# PSYC 2020: Psychological Statistics

## Summer 2026

*Updated course plan: adaptive mastery quizzes, mini-studies, JASP screen recordings, and final applied portfolio*

## Meeting Times and Location

| Meeting | Time | Location |
|---|---|---|
| In-Person Lecture | TBA | TBA |
| In-Person Lab | TBA | TBA |
| Office Hours | TBA | TBA |

**Instructor note**

Times and rooms should be confirmed against the official program schedule and Canvas before distribution. Canvas is the official source for assignment due dates and any schedule changes.

## Instructional Team

| Role | Information |
|---|---|
| Instructor | Zack Tidler |
| Email | |
| Office hours / location | TBA |

## Assigned Readings

Assigned readings, when we have them, will come from free online resources and will be listed on Canvas. There is no required textbook purchase for this course.

### Optional Textbook

This book is not required, but it is a useful reference if you want to have one:

*Field, A., Miles, J., & Field, Z. (2012). Discovering Statistics Using R. SAGE Publications. ISBN: 9781446200469*

## Required Software and Technology

All required software is free for Georgia Tech students. Do not worry about installing everything before class. We will do software setup together during the first lab.

- JASP
- Microsoft Excel
- Some LLM AI chatbot, such as ChatGPT, Gemini, Claude (the free versions will be fine for our purposes)
- Screen recording software. Mac users can use QuickTime. Windows users can use the screen recording feature in Snipping Tool.
- Optional: R and RStudio. These are useful for students who want to go beyond JASP, but the course assessments are designed around JASP.

## Course Description

Statistics is the language we use to describe what we can learn from data. In this course, we will learn foundational statistical tools commonly used in psychological science, but we will organize them around a modeling framework rather than a list of disconnected tests. We will begin with one-variable description, move from variance to covariance, then use that logic to understand correlation, regression, inference, group differences, ANOVA, multiple regression, exploratory factor analysis, and selected extensions such as Bayesian, multilevel, and structural equation modeling.

The course is designed around applied psychological data analysis. Students will participate in short mini-studies, analyze class-generated and simulated data, use JASP to conduct analyses, create screen-recorded demonstrations of their work, and practice using AI as a statistical consultation tool while retaining responsibility for the final analysis and interpretation.

## Learning Goals / Outcomes

- Identify research questions, outcome variables, predictor variables, covariates, and measurement scales.
- Describe and visualize psychological data using appropriate summaries and graphs.
- Explain variance, standard deviation, covariance, correlation, slope, residuals, and model fit in conceptual language.
- Appropriately select, run, and interpret correlation analyses, simple regression, independent-samples t-tests, paired-samples t-tests, ANOVA, factorial ANOVA, multiple regression, and introductory exploratory factor analysis.
- Understand t-tests and ANOVA as special cases of the general linear model rather than as isolated procedures.
- Interpret uncertainty using standard errors, confidence intervals, p-values, effect sizes, and introductory Bayesian concepts.
- Use JASP to conduct statistical analyses and communicate results in clear psychological language.
- Use AI tools as statistical consultants while critically evaluating their advice, limitations, and possible errors.
- Create a set of personal reference videos and written materials that can support future statistical work.

## Course Delivery

- Students will attend lecture and lab meetings in person.
- Tuesday and Thursday meetings include both lecture and lab. Lab time will focus on JASP, class datasets, screen-recording preparation, and applied analysis practice.
- Canvas will contain the official schedule, readings, data files, assignments, links to Qualtrics activities, and announcements.
- Because this is a compressed summer course, students should expect frequent low-stakes work and regular use of a laptop in class.

## Attendance and Participation Policy

- Attendance will be taken at every meeting.
- You may miss 3 class meetings for any reason. You do not need to explain these absences to me; I will assume you have your reasons.

- At 4 absences, you will lose all 50 points in the Attendance and Participation category. At each absence beyond 5, you may lose an additional 25 points from your final course score.
- Arrive to class on time and bring a charged laptop to every course meeting.
- Participate actively and constructively during in-class activities, mini-studies, labs, and discussions.

## Notetaking, the Internet, and AI

One of the central premises of this course is that our extended mind, including notes, software, documentation, the internet, and carefully used AI tools, is part of our intellectual repertoire. On many assignments you will be allowed and encouraged to use these resources to support problem solving. The goal is not to pretend that real statistical work happens without tools. The goal is to learn how to use tools well.

However, tool use and collaboration are not the same thing. Unless an assignment explicitly says otherwise, your submitted work must be yours alone. You may not complete assignments with classmates or other people unless collaboration is specifically permitted.

### AI Use in This Course

- **Required AI use:** Some assignments will require you to use AI as a consultant, critic, translator, or prompt coach. In those assignments, you will submit an AI-use appendix or short reflection explaining what you accepted, rejected, or changed.
- **Permitted AI use:** For most labs, screen recordings, portfolio work, and studying, you may use AI to ask conceptual questions, troubleshoot JASP output, improve explanations, and critique drafts. You remain responsible for the accuracy of the final work.
- **Restricted AI use:** Adaptive mastery quizzes are designed to measure both independent fluency and learning with support. For those quizzes, do not use outside AI before submitting the first attempt on an item. Use the quiz-provided supports as directed.

## Assessment of Learning / Grades

| Category | Points | Description |
|---|---|---|
| Adaptive Mastery Quizzes | 250 points | Frequent low-stakes quizzes with escalating support, repeated attempts, and process logging. |
| Mini-Study Participation and Data Contributions | 100 points | Short data-generation activities used to create class datasets. Alternatives are available. |
| Lab Worksheets and Exit Tickets | 100 points | JASP practice, interpretation checks, and brief applied-analysis submissions. |
| Screen Recording Assignments | 300 points | Some number of narrated JASP analyses that become personal reference videos. |
| Final Applied Analysis Portfolio | 200 points | A capstone analysis project due on the final exam date. There is no traditional final exam. |
| Attendance and Participation | 50 points | Consistent attendance, preparation, and constructive engagement. |
| Total Possible Points | 1000 points | |

### Adaptive Mastery Quizzes

These quizzes are intended to help you learn, not merely to sort you into correct and incorrect answers. Items will often allow multiple attempts. If you answer incorrectly, the quiz may provide a hint, a scaffold, a worked-example comparison, or an AI consultation mode. The maximum score for that item decreases as more help is used, but you can still earn substantial credit by recovering from an error.

### Mini-Study Participation and Class Data

Across the course, students will participate in brief psychological mini-studies. These activities allow you to see where datasets come from before you analyze them. The class datasets will often be supplemented with simulated cases so that the statistical patterns are stable enough for teaching. Simulated cases will be labeled or disclosed when relevant.

- Mini-study activities may involve brief surveys, vignettes, small tasks, or rating scales.
- Student-facing datasets will be de-identified before they are used in class.
- Students who do not want to contribute personal data can complete an alternative activity and use the simulated or de-identified dataset.
- Raw data will not be publicly discussed at the individual-student level.

### Lab Worksheets and Exit Tickets

Labs are where you will turn concepts into practice. Most labs will involve JASP, a course dataset, interpretation questions, and a short exit ticket. Lab submissions are designed to keep you engaged with the workflow and to prepare you for the screen-recording assignments and final portfolio.

### Screen Recording Assignments

These are among the most significant assignments in the course. You will record videos of yourself doing statistical analyses from start to finish in JASP and narrating your decisions as you work. The purpose is to create reference materials that you can use in future courses, research projects, graduate school, or applied work.

Videos should usually be 5 to 12 minutes long, depending on the assignment. Detailed instructions and rubrics will be posted on Canvas. You may submit the recording directly through Canvas or submit a shared link from your institute-provided OneDrive account, depending on Canvas instructions.

### Final Applied Analysis Portfolio

There is no traditional cumulative final exam. Instead, you will submit a final applied analysis portfolio on Friday, July 24. The portfolio asks you to conduct and explain a defensible analysis using one of the course datasets.

- State a psychological research question.
- Describe the dataset, variables, and design.
- Justify the model or test you selected.
- Include JASP output or screenshots.
- Interpret the key result using statistical and plain-language explanation.
- Discuss uncertainty, effect size, and limitations.

## Late Policies

The course is designed around frequent, time-sensitive activities, including adaptive quizzes, mini-studies, labs, and screen recordings. However, the attendance policy includes **3 freebie absences**, and those absences also apply to missed or delayed time-sensitive work.

For each of your **3 freebie absences**, you may submit any work connected to that missed class meeting within **5 days of the absence** without penalty. This includes adaptive quizzes, mini-study alternatives, lab work, and screen recordings. You do not need to explain why you were absent, but you are responsible for submitting the missed work within the 5-day window.

To make this work cleanly in Canvas, many assignments will have two versions:

1. **Original version:** the regular assignment due by the normal deadline.
2. **Late version:** the make-up version to use only if you missed the original assignment because of one of your 3 freebie absences.

If you complete the original version on time, **do not submit the late version**. The late version is only for students who missed the original version.

Canvas may show a **0** in the gradebook column for the original version if you did not complete it. This is expected. If you submit the corresponding late version within 5 days of the absence, you can still receive full credit through the late-version assignment. In other words, you may see a 0 for the original assignment and full credit for the late-version assignment. That does not mean anything is wrong.

We will track how many late-version assignments you submit. You can receive credit for **up to 3 late-version assignments total**, corresponding to your 3 freebie absences. After you have used 3 late-version submissions, additional late-version assignments will not receive credit.

- **Adaptive quizzes:** Adaptive quizzes are tied to the course pace and may be used to guide instruction. If you miss the relevant class meeting and use one of your 3 freebie absences, submit the late version of the quiz within 5 days of the absence. Canvas may show a 0 for the original quiz and a score for the late-version quiz.
- **Mini-studies:** Mini-study data collection is time-sensitive because we use the class data in labs and later assignments. If you miss a mini-study and use one of your 3 freebie absences, complete the late-version alternative activity posted on Canvas within 5 days of the absence.
- **Lab work:** Lab worksheets and exit tickets are typically due by the end of lab or by the Canvas deadline. If you miss lab and use one of your 3 freebie absences, submit the late-version lab work or alternative lab activity within 5 days of the absence.
- **Screen recordings:** Screen recordings are major applied assignments. If a screen recording deadline is affected by one of your 3 freebie absences, submit the late version within 5 days of the absence.
- **Final portfolio:** The final portfolio is due on Friday, July 24. If the due date is affected by one of your 3 freebie absences, submit the late version within 5 days of the absence.

**Important:** Late-version assignments are not extra credit, replacement attempts, optional resubmissions, or a way to improve a score on the original version. They exist only for students who missed the original assignment because of one of their 3 freebie absences. You will only receive credit for up to **3 late-version assignments total**.

## Grading Scale

This grading scale already incorporates rounding. No exceptions will be made for further rounding. Please do not contact the instructor regarding final grade rounding.

| Grade | Point Range |
|---|---|
| A | 900 - 1000 points |
| B | 800 - 899.99 points |
| C | 700 - 799.99 points |
| D | 600 - 699.99 points |
| F | < 600 points |

## Email Correspondence

Please put the course information, PSYC 2020, in the subject line of all emails to the instructor and any teaching assistants. I will do my best to respond promptly, but response times may be slower during travel, program events, or field activities.

## Respect and Consideration

Please be respectful and considerate of others in the class. This includes showing up on time, listening actively, being kind to classmates during discussions and activities, and treating other students' data and ideas with care.

## Academic Integrity

All assignments must be your own work and must not be assignments that you have submitted previously in another course. Using someone else's words, ideas, analysis, or structure without appropriate credit is plagiarism. Working with other humans when the assignment is individual work is not permitted. Fabricating data, fabricating sources, or reporting analyses you did not conduct is not permitted.

AI tools are permitted when the assignment allows them, but permitted AI use does not remove your responsibility for the accuracy, integrity, and originality of the submitted work. If an assignment asks for an AI-use appendix or disclosure, omitting that disclosure may be treated as a course policy violation.

For information on Georgia Tech's Academic Honor Code, please visit: https://catalog.gatech.edu/policies/honor-code/

The Office of Student Integrity is available at: https://osi.gatech.edu/

## Accommodations and Accessibility

Georgia Tech is committed to creating a learning environment that meets the needs of its diverse student body. If you anticipate or experience barriers to learning in this course, please feel welcome to discuss your concerns with me.

Students with disabilities, whether physical, learning, psychological, temporary, or chronic, who believe that they may need accommodations are encouraged to contact the Office of Disability Services as soon as possible. Students who have already been approved for accommodations should request that their Course Accessibility Letter be sent and should meet with me as early as possible to discuss how accommodations will be implemented in this course.

Office of Disability Services: https://disabilityservices.gatech.edu/

ODS phone: 404.894.2563

## Student-Faculty Expectations Agreement

At Georgia Tech, we strive for an atmosphere of mutual respect, acknowledgement, and responsibility between faculty members and the student body. In the end, respect for knowledge, hard work, and cordial interactions will help build the environment we seek.

Georgia Tech Student-Faculty Expectations: https://catalog.gatech.edu/rules/21/

## Core Impacts Statement

This is a Core IMPACTS course that is part of the Social Sciences area.

Core IMPACTS refers to the core curriculum, which provides students with essential knowledge in foundational academic areas. This course will help master course content, and support students' broad academic and career goals.

**This course should direct students toward a broad Orienting Question:**

- How do I understand human experiences and connections?

**Completion of this course should enable students to meet the following Learning Outcome:**

- Students will effectively analyze the complexity of human behavior, and how historical, economic, political, social or geographic relationships develop, persist or change.

**Course content, activities and exercises in this course should help students develop the following Career-Ready Competencies:**

- Intercultural Competence
- Perspective-Taking
- Persuasion