PSY 365 Cognition Syllabus and Lab Manual, Winter 2025

Monday, Wednesday, and Friday
Section 3, 11-11:50 AM, rm. 1310 Au Sable Hall
Section 2, 12-12:50 PM, rm. 1310 Au Sable Hall

Instructor: Jennifer Gross, Ph.D.

How to reach me:
Office: 2319 Au Sable Hall
Office Hours: 1-2 PM Mondays and Fridays; and other times by appointment. Students with appointments have priority over walk-ins.
Office Phone: 616-331-3511
Email Address: grossj@gvsu.edu

Course Description:

The course ***Cognition*** delves into the scientific exploration of how the human mind operates.

While the word "scientifically" might evoke images of white lab coats and sterile laboratories, science is not defined by attire, equipment, or subject matter. Instead, it is a method of discovery grounded in systematic, empirical observation, as opposed to intuition or speculation. Rooted in this scientific tradition, our course requires weekly, hands-on replications of foundational experiments in cognitive psychology. During these exercises, you will adopt the roles of a naïve participant, a methodical researcher, and a skeptical peer reviewer.

Although cognitive psychology is a relatively young discipline, the human mind has fascinated people for centuries. Like ancient philosophers, you may have pondered why people think the way they do or believe what they believe. However, unlike philosophers who rely on reasoned arguments, cognitive psychologists use scientific methods to investigate the mental processes underlying thoughts and behaviors. The field examines abstract and intangible concepts such as memory, language, and attention. By employing operational definitions—clear, concise descriptions of how variables are measured or observed—these concepts become concrete, accessible, and amenable to scientific study.

Consider some real-world questions tackled by cognitive psychologists: How can students improve their memory for exams? Should people drive while talking on hands-free cell phones? Does subliminal communication influence advertising? Are there gender differences in cognitive abilities? How can we enhance the accuracy of eyewitness testimony? Insights into basic cognitive processes illuminate not only everyday memory failures (like forgetting to stop at the grocery store), but also pathological conditions. For instance, how do the minds of individuals with dementia or amnesia differ from those of non-impaired individuals? Indeed, cognitive psychology is deeply relevant to every waking moment of our lives.

The operations of the mind are pervasive and often go unnoticed. In this course, your goal is to uncover and appreciate the remarkable feats and occasional lapses of your mind. We will begin with what might be called lower-level processes, such as visual perception, and progress to higher-level processes, like decision-making and language. Along the way, you will discover that even seemingly simple actions—like recognizing a dog—involve a complex interplay of mental processes. Are you ready to embark on a scientific exploration of your mind?

This course is subject to the GVSU policies listed at http://www.gvsu.edu/coursepolicies/

Course Objectives: Upon successful completion of this course students will be able to:

1. Summarize important scientific methods, research findings, and theories of cognition.
2. Evaluate current issues in cognition research.
3. Compare the strengths and weaknesses of various theories of cognition.
4. Explain how cognition is studied empirically.

Course Homepage on Blackboard (lms.gvsu.edu)*:* Class information (e.g., syllabus, announcements, laboratory assignments, readings, lecture slides, & grades) will be posted on Blackboard.

GVSU Saves eBook*:

Goldstein, E.B. (2019*). Cognitive Psychology: Connecting Mind, Research, and Everyday Experience, 5th Edition.*

GVSU Saves CogLab Software License*:

Francis, G. & Neath, I. (2015). *CogLab 5, Instant Access* (for 6 months).

*If you want to obtain the eBook and CogLab on your own, you may opt-out by **Friday, January 17th**, and your student account will be refunded.

Course Grade Formula:

Course grades will be based on scores from the following, weighted activities:

Exam #1	20%
Exam #2	20%
Exam #3	20%
Laboratory Reports for 13 of 15 assignments	40%

Forms of Evaluation:

1. ***Exams:*** To assess your understanding of course material, there will be three exams, including a non-cumulative final exam. Exams will be administered via Blackboard and will be "open book", allowing you to refer to your class notes and readings. Questions on the exam will be based on the material covered in the: 1) lectures, 2) assigned readings, and 3) laboratory assignments discussed in class. While taking the exam, you may pause and resume within the exam's availability window. Note that only one question will appear on your screen at a time, and you cannot revisit previously answered questions. Your score (total number correct) will be displayed upon completion. Final grades will be adjusted using a curve after the exam period closes. Refer to the ***Weekly Schedule*** for tentative exam dates.

2. ***Laboratory Participation and Reports:*** The laboratory component aims to deepen your understanding of the scientific process in psychology. Outside of class, you will engage in web-based experimental replications of classic cognitive science studies. These experiments can be completed using GVSU computer labs or your personal computer. For each lab, it is essential to understand: the theoretical foundation of the investigation; procedures and methods, including independent and dependent variables; predicted outcomes (hypotheses); experimental results (expressed in statistics and graphs); potential limitations; and connections to class material and assigned readings

You are expected to submit reports for 13 of the 15 laboratory assignments by their respective due dates (see the ***Schedule***).

Refer to the ***Lab Report Requirements***, ***Lab Report Format***, ***Grading Lab Reports***, **and** ***Sample Lab Report*** for guidance.

Lab Reports Requirements:

Lab reports must:

- Be typed and include all eight required components, with explanations provided for any missing elements (see ***Lab Report Format***).
- Be written clearly, using complete sentences with proper grammar and spelling.
- Avoid copying instructions verbatim—integrate them naturally into your responses where applicable.
- Be organized with numbered responses (1–8) for clarity.
- Provide a unique critique for item #7 and a unique suggestion for future directions for item #8.
- Include thoughtful, detailed answers for items #7 and #8, avoiding one-sentence responses.
- Be prepared using Word or another word-processing program and uploaded to Blackboard by the due date. Links to documents or email submissions will not be accepted.

Lab Report Format:

1. Use a complete sentence to state the name of the lab and the date of your participation.
2. Include a statement such as “My data are below” and paste your summary data. (CogLab automatically provides this data upon completing the experiment.)
3. Identify and explain how the independent and/or predictor variable(s) were measured.
4. Identify and explain how the dependent variable(s) were measured.
5. Clearly state the experimental hypothesis.
6. Assess whether your data are consistent with the predicted outcomes.
7. Critique the experiment by offering alternative explanations for the observed phenomenon. Consider methodological limitations, overlooked variables, or other potential weaknesses. Avoid reusing the same critique for multiple labs.
8. Suggest future directions to improve or expand the investigation. These may include addressing identified limitations, building on findings, or exploring the theory in a new context, location, or culture. Ensure that future directions are specific to each lab and not repeated across reports.

Late Submissions:

- Late submissions will be accepted up to one week past the due date, with a penalty of -30 points.
- Reports submitted more than one week late will receive a grade of "0."
- Retain a copy of your report for your records, as it may serve as proof of completion and assist in exam preparation.

Grading Lab Reports: How to Earn a Perfect Grade by Avoiding Common Mistakes

Points will be deducted for the following errors:

5-point deduction per error:

- Incomplete sentences in responses.
- Improper numbering of responses.
- Excessive spelling mistakes or poor grammar.

5–10-point deduction per error:

- Inclusion of lab report instructions in the submission.
- Missing required information or failure to provide an explanation for any missing content.
- Failure to discuss whether your data aligns with the experimental hypothesis in item #6.
- Insufficient elaboration on responses for items #7 and/or #8 (avoid one-sentence responses).

10-point deduction per error:

- Failure to provide a unique critique in item #7.
- Failure to provide a unique suggestion for future directions in item #8.

30-point deduction:

- Submitting your assignment up to 7 days late.

Grade of Zero:

- Assignments submitted more than 7 days late will not be accepted and will receive a grade of zero.

Sample Lab Report:

1. The experiment was named Risky Decisions and was completed on 12/02/2023.
2. The summary data for the lab are below.

Summary Data

Proportion of Gamble Trials:

Condition	Small Gain	Large Gain	Small Loss	Large Loss
Less Risky	0.750	0.750	0.750	1.000
More Risky	0.500	1.000	0.500	1.000

(Insert graph here, if applicable)

3. The experiment had three independent variables: risk level, outcome type, and magnitude. The first independent variable was if one's chances of winning were less risky or more risky (based on odds of winning). The second independent variable was whether the trial outcome would be a gain or loss of money. The third independent variable was a small gain or large gain in terms of the dollar amount on each trial.
4. The experiment had one dependent variable, which was the proportion of gambling trials that one engaged in for each trial.
5. The experimental hypothesis predicted that participants would engage in more risk-taking (e.g., gambling) when there was less to lose or when large gains were possible. Conversely, participants were expected to avoid risk-taking decisions when the potential loss was greater.
6. Some of the data aligned with the experimental hypothesis. For instance, I was more likely to gamble in both the less risky and more risky conditions when there was a large loss. However, my results deviated from the hypothesis regarding large gains. Although the hypothesis suggested I should be more risk-averse in these scenarios, I engaged in an equal proportion of gambling in the riskier conditions when large gains were possible.
7. One limitation of the study is that the risky decision effect did not replicate the finding. Across a sample size of 70,000 participants, results did not consistently support the hypothesized differences in risk-taking behavior for gains versus losses. Another limitation is that the experiment used an artificial context and make-believe money, which may not accurately reflect real-world decision-making. Participants might behave differently if real money was involved.
8. One way to improve the study would be to make this into a game. The game format would make the loss vs. gains clearer to participants. The game format would also make the experiment more engaging. For future directions, people could try this paradigm (e.g., betting on horse races & fantasy football teams) to determine if the results replicate. Another interesting paradigm would be to observe how casino players gamble. Do they show the same predicted findings or not?

Schedule **(Classes begin on Monday, January 6):**

Readings for Exam 1, Goldberg, *Cognitive Psychology*

- Chapter 1: Introduction to Cognitive Psychology
- Chapter 2: Cognitive Neuroscience
- Chapter 3: Perception
- Chapter 4: Attention

CogLabs for Exam 1. Submit before midnight on the due dates below.

1. Visual Search (recommended due date; 1/10; no later than 1/17)
2. Brain Asymmetry (due Friday, 1/17)
3. Change Detection (due Friday, 1/24)
4. Modality Effect (due Friday, 1/31)
5. Stroop Effect (due Friday, 2/7)

Exam 1 is scheduled for Friday, February 7.

Readings for Exam 2, Goldberg, *Cognitive Psychology*

- Chapter 5: Short-term and Working Memory
- Chapter 6: Long-term Memory: Structure
- Chapter 7: LTM: Encoding, Retrieval, and Consolidation
- Chapter 8: Everyday Memory and Memory Errors

CogLabs for Exam 2. Submit before midnight on the due dates below.

1. Memory Span (due Friday, 2/14)
2. Operation Span (due Friday, 2/21)
3. Levels of Processing (due Friday, 2/28)
4. Encoding Specificity (due Friday, 3/14)
5. False Memory (due Friday, 3/21)

Exam 2 is scheduled for Friday, March 21.

Readings for Exam 3, Goldberg, *Cognitive Psychology*

- Chapter 9: Conceptual Knowledge
- Chapter 10: Visual Imagery
- Chapter 11: Language
- Chapter 12: Problem Solving & Creativity

CogLabs for Exam 3. Submit before midnight on the due dates below.

1. Lexical Decision (due Friday, 3/28)
2. Implicit Association Test at Project Implicit (not part of CogLab; due Friday, 4/4)
3. Mental Rotation (due Friday, 4/11)
4. Word Superiority (due Friday, 4/18)
5. Monty Hall (due Friday, 4/18)

FINAL EXAM
Monday, April 21 - Wednesday, April 23