COGNITIVE PSYCHOLOGY

Class Times: W/F 10:10-11:30am in *Olin 201* | **Office Hours:** W 2:15-3:15pm/F 4-5pm/by appointment

Instructor

Dr. Justin Hulbert
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     (preferred contact)

Course Materials

Revlin (2013). *Cognition: Theory and Practice*. New York, NY: Worth.

Psych Lab 101 (see below for free app download info)

Additional materials will be posted on **Moodle2** (see footer for URL & access code).

Prerequisites

An intro psychology course or permission of the instructor.

Assessment

- Quizzes (top 5/6): **150pts**
- PsychLabs (10/13): **100pts**
- Exams (3): **300pts**
- Training Project: **150pts**
- Participation: **50pts**

**Final grade (%) = ((Total pts +extra credit pts)/750)*100**

Course Overview

Cognitive psychology is the scientific study of the mind: how we perceive the world, acquire new information and remember it later, make plans, reason, and use language. In this course we examine the empirical foundations that determine our understanding of these fundamental processes, including classic/contemporary research methodologies and neurocognitive changes over the lifespan.

Joint Responsibilities

Achieving the broad aims of this course requires commitments from instructor and students alike. Below you will find an outline of some of those responsibilities.

- **Your instructor agrees to…**
  a) Make himself available outside of class during posted office hours (and by appointment, as necessary) to answer questions, provide extra help, and discuss matters related to the course of study.
  b) Respond in a timely fashion (typically by the end of
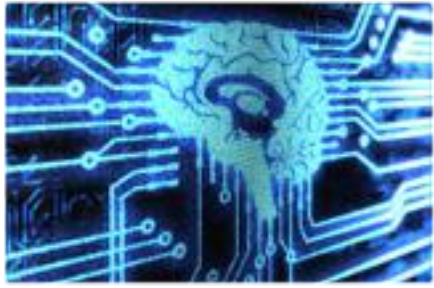
Learning Objectives

Coming out of this course, you should have:

- The ability to talk competently about the cognitive processes and neural underpinnings involved in how humans perceive, represent, and communicate knowledge.

- Developed an appreciation for the primary research methods and theories used to investigate cognition.

- Identified the common bottlenecks in human information processing and how best to manage them in everyday life.

- Come to appreciate how computer models do[n't] mimic cognitive processes and the potential of brain-computer interfaces.

- The capacity to critically evaluate evidence related to fundamental debates pertaining to cognition (e.g., the basis of human consciousness and the value of cognitive-training programs).

the next school day) to email queries. In the event that more time is required to fully address the student query, the instructor will acknowledge receipt of the email and provide the student with an estimated response time or suggest meeting in person.

c) Facilitate a thoughtful, considerate, and engaging learning environment.

d) Make available on Moodle a skeleton of lecture slides, suitable for downloading/printing prior to class (typically on or before the night prior to the relevant meeting). Note that these skeletons are intended to supplement note taking (e.g., by providing important/complicated figures) but are *not a replacement for attending class*, as they will lack critical information presented only in class.

e) Provide adequate time to complete assignments, minimize changes to the published schedule/assignments, and immediately notify students about any such changes.

f) Provide comprehensive and fair assessments of materials presented or assigned. Assignments, with a level of feedback commensurate with the nature and aims of the task, will be returned to students in a timely fashion.

g) Create and welcome opportunities for students to provide feedback on the course/teaching throughout the semester.

- **You are responsible for…**
  a) Showing up to class regularly, on time, and prepared. While formal attendance will not be taken, *no make-up quizzes will be offered* (though the lowest quiz score will be dropped, meaning that it is possible to miss a quiz without necessarily penalizing your grade). However, it should be noted that you are responsible for any and all material covered in classes missed.
  b) Checking your College email regularly for important

Best Practices

To make the most of office hours, it is recommended that you:

- Avoid waiting until the last minute (before an exam/due date) to attend. Seeking help well in advance of deadlines will leave you plenty of time to act on advice discussed.

- Email the instructor in advance or bring with you a concise list of topics/questions you wish to discuss, if possible. Itemizing in this way helps ensure all your questions are addressed and saves you time in the long run. That said, *dropping by for a spontaneous, broader chat is also most welcome.* Tea and/or coffee will be available.

When emailing the instructor, keep in mind that:

- Taking time to draft a concise message with proper spelling/punctuation is expected and will be met with a similarly considered reply.

Online study resources: http://edge.sagepub.com/mcbridecp

Writing/other academic help is available through Bard Learning Commons (lc@bard.edu).

messages about the course.

c) Keeping up with the assignments and readings. PsychLabs must be uploaded by the assigned date/time in order to receive credit (see below for further details). *Please bring your textbook and printed copies of any additional assigned readings to class.* Certain in-class activities may require these materials. In addition to the readings specified below, the instructor may send out/post additional readings. Again, be sure to check your email and pay attention to in-class announcements to avoid surprises. *Your instructor will make the first few chapters available on Moodle, for those still shopping around for the textbook.*

d) Substantively participating in class discussions (in class and/or online via Moodle). This could, for instance, involve asking or answering questions related to the offered course materials. If you participate online, your identity should, at the very least, be visible to the instructor in order for you to receive credit. Note that a top-notch level of participation *does not necessitate responding to every question* raised in class or online; active or passive efforts to welcome contributions from everyone in the class are also looked upon favorably. Though you are welcome to challenge your fellow students' or your instructor's thoughts and conclusions, always do so in a fashion that is respectful. Challenge ideas, not the person responsible for them.

e) Keeping distractions to a minimum in class. Phones should be turned off or set on vibrate (and kept out of sight unless they are being used for a sanctioned in-class assignment). *Written permission to use laptops in class for note taking must be obtained in advance through the instructor.*

f) Submitting assignments on time, digitally via Moodle (unless prior arrangements have been
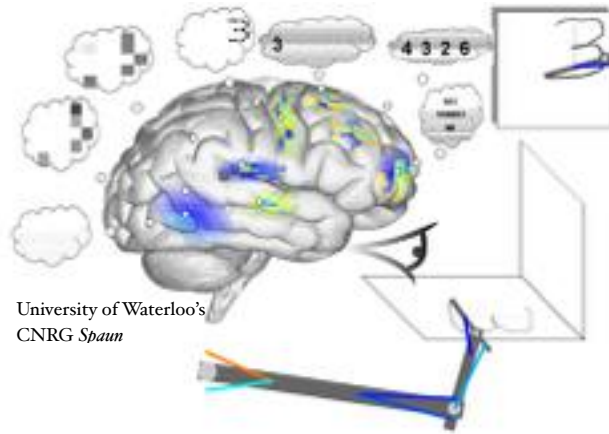
made with the instructor). *A late assignment will immediately be subject to a 10% penalty, with an additional 10% penalty leveled against that assignment's score for every 24 hours* it remains late. No make-ups will be offered for in-class quizzes or PsychLabs. However, only the 5 best quiz scores (out of 6) and 10 (out of 13) PsychLabs assignments will count. *The only extensions/make-up exams that will be granted involve documented cases of medical or family emergency.* Students requiring alternative testing or course accommodations (e.g., due to disability) should contact the instructor privately as early as possible after the first class meeting. g)Upholding academic integrity. Plagiarism (e.g., copying other's words or ideas without proper citation) will not be tolerated. You are expected to work independently on each graded assignment, unless explicitly instructed otherwise. When in doubt as to what constitutes plagiarism within the confines of this course, you are encouraged both to consult the student handbook (http://www.bard.edu/dosa/handbook/index.php?aid=1201&sid=705) and to contact the instructor for further guidance. There is absolutely no penalty for asking for clarification; however, failing to abide by Bard's standards for academic integrity can result in failing the course.

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Assessment Details

- **Quizzes** (*your top 5 quiz scores, each worth 30 points for 150 points total*) assessing comprehension of material covered previously (along with the associated readings) will be administered during class, with advanced warning. These quizzes are cumulative, though questions will be heavily weighted towards recently covered material. The reasoning for this is threefold. Repeated testing of studied information improves long-term retention (Karpicke & Roediger, 2008). The testing schedule promotes consistent and effective reading/study habits (Ruscio, 2001), along with regular class attendance. Moreover, the results of the quizzes will serve to highlight gaps in understanding that could benefit from additional attention in class, office hours, or during private study. In other words, these quizzes are designed to maximize your memory for course material. They are *not* designed to be punitive, lengthy, or particularly

picky/difficult, provided you've been keeping up with the readings and attending class. Only your 5 best quiz scores will count towards your grade (i.e., your worst quiz score will be completely ignored, including a quiz that may have been missed due to absence). No makeups for quizzes will be offered.

- **PsychLabs** *(10 out of 13, each worth 10 points for 100 points total)* give you the opportunity to explore your cognitive processing abilities/ biases through participation in illustrative experiments using an iPhone, iPad, or Android device.* After each lab, you will be asked to write a short report about the experience and submit it via Moodle. You will be required to complete at least 10 of the assigned labs, upload the results, and submit the brief (1-page max) report by the scheduled due date/time. While you may miss up to 3 PsychLab assignment deadlines without penalty, you are still responsible for understanding the design, methodology, results, and relevant conclusions from *all* assigned labs. They're all fair game on future exams/quizzes. For each of the 3 additional PsychLabs that you satisfactorily complete on time, you will receive 5 *extra credit* course points. Anonymized class data may be presented for illustrative purposes, but results will not be used for research purposes. *If you do not have access to a compatible device, just contact your instructor after class so that alternate arrangements can be made.*
    - To *register* for PsychLab:
        1. Download the free "Psych Lab 101" app on the App Store or Google Play Store.
        2. To get credit for completing the PsychLabs, provide the following information:
            a. Subject ID: **{enter your Bard email address without the @bard.edu}**
            b. Access Code (for Bard_CogPsych_F17 class): **B8YZV484**
    - To *complete* a PsychLab assignment:
        1. Open the Psych Lab 101 app.
        2. Tap on the assigned experiment. You may have to tap on the various category titles (e.g., Attention & Perception, Learning & Memory, etc.) to find the assigned experiment in the expanded lists.
        3. Read the experiment overview (this information will be useful for your summary).
        4. Click "Run" in the upper-right corner.
        5. Verify some information. There is no need to change the information in the "Configuration" field, as we will always be using the default. Double-check that your Class is listed as "Bard_CogPsych_F17" and your Subject ID is your Bard email address

(minus the @bard.edu). If you borrowed someone else's device to run the lab exercise, then tap "Modify" to change your Subject ID.

6. Tap "Start."

7. Follow the on-screen instructions. If you need to exit an experiment before it's completed (by touching the upper-left and lower-right corners of the screen simultaneously), your data will NOT be saved. You will need to re-run the lab to its completion for credit.

8. Once you've completed the experiment, your results will appear on the screen. Be sure to write down or Export (email yourself) the table of your results, as you will need that information when writing your report.

9. To receive credit, you must additionally tap "Upload" on the results screen. Doing so will upload the encrypted data and make it available for your instructor's verification. Before uploading, be sure to double-check that your Class and Subject ID are correct. If you borrowed someone else's device, just be sure to "Modify" these fields before uploading.

10. For further information, see:
    https://www.neurobs.com/menu_presentation/menu_teaching/student_instructions.

11. Write and submit (via Moodle) a one-page (max) report about the lab experience. While you are encouraged to draw from the in-app experiment overview, your textbook, and any reputable outside resources (which must be cited in your summary), you must write this report using your own words. Your report should include:

    a. A description of the predicted effect (e.g., "It is expected that participants will be faster/more accurate in Condition X than in Condition Y…")

    b. The theoretical basis for that prediction and any notable alternatives

    c. An overview of the experiment procedure (i.e., what was presented in the experiment, what did you have to do to respond?)

    d. A visual representation (graph) of your results that facilitates the relevant comparisons across critical conditions

    e. A statement about whether your results generally fit the expected pattern (and if not, at least one possible reason why not)

- **Exams** (3 *in-class exams, each worth 100 points for 300 points in total*) may involve a combination of multiple-choice, matching, fill-in-the-blank, and short-answer questions. Not only will you be responsible for demonstrating your mastery of the core terminology and concepts introduced during class, experiment demonstrations, and in the readings, you will be

asked to apply this learning to draw sound conclusions from (and highlight limitations of) sample experiments/data using your understanding of relevant theories/models of human cognition. The second exam will assess your handling of material introduced after the first exam. The third (final) exam will be cumulative, with a particular emphasis on topics introduced after the second exam. Study guides will be posted on Moodle in advance of each exam.

- **Cognitive Training Project** (*150 points in total*) starts with a group proposal for a training regimen designed to improve a specific cognitive skill over a one-month period. Once approved by the instructor, you and your group of 1-2 other students will implement your protocol and track its specific and generalizable effects on <u>your</u> cognition. Your project will culminate with a group presentation and a written report (to be produced individually).
  - After first workshopping your proposal in class, each group of 2-3 students will submit a single written proposal to the instructor *(25 points)*. While this document need not be written as a polished research paper (i.e., bulleted outlines or flowcharts are acceptable), it should provide sufficient justification for your hypotheses and methodology (with a timeline) for the instructor to sign off on your project. Once your project has been approved (it may take a couple rounds of editing), you may begin implementing your protocol. It is up to you to stick to your protocol. Don't wait until the last minute to get started!
  - Towards the end of the semester, each group will present *(25 points)* their training protocol and preliminary findings to the class in the style of a 10-minute "infomercial" (with an additional 2 minutes reserved for questions and answers from the audience). Your infomercial should include the relevant background information about the targeted cognitive skill (including any previous training attempts in the literature), how you're measuring the skill before/during/after the training period, methodological limitations, and why the predicted improvements would be useful to the general public. Because of the strict time limit, *your presentations (in PowerPoint or Keynote format; if you created your presentation using Google Slides, you still must export your presentation to a compatible format) must be uploaded to Moodle in advance of the first class presentation session.*
  - Finally, each individual group member will submit *(100 points)* an independent research paper (8-10 double-spaced pages) that:
    - Builds a clear, logical case (based on prior literature) for your initial hypotheses.
    - Details the background (with relevant literature review), hypotheses, methodology, results, and conclusions of your training exercise (based on the evidence, would you recommend its widespread use?). Your grade will NOT depend on whether your regimen showed any specific or generalizable improvements. It's *absolutely fine* if you report a null result (or even one that goes in the opposite direction of your prediction). Your ability to carefully design, implement, summarize, and interpret the results of a thoughtful cognitive training/testing regimen is what will be assessed, as will your ability to display your results using effective graphs and tables.

- Follows APA style with a reference section and page numbers, uses a 10- or 12-point font with reasonable margins, and is carefully checked for proper spelling and grammar.
- Went through an *initial rough-draft stage*, submitted to the instructor on the specified date (see course schedule below) for feedback. Failure to turn in the draft or a clear lack of effort will negatively impact your overall grade for the final paper.

- **Participation** (*50 points in total*) and, more broadly, efforts to promote a dynamic consideration of course material is desirable for many reasons, including the depth and durability of your appreciation for the information (Bjork, 1994). What's more, your input may simultaneously benefit your peers' understanding and the instructor's ability to identify topics that require additional attention. While the bulk of your course grade will be dependent on exams and formal assignments, your contributions to class discussions and activities will also be evaluated in terms of both quality and quantity (remember: all students should be given both the opportunity to contribute and respectful consideration of their questions/comments). The instructor recognizes that not all students feel comfortable (at least initially) raising questions/ points of discussion in class. For this reason, participation online (using Moodle's forum feature) will also be considered. If you participate online, your identity should, at the very least, be made visible to the instructor in order for you to receive credit. Please bring materials assigned to have been read (e.g., textbook and/or printouts) to that day's class meeting unless instructed otherwise, as they may be required for certain activities. Excessive absences will hurt your participation grade and, likely, your overall performance.

- **More Extra Credit** Over the course of the semester, there will be a number of psychology-sponsored colloquia (see http://psychology.bard.edu and posters for dates and locations). Attending these talks is a great way to hear from interesting people in the field of psychology (and mingle over some snacks afterwards). It is also a way of earning up to 10 extra course points. To receive credit, attend a talk and submit one original question you would have for the speaker (it can't be a question someone else in the audience asked) to Moodle *within 48 hours of the talk* (see the "Extra Credit Submissions" link at the top of our Moodle site). Attendance and question submission will earn you a total of 5 course points for each talk up to the maximum.

Planning

Take the time to review all the deadlines and scheduled quiz/exam dates below. Transfer them to your personal calendar immediately. Doing so will help you avoid scheduling conflicts and allow you to carve out the necessary time to perform your best. Remember, the only extensions/make-up exams that will be granted involve documented cases of medical or family emergency.

Tentative Course Schedule

Date (day)	#	Topic for Class | Assignments
9/6 *(w)*	1	**How can you do well in this course (& improve your cognition, generally)?** • In-class reading: Putnam, Sungkhasettee, & Roediger (2016) • After class: Get your textbook & register for PsychLab
9/8 *(f)*	2	**How did we get here?** • Have read: 　• Chapter 1 (text, *"What Is Cognitive Psychology?"* -- also available on Moodle) ✦In-class demos: Simple & Choice Reaction Time *(don't count for required PsychLabs)*
9/13 *(w)*	3	**What does the brain have to say (part 1)?** • Have read: 　• Chapter 2 (text, *"The Brain and Cognition"* -- also available on Moodle)
9/15 *(f)*	4	**What does the brain have to say (part 2)?** ◉PsychLab (Berg's Card Sorting Task) submitted before class begins ‣ In-class quiz
9/20 *(w)*	5	**Do I have your attention now?** • Have read: 　• Chapter 3 (text, *"Attention"* -- also available on Moodle) ◉PsychLab (Visual Search) submitted before class begins
9/22 *(f)*	6	**So you think you can multitask?** • Have read: 　• Strayer & Johnston (2001, Psychological Science) 　• Conway et al. (2001, Psychonomic Bulletin & Review) ◉PsychLab (Flanker Compatibility Task) submitted before class begins ✦In-class workshop: Reading empirical articles (e.g., Conway et al.) using QALMRI
9/27 *(w)*	7	**Putting vision into action** • Have read: 　• Chapter 4, pp. 84-105 (text, *"Pattern Recognition"*) ◉PsychLab (AX-CPT) submitted before class begins ‣ In-class quiz
9/29 *(f)*	8	**Let's see how this goes: visual processing in the brain** • Have read: 　• Chapter 4, pp. 106-111 (text, *"Pattern Recognition"*) 　• Stephan & Caine (2009, Brain and Cognition) ◉PsychLab (Global Precedence) submitted before class begins ‣ After class: Course feedback survey (online, anonymous)
10/4 *(w)*	9	**Exam #1 review** ✦Overview of survey results ✦Primer on APA style & "Visual Display of Quantitative Information"

Date (day)	#	Topic for Class | Assignments
10/6 *(f)*	10	**Exam #1**

10/11 *(w)*	11	**Does practice make perfect?**
		• Have read:
		  • Yong (2016, The Atlantic)
		  • Unsworth et al. (2015, Psychological Science) *...let the games begin...*
		  • Green et al. (2017, Psychological Science) *...a critique of Unsworth et al...*
		  • Redick et al. (2017, Psychological Science) *...a reply to the critique.*
		✦Cognitive-training assignment discussed in detail

10/13 *(f)*	12	**Cognitive training workshop/discussion** • Have consulted: • At least 2 additional background readings for your brain-training project (many possibilities have been made available on Moodle) ◉PsychLab (Dual N-Back) submitted before class begins
10/18 *(w)*	13	**Memory, in short** • Have read: • Chapter 5 (text, *"Short-Term Memory and Working Memory"*) ◉PsychLab (Visual Patterns Test) submitted before class begins • Written training proposal (one for each group) due today (by 6:00pm via Moodle)

10/20 *(f)*	14	**Long-term storage available (act now)!**
		• Have read:
		  • Chapter 6, pp. 150-167 (text, *"Long-Term Memory"*)
		  • Polyn et al. (2005, Science)
		◉PsychLab (Match to Sample) submitted before class begins
		✦In-class demo: Serial position effect

10/25 *(w)*	15	**Remember to...**
		• Have read:
		  • Chapter 6, pp. 168-182 (text, *"Long-Term Memory"*)
		  • Dismukes (2012, Current Directions in Psychological Science)
		‣ In-class quiz
		◉PsychLab (Mackworth Clock Test) submitted before class begins

10/27 *(f)*	16	**The seven sins of memory**
		• Have read:
		  • Chapter 6, pp. 182-190 (text, *"Long-Term Memory"*)
		  • Loftus & Palmer (1974)

11/1 *(w)*	17	**Conceptually speaking...** • Have read • Chapter 7 (text, *"Knowledge"*) ◉PsychLab (Stereotype Priming) submitted before class begins ‣ In-class quiz

Date (day)	#	Topic for Class | Assignments
11/3 *(f)*	18	**Imagine that!** • Have read: • Chapter 8 (text, *"Imagery: Special Representations in Memory"*)
11/8 *(w)*	19	**Exam #2 Review**
11/10 *(f)*	20	**Exam #2**
11/15 *(w)*	21	**Baby talk** • Have read: • Chapter 9 (text, *"Language: A Cognitive Universal"*) ◉ PsychLab (Pitch Memory) submitted before class begins
11/17 *(f)*	22	**Read my lips** • Have read: • Chapter 10 (text, *"Language and Cognitive Processing"*) ◉ PsychLab (Dual Lexical Decision) submitted before class begins ‣ In-class quiz
11/22 *(w)*	23	**Cogito ergo sum**
11/24 *(f)*	--	**No class (Thanksgiving Recess)**
11/29 *(w)*	24	**Houston, we've got a problem** • Have read: • Chapter 11 (text, *"Solving Problems"*) • Cognitive-training rough draft due today (by 6:00pm via Moodle)
12/1 *(f)*	25	**Cognitive shortcuts: the good, the bad, & the ugly** • Have read: • Chapter 13 (text, *"Decision Making"*) ◉ PsychLab (Iowa Gambling Task) submitted before class begins ‣ In-class quiz
12/6 *(w)*	26	**Group cognitive-training presentations (part 1)**
12/8 *(f)*	27	**Group cognitive-training presentations (part 2)**
12/13 *(w)*	--	**No class/office hours (Advising Day)**
12/15 *(f)*	--	**No class/office hours (Psychology Board Day)**
12/20 *(w)*	28	**Exam #3**
12/22 *(f)*	--	**No class (Have a Great Break!)** • Cognitive-training paper due today (by 6:00pm via Moodle)

Schedule is subject to change to improve pacing and/or accommodate unforeseen events (e.g., severe weather). For planning purposes, every effort will be made to maintain scheduled exam and due dates.