

Research Methods Course Syllabus

PSYC 2015 & PSYC 2012 | Summer 2026

Instructors: Jack Mostyn & Jennifer Spalten

Course Description

The official description of this course is: *“Introduction to methods used in conducting research on human behavior. Experimental research is emphasized, but the course covers other methods and some statistics.”*

Learning Objectives:

After successfully completing this course, students should be able to:

- Understand the scope and limitations of Psychology research
- Locate, evaluate, and extract information from past research
- Generate and refine high quality research questions
- Frame questions using proper research methodology
- Design ethical and practical experiments to test research questions
- Utilize technical skills to create data collection materials
- Collect and properly analyze data and interpret the outcomes
- Communicate research outcomes orally and in writing
- Work in teams to balance roles and leverage individual strengths

This course involves a lecture component and a lab component (PSYC 2015 Only).

During lectures, students will learn about the scientific methods as it is applied to behavioral research. This involves an overview of the research process as well as a review of the ways that this process changes depending on different research questions. Students will complete activities, assignments, and exams covering topics discussed during lectures.

During labs, students will develop technical skills that can be applied across diverse research topics as well as developing in-depth knowledge related to only a specific topic. In groups, students will develop a research project on a topic of their choosing from start to finish. In addition, students will complete activities to reinforce knowledge and skills gained during lab.

For more information about the content and assignments for this course, see the *‘Point Breakdown’* and *‘Assignment Types’* subsections under the *‘Grading’* section of the syllabus.

Date & Time

LECTURE: Tuesdays & Thursdays | 3:30 - 5:40 PM | Remote Via Microsoft Teams

LAB: Mondays | 12:30 - 4:45 PM | John Saylor Coon, Room 248 (PSYC 2015 Only)
The first day of class is May 18. The last day of class is July 28. Lab will not be held on May 18. Lab will not be held on May 25 in observation of Memorial Day. Lecture will not be held on June 11 due to a preexisting conflict with the instructor's schedule.

All lectures will be held remotely and labs will be held in-person and attendance is mandatory for both in-person and remote classes. See the 'Attendance' subsection under the 'Grading' section of the syllabus for more information.

Instructors & TA

MAIN INSTRUCTOR: Jack Mostyn



EMAIL: jmostyn3@gatech.edu

PRONOUNS: He/Him/His

OFFICE HOURS: By Appointment

Students are encouraged to reach out with any questions or concerns they may have. Virtual or in-person meetings are available.

LAB INSTRUCTOR: Jennifer Spalten



EMAIL: jspalten7@gatech.edu

PRONOUNS: She/Her/Hers

OFFICE HOURS: By Appointment

Students are encouraged to reach out with any questions or concerns they may have. Virtual or in-person meetings are available.

GRADUATE TA: Fleur Feng

EMAIL: rfeng68@gatech.edu

Grading

Assignment Types:

LECTURE ASSIGNMENTS

ACTIVITIES: Most lectures will include an activity related to the current course material. Activities can involve working as an individual or in groups and will take 10-30 minutes to complete. The content of each activity will not be announced ahead of time and students can only receive credit for completing activities if they are present in lecture.

MAJOR ASSIGNMENTS: Throughout the semester, students will complete five in-depth assignments related to the current course material.

The major assignments will cover the following topics:

- Extracting specific information from research publications
- Defining variables and refining experimental design
- Selecting analysis type and interpreting outcomes
- Developing detailed plans to address research questions
- Summarizing and presenting a chosen research publication

EXAMS: Students will complete three exams. All three exams will take place during normal lecture periods. The exams will be cumulative and completed via Honorlock with cameras required to be on for the duration of the exam. Students are allowed to bring printed notes into the exams. Exams will include a combination of true/false, short answer, and essay questions. A review session will be held the week before each exam.

LAB ASSIGNMENTS (PSYC 2015 Only)

ACTIVITIES: Some labs will include an activity related to the current course material. Activities can involve working as an individual or in groups and will take 10-30 minutes to complete. The content of each activity will not be announced ahead of time.

MILESTONES: Throughout the semester, students will work in pairs to develop their own research projects. Milestones are assignments that keep students on track to complete these projects by the end of the semester.

The milestones include: introduction, method, results, discussion, final research paper draft, and poster presentation.

Attendance:

Attendance is mandatory for both lecture and lab. Attendance will be taken 10 minutes after the scheduled start time. Students who show up late will receive a 50% deduction in attendance points for that day. If a student shows up after attendance has been taken, but before an activity begins, then they can still earn full points for the activity.

If a student feels unwell or cannot attend class, they should notify the instructor in advance. Most absences can be made up easily, and students should prioritize their well-being.

Students are allowed two unexcused absences including any activities on those days.

Point Breakdown:

Final grades will be rounded up to the nearest 10th of a percent (89.91% -> 90.00%). Grades will be distributed on an A-F scale with the following point cut-offs:

- A 90 – 100 %
- B 80 – 89.99 %
- C 70 – 79.99 %
- D 60 – 69.99 %
- F 0 – 59.99 %

The distribution of points in this course is outlined in the following table:

Grade Component	Points
Lecture Attendance	50
Lecture Activities	200
Major Assignments	5 x 50
Exams	3 x 100
Lab Attendance (PSYC 2015 Only)	50
Lab Activities (PSYC 2015 Only)	100
Lab Milestones (PSYC 2015 Only)	150

Course Materials

There is no required textbook for this course. All materials for this class will be provided to students through Canvas.

Required Readings

Students may be required to read materials for assignments or activities. Any necessary reading materials will be provided to students ahead of time.

Course Schedule

#	Day	Topic / (Assignment Due) / <u>Activity</u> / Exam
(1)	May 18	NO LAB
1	May 19	Course Overview <ul style="list-style-type: none">• Syllabus and other important course details Research Process <ul style="list-style-type: none">• Stages of research <u>Syllabus Quiz</u> <ul style="list-style-type: none">• Measure understanding of course details
2	May 21	Constructs <ul style="list-style-type: none">• Abstract Psychology concepts and how to define them Variables <ul style="list-style-type: none">• What they are and how they can differ Research Questions / Hypotheses <ul style="list-style-type: none">• Turning a topic into a testable question <u>Classifying Constructs and Variables</u> <ul style="list-style-type: none">• Classify constructs and variables according to various properties and match them
(2)	May 25	NO LAB – MEMORIAL DAY
3	May 26	Research Statistics Overview <ul style="list-style-type: none">• Broad orientation to statistical reasoning <u>Comparing and Contrasting Terms</u>

		<ul style="list-style-type: none"> • Demonstrate nuanced understanding of key concepts
4	May 28	<p>Data Visualization</p> <ul style="list-style-type: none"> • Picking and building the right graph <p><u>Interpreting Graphs</u></p> <ul style="list-style-type: none"> • Evaluate hypotheses based on plotted data
(3)	June 1	<p>Navigating Research Landscape</p> <ul style="list-style-type: none"> • Locating and accessing published research <p><u>Brainstorming Topics + Group Formation</u></p> <ul style="list-style-type: none"> • Brainstorm topic list and indicate individual preference • Form groups for lab project based on topic preference
5	June 2	<p>Study Design</p> <ul style="list-style-type: none"> • Major ways studies can be structured <p>Demographics</p> <ul style="list-style-type: none"> • What they are and how they're used in research <p>Sampling</p> <ul style="list-style-type: none"> • Different ways to recruit participants <p><u>Structuring and Counterbalancing</u></p> <ul style="list-style-type: none"> • Determining experiment structure details
6	June 4	<p>Conducting Ethical Research</p> <ul style="list-style-type: none"> • Ethical principles and review processes <p><u>Exam 1 Review</u></p> <ul style="list-style-type: none"> • Variety of activities designed to reinforce key ideas <p>(Major Assignment 1: Interpreting Scientific Papers)</p>
(4)	June 8	<p>Study Constraints</p> <ul style="list-style-type: none"> • Practical limits that shape a study <p>Targeted Background Research</p> <ul style="list-style-type: none"> • Narrowing the lit search to your question <p><u>Selecting Research Question</u></p> <ul style="list-style-type: none"> • Finalize variables and hypotheses
7	June 9	Exam 1
8	June 11	NO LECTURE

		(Major Assignment 2: Refining Experiment)
(5)	June 15	<p>Operationalizing Variables</p> <ul style="list-style-type: none"> • Turning constructs into measurable variables <p>Scientific Writing and Formatting</p> <ul style="list-style-type: none"> • Conventions of Psychology writing <p>Writing Introduction</p> <ul style="list-style-type: none"> • Purpose and structure of the introduction section <p><u>Sources List</u></p> <ul style="list-style-type: none"> • Final list of sources for introduction
9	June 16	<p>Measurements</p> <ul style="list-style-type: none"> • What makes a measure good <p><u>Survey Refinement</u></p> <ul style="list-style-type: none"> • Interpret data about surveys and make improvements
10	June 18	<p>ANOVA</p> <ul style="list-style-type: none"> • Important details about ANOVA <p>Multiple Regression</p> <ul style="list-style-type: none"> • Important details about Multiple Regression <p><u>Interpreting Output Tables</u></p> <ul style="list-style-type: none"> • Interpreting effects from output tables
(6)	June 22	<p>Creating Materials</p> <ul style="list-style-type: none"> • Building the stimuli or instruments for a study <p>Writing Method</p> <ul style="list-style-type: none"> • Purpose and structure of the method section <p><u>Materials</u></p> <p>(Milestone: Introduction)</p>
11	June 23	<p>ANCOVA</p> <ul style="list-style-type: none"> • Important details about ANCOVA <p>Power Analyses</p> <ul style="list-style-type: none"> • Determining the power of a model

		<u>Output Tables and Power Considerations</u> <ul style="list-style-type: none"> Interpreting ANCOVA tables and evaluating power in various contexts
12	June 25	Advanced Statistical Methods <ul style="list-style-type: none"> Overview of more complex models <u>Match the Model</u> <ul style="list-style-type: none"> Determine which advanced model would be best suited for various situations (Major Assignment 3: Interpreting Statistical Models)
(7)	June 29	Data Analysis <ul style="list-style-type: none"> Running models in R <u>Practice Data Collection</u> <ul style="list-style-type: none"> Test materials and procedures on classmates (Milestone: Method)
13	June 30	Publication Bias <ul style="list-style-type: none"> How publishing distorts the literature Replication Crisis <ul style="list-style-type: none"> Why findings fail to replicate <u>Exam 2 Review</u> <ul style="list-style-type: none"> Variety of activities designed to reinforce key ideas
14	July 2	Exam 2
(8)	July 6	<u>Data Collection</u> <ul style="list-style-type: none"> In-Person Data Collection
15	July 7	Animal Research <ul style="list-style-type: none"> Common methods and designs Clinical Psychology Research <ul style="list-style-type: none"> Common methods and designs <u>Methods Brainstorming</u> <ul style="list-style-type: none"> Identify potential research topics based on methods from both subfields
16	July 9	Social Psychology Research <ul style="list-style-type: none"> Common methods and designs

		<p>Engineering Psychology Research</p> <ul style="list-style-type: none"> • Common methods and designs <p><u>Methods Brainstorming</u></p> <ul style="list-style-type: none"> • Identify potential research topics based on methods from both subfields <p>(Major Assignment 4: Research Proposal)</p>
(9)	July 13	<p>Figure Creation</p> <ul style="list-style-type: none"> • Making clean publication-quality plots <p>Writing Results</p> <ul style="list-style-type: none"> • Purpose and structure of the results section <p>Writing Discussion</p> <ul style="list-style-type: none"> • Purpose and structure of the discussion section <p><u>Creating Figures</u></p>
17	July 14	<p>Cognitive Psychology Research</p> <ul style="list-style-type: none"> • Common methods and designs <p>Neuropsychology Research</p> <ul style="list-style-type: none"> • Common methods and designs <p><u>Methods Brainstorming</u></p> <ul style="list-style-type: none"> • Identify potential research topics based on methods from both subfields
18	July 16	<p>IO Psychology Research</p> <ul style="list-style-type: none"> • Common methods and designs <p>Educational Psychology Research</p> <ul style="list-style-type: none"> • Common methods and designs <p><u>Methods Brainstorming</u></p> <ul style="list-style-type: none"> • Identify potential research topics based on methods from both subfields
(10)	July 20	<p>Writing Abstract</p> <ul style="list-style-type: none"> • Purpose and structure of the abstract <p>Creating Posters</p> <ul style="list-style-type: none"> • Design principles for research posters

		<u>Abstract</u> (Milestone: Results and Discussion)
19	July 21	In-Lecture Presentations <ul style="list-style-type: none"> • Students present results of chosen research paper (Major Assignment 5: Paper Presentation) (Part 1)
20	July 23	In-Lecture Presentations <ul style="list-style-type: none"> • Students present results of chosen research paper <u>Exam 3 Review</u> <ul style="list-style-type: none"> • Variety of activities designed to reinforce key ideas (Major Assignment 5: Paper Presentation) (Part 2)
(11)	July 27	In-Lab Presentations <ul style="list-style-type: none"> • Students present the results of their research projects (Milestone: Final Draft) (Milestone: Research Poster & Presentation)
21	July 28	Exam 3

Course Policies

Academic Integrity Policy

Students are expected to uphold the highest standards of academic integrity. Any form of cheating, plagiarism, or dishonesty will not be tolerated and may result in disciplinary action.

Accommodations for Individuals with Disabilities

If you are a student with learning needs that require special accommodation, contact the Office of Disability Services as soon as possible to make an appointment to discuss your special needs and to obtain an accommodations letter. Please also email me as soon as possible in order to set up a time to discuss your learning needs.

Late / Missed Assignments

Assignments can be turned in up to five days late. Students will lose 15% per day on any assignments submitted after the deadline. After five days, students will receive a zero.

Make-Up Exams

Make-up exams may be arranged only with an Institute-Approved Absence or an official letter from the Dean of Students. Documentation must be provided prior to the scheduled exam date and before arranging the make-up exam.

Student-Faculty Expectation Management

At Georgia Tech, we believe that it is important to strive for an atmosphere of mutual respect, acknowledgement, and responsibility between faculty members and the student body. The Student-Faculty Expectations articulate some basic expectations that you can have of me and that I have of you. In the end, simple respect for knowledge, hard work, and cordial interactions will help build the environment we seek. Therefore, I encourage you to remain committed to the ideals of Georgia Tech while in this class.

Student Use of Mobile Devices / Technology

Students are expected to use their personal devices in a way that does not interfere with the learning of other students.

Student Use of Generative AI

Generative AI can be a useful tool when used appropriately. When in doubt about whether a particular usage of AI is acceptable, students should consider whether it would be acceptable if they asked another person to do the same thing.

For example, asking for help rewording a few sentences or troubleshooting some code would be good uses of AI. On the other hand, asking to write entire paragraphs or analyze sources a student has not read themselves would be unacceptable uses of AI.

Georgia Tech Inclusive Values Statement

At Georgia Tech, we see different backgrounds and perspectives as essential to learning, discovery, and creation. We strive to remove barriers to student success, and to build a welcoming community where everyone has the opportunity to contribute to our mission. As outlined in our strategic plan, we want to create an environment of holistic learning where all individuals can grow and learn to lead healthy, purposeful, impactful lives.

Core IMPACTS

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

Core IMPACTS refers to the University System of Georgia's General Education curriculum, which provides students with essential knowledge in foundational academic areas. This course will help students 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