Psychology of Language (PSY 357), Syllabus and Lab Manual, Spring '25

Online and Asynchronous
May 5 - June 18, 2025

Instructor: Jennifer Gross, Ph.D.

How to reach me:

1. Correspond via email (recommended): grossj@gvsu.edu.
2. Meet on Zoom. Contact me via email to set up a meeting time.
3. Call my office at 616-331-3511 and leave a message with your name and phone number.

Course Description Language plays a central role in our lives. We chat with friends, read novels, enjoy lyrics, express feelings, teach children, and transmit scientific discoveries across generations—all through language. Even your ability to read these words showcases language in action. Yet most of us rarely stop to consider our linguistic prowess. In this course, we will scientifically investigate the marvels and mishaps of human language through questions such as:

- What distinguishes language from mere communication?
- How are gestural (sign) languages similar to—and different from—spoken languages?
- How did the human mind develop the capacity for language?
- Is language uniquely human, or do animals or insects have it too?
- How do children learn to speak and read their native language?
- Why do children say things like "she giggled me" or "I breaked the toy"?
- Where does language reside in the brain? Is there truth to being "right-brained" or "left-brained"?
- Does short-term memory have separate visual and verbal stores? How is information maintained in long-term memory?
- What interventions can support the 21% of U.S. adults who read below a 5th-grade level (U.S. Dept. of Education)?
- What do slips of the tongue (like "tips of the slongue") reveal about the mind?
- Despite voice recognition, why can't our smartphones converse reliably with us?
- Are there risks to talking on a phone while driving?
- Is "wag" in your mental dictionary? What about "wug"? How do you make these decisions in milliseconds?
- Why do we hear distinct words even though speakers don't pause between them?
- Do the Inuit have hundreds of words for snow? Do skiers?
- Does language shape our thoughts, or can we think independently of it?
- Can leading questions affect eyewitness testimony? Can word choices influence buying habits or health decisions? Should we replace terms like "chairman" and "freshman" with gender-neutral alternatives?
- Are there gender differences in cognitive ability?

Such fascinating questions demand rigorous, scientific answers—the highest standard of evidence available. Though we often take our language-savvy minds for granted, we will explore how deeply language shapes our cognitive and social lives. Language, quite possibly, is the essence of humanity.

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

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

1. Describe theories and research on the linguistic representation of language.
2. Describe theories and research concerning the cognitive processes that foster language acquisition and enable skilled language production and comprehension.
3. Evaluate and explain the scientific study of human language, including critically evaluating psycholinguistic theories and experimental results.
4. Explain the biological, social, and cultural influences on language processes.

Prerequisite: PSY 101

Course Homepage on Blackboard: lms.gvsu.edu

Class information (e.g., syllabus, announcements, lectures, laboratory assignments, required readings, & grades) will be posted on Blackboard.

Required eBook: *Available for **free** via the GVSU Library and our Blackboard site*

Trevor A. Harley **(2017/2010).** *Talking the Talk: Language, Psychology, and Science (Second Edition).* New York, NY: Psychology Press (ISBN 978-1138800458)

Required Software License: ***Purchase a new license only***

Francis, G. & Neath, I. (2015). *CogLab (5th Edition), Instant Access* (for one semester; ISBN 9781285461083). Available at the GVSU bookstore or Cengage.

To purchase from Cengage, navigate here (https://www.cengage.com/c/coglab-5-5e-francis/9781285461083PF/) and look for:

Required Readings: See "course documents" on Blackboard.

Required Laboratory Participation via:

1) CogLab 5 *(https://coglab.cengage.com/; license fee)*
2) Project Implicit for Lab #16 only (*https://implicit.harvard.edu/implicit/; free)*

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 Participation and Reports	40%

Letter Grades will be calculated according to the following scale:

A	93-100%	C	73-76%
A-	90-92%	C-	70-72%
B+	87-89%	D+	67-69%
B	83-86%	D	60-66%
B-	80-82%	F	Below
C+	77-79%		

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.

   To foster your scientific literacy, you are expected to prepare **14 of 17 laboratory reports**.

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

Grading Lab Reports: 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 explain 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 seven days past the due date will not be accepted and will receive a grade of zero.

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. State the **name of the lab** and the **date of your participation**

2. Find, copy, and paste your **summary data**.
    a. CogLab automatically provides your summary data upon completion of the experiment.
    b. Project implicit typically provides a statement ("your data suggest…").

3. Identify and explain how the **independent and/or predictor variable(s)** was/were measured. Hint: Independent and predictor variables are found on the X-axis (horizontal line) of a graph.

4. Identify and explain how the **dependent variable(s)** was/were measured. Hint: Dependent variables are found on the y-axis (vertical line) of a graph.

5. State the experimental **hypothesis**.

6. Determine if your data are consistent with the **predicted outcomes**.

7. **Critique** the experiment. Offer potential, alternative explanations for the phenomenon observed that the researchers may have failed to consider. Consider the role of methodological limitations, variables not taken into consideration, or other weaknesses of the experiment. Be careful not to suggest the same "critique" for every lab.

8. Suggest **future directions**, such as how the experiment might be modified to improve the investigation. Future directions arise out of the research limitations identified for a specific lab and may include building on a finding; addressing a conceptual flaw in the design; or examining the theory in a new context, location, or culture. Be careful not to suggest the same "future direction" for every lab.

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?

Instructions for getting started with CogLab 5:

1. Open your web browser (Google Chrome recommended) and go to https://coglab.cengage.com/help/register.shtml
2. Towards the bottom of the page is a form that asks for three pieces of information. If you do not see the form, your Web browser probably has JavaScript disabled. Please enable JavaScript and reload the page to continue.
3. Enter the requested information:
    - In the Group Name text field, enter the Group ID ***PsyLangSpring25***
    - In the Group Password text field, enter ***noamchomsky***
    - could be in one of several formats. It may be on a sticker on the inside front cover of your CogLab Student Manual. It may have been bundled with your textbook on a postcard. Or, you may have purchased a registration code electronically (sometimes this is also called an e-Pin). There are two types of codes:

- A CogLab2 code: This is made up of 11 letters and numbers, and will look something like this: yij2d9v6fu0
- A CogLab5 code: This is made up of 16 letters and numbers, and will look something like this: sjkq8b632dvhd4u0

Both are valid on this website. However, do not purchase used CogLab registration codes! If the registration code has already been used, it will not work for you. Each valid registration code can be used only once.

4. After filling in all the text fields, click or tap on the Start Registration button.
5. Your Web browser will connect with the CogLab server to verify your information. If the information is correct, a new window will appear. The first line, highlighted in yellow, is your User ID. You should *write this down* because you will need to access CogLab.
6. The second line is your registration code.
7. The next two lines ask for your first name and your last (family) name.
8. Next, enter a password. You'll use this when you log in. The password must be at least 8 characters long. It is best not to enter a password you use on other websites. The next line asks you to re-enter the password.
9. The next two lines ask for your email address and then confirmation of this address. This email address will be used if you forget your password.
10. Next, enter a security question and answer. Make sure to use a question that only you can answer correctly. Also, remember whether you use uppercase or lowercase letters in your answer: you'll need to enter your answer exactly the same if you forget your password.
11. If necessary, select your keyboard layout (for keyboard help, see https://coglab.cengage.com/info/keyboards.shtml).
12. Finally, decide if you want CogLab to remember you so that you don't need to log in each time. If not, uncheck the box next to Remember Me.
13. After filling in all the text fields, click or tap on the Complete Registration button.
14. Your CogLab account is now ready to go! See the weekly schedule below (or Bb calendar) for assigned labs and their due dates.

Instructions for getting started with Project Implicit for Lab #16:

1. Open your web browser (Google Chrome recommended) and go to https://implicit.harvard.edu/implicit/
2. You have the option of registering "to gain access to dozens of studies and tests on a wide variety of topics" or participating as a guest in a "limited array of demonstration studies". Choose between: implicit social attitudes or health attitudes. Then, select the menu option: "take a test".
3. Upon completion, your summary data (#2 on the lab report) is typically a statement provided upon completion of an experiment (e.g., your data suggest….).

Schedule:

Exam 1 Preparation: Monday, May 5 – Thursday, May 15

- **Exam 1 opens on Friday, May 16**

Topics:

- **The nature of language and metacognition.**
- **Is language innate?**
- **Smart, albeit alingual animals and insects.**
- **No formal instruction is necessary for early language acquisition.**
- **My teacher 'holded' the rabbits.**

Lab Assignments for Exam 1 are due by midnight on Thursday, May 15.

Lab #1: Memory Judgment
Lab #2: Statistical Learning
Lab #3: Monty Hall
Lab #4: Categorical Perception – Identification (Requires headphones/earbuds)
Lab #5: Categorical Perception – Discrimination (Requires headphones/earbuds)

Required readings:

Harley, Chapter 1, Language, pp. 1-26 in 2017 (pp. 1-29 in 2010)

Putnam, A. L., Sungkhasettee, V. W., & Roediger, H. L. (2016). Optimizing learning in college: Tips from cognitive psychology. *Perspectives on Psychological Science*, *11*(5), 652–660.

Fenn, K. M., Nusbaum, H. C., & Margoliash, D. (2003). Consolidation during sleep of perceptual learning of spoken language. *Nature, 425,* 614-616.

Aslin, R. N., & Newport, E. L. (2012). Statistical learning: From acquiring specific items to forming general rules. *Current Directions in Psychological Science, 21*(3), 170-176.

Goldin-Meadow, S. & Mylander, C. (1998). Spontaneous sign systems created by deaf children in two cultures. *Nature, 391,* 279-281.

Petitto, L. A., Holowka, S., Sergio, L. E., & Ostry, D. (2001). Language rhythms in baby hand movements. *Nature, 413*(6851), 35-36.

Senghas, A., Kita, S., Ozyurek, A. (2004). Children creating core properties of language: Evidence from an emerging sign language in Nicaragua. *Science, 305,* 1779-1782.

Harley, Chapter 2, Animals, pp. 26-42 in 2017 (pp. 31-48 in 2010)

Herbranson, W. T. (2012). Pigeons, humans, and the Monty Hall dilemma. *Current Directions in Psychological Science*, *21*(5), 297-301.

Ladewig, J. (2007). Clever Hans is still whinnying with us. *Behavioural Processes, 76*(1), 20-21.

Pepperberg, I. M. (2002). Cognitive and communicative abilities of grey parrots. *Current Directions in Psychological Science, 11*(3), 83-87.

Ramus, F., Hauser, M. D., Miller, C., Morris, D., Mehler, J. (2000). Language discrimination by human newborns and by cotton-top Tamarin Monkeys. *Science, 288,* 349-351.

Riley, J. R., Greggers, U., Smith, A. D., Reynolds, D. R., & Menzel, R. (2005). The flight paths of honeybees recruited by the waggle dance. *Nature, 435*(7039), 205-207.

Wynne, C. D. L. (2007). What the ape said. *Ethology, 113*(4), 411-413.

Harley, Chapter 3, Children, pp. 42-67 in 2017 (pp. 49-76 in 2010), up to "Is there a critical period for language acquisition".

Kuhl, P. K. (2004). Early language acquisition: Cracking the speech code. *Nature Neuroscience, 5*, pp. **831-833 only**.

Exam 2 Preparation: Monday, May 19 – Monday, June 2

- **Exam 2 opens on Tuesday, June 3**

Topics:

- **Role of working memory in language.**
- **The 'bottleneck' of information processing.**
- **The science of reading.**
- **The myths and mysteries of dyslexia.**
- **Psychological science informs the teaching of reading.**

Lab Assignments are due by midnight on Monday, June 2

Lab #6: Memory Span
Lab #7: Word Length Effect
Lab #8: Phonological Similarity Effect
Lab #9: Modality Effect
Lab #10: Mental Rotation
Lab #11: Stroop
Lab #12: Word Superiority Effect

Required readings:

Kuhl, P. K. (2004). Early language acquisition: Cracking the speech code. *Nature Neuroscience, 5*, pp. **834-843 only**.

Jusczyk, P. W. (1997). Finding and remembering words: Some beginnings by English-learning infants. *Current Directions in Psychological Science, 6*(6), 170-174.

Baddeley, A. (2003). Working memory and language: An overview. *Journal of Communication Disorders, 36*(3), 189-208.

Boutla, M., Supalla, T., Newport, E. L., & Bavelier, D. (2004). Short-term memory span: Insights from sign language. *Nature Neuroscience, 7(9),* 997-1002.

Harley, Chapter 6, Words, pp. 129-164 (pp. 145-185 in 2010)

Treiman, R. (2000). The foundations of literacy. *Current Directions in Psychological Science, 9(3),* 89-92.

Anthony, J. L., & Francis, D. J. (2005). Development of phonological awareness. *Current Directions in Psychological Science, 14(5),* 255-259.

Grainger, J., Bouttevin, S., Truc, C., Bastien, M., & Ziegler, J. (2003). Word superiority, pseudoword superiority, and learning to read: A comparison of dyslexic and normal readers. *Brain and Language, 87,* 432-440.

Exam 3 Preparation: Wednesday, June 4 - Monday, June 16

- **Exam 3 will be available on June 17-18**

Topics:

- **Meaning in network theories: Connotation, denotation, and false memory.**
- **Language's influence on the brain.**
- **Asymmetry, plasticity, and critical periods in language acquisition.**
- **Assorted language facts and fallacies for language lovers.**

Lab assignments are due by midnight on Monday, June 16

Lab #13: Lexical Decision
Lab #14: False Memory
Lab #15: Implicit Association Test (IAT) of your choice at Project Implicit: https://implicit.harvard.edu/implicit/
Lab #16: Change Detection
Lab #17: Brain Asymmetry

Required readings:

Harley, Chapter 5, Meaning, pp. 103-129 (pp. 117-143 in 2010)

Landauer, T. K. (1998). Learning and representing verbal meaning: The Latent Semantic Analysis Theory. *Current Directions in Psychological Science, 7(5),* 161-164.

Harley, Chapter 7, Understanding, pp. 164-193 (pp. 187-220 in 2010)

Harley, Chapter 4, Thought, pp. 79-103 (pp. 89-116 in 2010)

Davidoff, J, Davies, I, Roberson, D. (1999). Color categories in a stone-age tribe. *Nature, 398,* 203-204.

Harley, Chapter 8, Speaking, pp. 191-221 (pp. 221-253 in 2010)

Strayer, D. L., & Drews, F. A. (2007). Cell-phone-induced driver distraction. *Current Directions in Psychological Science, 16*(3), 128-131.

Harley, Chapter 3, Children, pp. 67-78, begin at "Is there a critical period for language acquisition" pp. 77-87 in 2010)

Mayberry, R. I, Lock, E., & Kazmi, H. (2002). Linguistic ability and early language exposure. *Nature, 417,* 38.

Newman, A. J., Bavelier, D., Corina, D., Jezzard, P., & Neville, H. J. (2001). A critical period for right hemisphere recruitment in American Sign Language processing. *Nature Neuroscience, 5(1),* 76-80.

Wagner, L. (2001). Acquiring languages—two for the price of one? *TRENDS in Cognitive Sciences, 5(12),* 509.

Marcus, G. F., Vouloumanos, A., & Sag, I. A. (2003). Does Broca's play by the rules? *Nature Neuroscience, 6*(7), 651-2.

Halpern, D.F. (2004). A cognitive-process taxonomy for sex differences in cognitive abilities. *Current Directions in Psychological Science, 13,* 135–139.

"Talk is cheap, but understanding how and why is priceless."

Brian Bartek, Psychology Major, Honors College, Grand Valley State University, '04