missing data.	Tabachnick & Fidell – Ch 4 (p. 66-86);	Quiz 2
	R 9/9			
4	T 9/14	Reliability & validity. Measurement. Basic concepts of inferential statistics.	Data Science Textbook: Reliability Analysis and Item Analysis Overview	Quiz 3
	R 9/16			
5	T 9/21	Z-tests & t-tests.		Quiz 4
	R 9/23			
6	T 9/28	Variance, covariance, and correlation.	Data Science Textbook: Correlations	Quiz 5
	R 9/30			
7	T 10/5	Intro to GLM. Simple linear regression.		Quiz 6
	R 10/7			
8	T 10/12	<b>NO CLASS: Fall Break</b>	Data Science Textbook: Multiple Regression Analysis Overview	Quiz 7
	R 10/14	TBD!		
9	T 10/19	Multiple regression	Cohen (1992)	Quiz 8
	R 10/21			
10	T 10/26	Multiple regression diagnostics. Statistical power.	Iversen (1987) Ch. 1 Introduction & Ch. 2 One-Way Analysis of Variance, All Categories	Quiz 9
	R 10/28			
11	T 11/2	ANOVA		
	R 11/4			
12	T 11/9	Factorial ANOVA		Quiz 10
	R 11/11			
13	T 11/16	ANCOVA		Quiz 11
	R 11/18	Effect sizes		
14	T 11/23	Non-parametric tests.		
	R 11/25	<b>NO CLASS: Thanksgiving Break</b>		
15	T 11/30	Quasi-experimental designs. Putting it all together.	Cohen (1990)	Quiz 12
	R 12/2			