

PSYCH456 Advanced Cognitive Psychology

Spring 2017

**Department of Psychology
Pennsylvania State University**

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Course Overview

This course introduces advanced topics in cognition, with a particular focus on the interdisciplinary study of the cognitive neuroscience of language. In this course we examine fundamental questions about how the brain supports the mind in the domains of human language use, representation, and acquisition. Specifically, we ask questions about how the brain stores words, processes sentences, understands text, and how injuries to the brain may lead to language and communication disorders. The course also presents an overview of human neuroanatomy, and the methods that cognitive neuroscientists use to study the human brain. The course aims at engaging students in critical and broad conceptual thinking of interdisciplinary perspectives on cognitive and brain processes, and serves to provide a foundation for further advanced studies of key questions about the mind and the brain.

Objectives

1. To promote critical thinking and analytic skills in core issues in human cognition
2. To examine contemporary neurocognitive perspectives, methods, & approaches
3. To engage students in a broad conceptual thinking of interdisciplinary research

These objectives are achieved through students' active involvement in class discussion, reading assignments, presentation, exams, quizzes, and term papers

Pre-requisites

PSYCH 100, and six additional psych credits

Textbooks

Kemmerer, D. (2015). *Cognitive Neuroscience of Language*. Psychology Press.
(<http://www.psypress.com/cw/kemmerer>)

Academic Integrity

Penn State defines academic integrity as the pursuit of scholarly activity in an open, honest and responsible manner. All students should act with personal integrity, respect others dignity, rights and property, and help create and maintain an environment in which all can succeed through the fruits of their efforts (Faculty Senate Policy 49-20). Sanctions for academic misconduct can include a grade of F for the course as well as other penalties.

Students are responsible for maintaining academic integrity. Violations include cheating on exams, talking to others during exams, looking at another student's test materials or answers during an exam, removing exams from the classroom without consent from the instructor, plagiarizing (do not copy from someone else!), and dishonesty in any aspect of course participation. When you complete assignments, remember the ABCs to avoid plagiarism: Always place copied information within quotation marks, include information about the quoted or paraphrased source in a Bibliography, and Cite the source in the body (in the text) of your paper immediately after the quoted or paraphrased information. Although I encourage you to discuss your ideas with others, you may not work with/collaborate with others when you complete assignments without the permission of the instructor. This includes online authors and tutors, known or unknown. Please do your own work.

Students Resources

Penn State welcomes students with disabilities into the University's educational programs. Please refer to the information provided by Student Disability Resources (SDR) at <http://equity.psu.edu/student-disability-resources/> for information about the procedures required to obtain reasonable accommodations in this course. Students should discuss SDR-approved accommodations with their instructor as early in the semester as possible, even if they have taken another course with the instructor. Please note: students are not required to provide their instructor with information about the nature of their condition. Penn State students are also welcome to contact other units for assistance with personal concerns that interfere with academic progress, including: Counseling and Psychological Services (CAPS; <http://studentaffairs.psu.edu/counseling/>), the Office of Student Affairs (<http://studentaffairs.psu.edu/>), Career Services (<http://studentaffairs.psu.edu/career/>), the Center for Women Students (<http://studentaffairs.psu.edu/womenscenter/>), the LGBTQA Student Resource Center (<http://studentaffairs.psu.edu/lgbtqa/>), the Office of Sexual Misconduct Prevention and Response (<http://titleix.psu.edu/>), Penn State Educational Equity (<http://equity.psu.edu/>), the Multicultural Resource Center (<http://equity.psu.edu/mrc/>), and University Health Services (<http://studentaffairs.psu.edu/health/>).

Penn State is committed to fostering diversity by offering a welcoming and supportive environment for its students, faculty, and staff by respecting differences in age, culture, gender, gender expression, race, ethnicity, national origin, physical ability and presentation, sexual orientation, and religious affiliation.

Evaluation and Grading

There are several components with which students' performance in this course will be evaluated, as reflected by the following proportional weighting (in points):

| | | <u>Due Date</u> |
|---------------------|----|-----------------|
| Class Participation | 12 | None |
| Class Presentation | 13 | to be scheduled |
| Quiz One | 10 | Jan. 26 |
| Quiz Two | 10 | Feb. 16 |
| Quiz Three | 10 | Mar. 2 |
| Mid-term Paper | 15 | Apr. 4 |
| Quiz Four | 10 | Apr. 18 |
| Final Exam | 20 | to be scheduled |

Active **class participation** is expected of every student, and is defined as coming to class, doing the reading, critical thinking, and preparing for class discussion. The University policy recognizes that on occasion, students may opt to miss a class meeting in order to participate in a regularly scheduled university-approved curricular or extracurricular activity, or due to unavoidable or other legitimate circumstances such as illness, injury, family emergency, or religious observance. However, continued absences without reason will lead to a reduced grade or failure to pass. Whenever possible, a student should submit a class absence form one week in advance (<http://www.psu.edu/oue/aappm/classabs.pdf>).

A 40-min class period will be reserved for **class presentation**, with each presentation of 1-2 students (depending on final size of class) presenting discussions on selected research topics. The objective of this presentation is to help you with the development of your independent research ability, your oral presentation skills, and your integration of primary research materials. For each presentation, two key articles (not the textbook chapters) should be prepared by the student or the group presenters and distributed to the class a week before the presentation (through Canvas). Each student or group should also prepare a list of three questions for discussion and these questions should be distributed to the class before the presentation. These questions should serve to excite other students about your topic and facilitate further thinking and stimulate discussion. The student(s) should present for no more than 30 minutes, and the remaining time will be used for class discussion. The presentation may also be intermingled with discussions, depending on the topic and questions arising.

Note that your presentation does not have to come in one form, and could take a combination of the following formats: (a) standard conference-style presentation; (b) demo of experiment procedures, analyses of data, use of a piece of software or analytic tool; (c) discussion of a recent hot paper picked up by the media, and (d) debate between opposing views. In each case, the presenter is required to research the relevant literature on the selected topic. The instructor will serve to facilitate the discussion and provide pointers to important issues (the instructor will not directly intervene with either the student's research process or the presentation itself). The presentation will be evaluated with respect to the importance of the topic, the clarity of the presentation, and the quality

of the presenters' independent research work.

Given the diverse topics covered in the course, students should avoid presenting on exactly the same topic (although each student could highlight a different aspect of the same general topic). Please also note the relevant rules under the *Academic Integrity* section. In addition, the student should take the presentation topic as a starting point for the **Mid-term paper**. This paper should be a theoretical discussion of a relevant issue, providing your own views and analyses of controversies in the literature, or your evaluation of a specific problem that exists in previous studies. For students who present later in the semester, the Mid-term paper could also guide the preparation of the presentation. In both the presentation and the paper, key references should be provided. The length of the paper should be between 10-15 pages, double-spaced.

Before submitting the paper, please ensure that you adhere to the APA Publication Manual's guidelines in formatting, use of levels of headings, and reference citation. You will not have Method and Result sections, but will have Title Page, Abstract, Introduction, Discussion, and Reference sections. See the website for examples: <http://www.personal.psu.edu/pul8/teaching/psy200/apastyle/apastyle.html>

You can also consult the following book for clear writing:
<http://onlinelibrary.wiley.com.ezaccess.libraries.psu.edu/book/10.1002/9781118431108>

Important: Please ensure that your Mid-term paper is a written product of your own work and before submitting it to the Instructor, use (<http://turnitin.psu.edu/>) to check it for potential plagiarism.

There will be four **quizzes** throughout the term designed to test your basic knowledge and understanding of basic concepts and principles. These quizzes will come in the form of multiple choices, filling the blanks, and correction of inaccurate statements. There will be one **final exam**. The exam will consist of multiple choices, fill-in blanks, corrections of inaccurate statements, short essay questions, and a long essay question.

(For Graduate Students who are taking the course for credits, they will also additionally write a **research proposal**, which requires a concrete plan for an experimental study. Although the proposed experiment will not be carried out, the research plan should be technically sound and theoretically relevant. This proposal should be based on one of the primary methodologies used in cognitive neuroscience discussed in the course. In preparing for this proposal, you should think as if you were preparing a grant application (e.g., design an experiment to address a particular hypothesis, complete with controls and a discussion of feasibility, and the use of tables or figures to highlight key design, prediction, and analysis issues). This proposal can also be based on your presentation topic.)

Extra Credits: You may earn up to 10 points extra credits by participating in one or both types of events: (1) Attending lectures on topics related to cognitive neuroscience and language science. Students in this class are strongly encouraged to attend the lectures given at the Penn State Center for Brain, Behavior, and Cognition (<http://cbbc.psu.edu/events>) bi-weekly colloquium series, the weekly Neuroscience Seminar (<http://www.huck.psu.edu/content/events/upcoming/neuroscience-seminars>), and the weekly Center for Language Science (<http://cls.psu.edu>) seminars. You may get ideas for your term papers or presentation topics from the talks presented there. You may earn 5 points for each lecture you attend. You will be required to write a one-page summary

describing the main points of the lecture, to be handed in to the TA or instructor within one week after the lecture. (2) Participating in a related cognitive experiment. Penn State has an active community of researchers who are engaged in cognitive neuroscience and language science research, and they often have opportunities for students to participate in their studies. You may earn 5 points for each experiment you take part in. Discuss whether your planned participation is qualified for this purpose with the instructor or the TA in advance. Note: no more than a total of 10 points may be earned for the extra credits.

Reading Material

The main reading material will be chapters from the textbook on Page 1. The instructor may assign additional empirical or theoretical articles during the course when appropriate. Announcements of additional reading will be made at the beginning of class on Tuesdays each week.

Use of Electronic Devices

Please turn off your cell phone before the class. Ringing of your cell phone will be a big distraction and it disrupts your class participation, and is disrespectful for other students, the instructor, and the TA. However, you can use computers and other electronic/mobile devices (e.g., iPad, kindle, etc.) when engaged in activities related to the class (e.g., looking at the articles and graphs, taking notes, etc.).

Questions and Contact

If you have a question for which you would like to get a quick response from the instructor, the best way is to send an email. Remember to send your email directly to pul8@psu.edu or pingpsu@gmail.com or sbwinter1@gmail.com.

Course Schedule

| <u>Week</u> | <u>Topic</u> | <u>Reading*</u> |
|-------------|---------------------------------|----------------------|
| 1/10 | Course overview | Ch.1 |
| 1/17 | Exploring the brain | Ch.1 |
| 1/24 | Brain mapping methods I | Ch.2 |
| | (Quiz One; Jan. 26) | |
| 1/31 | Brain mapping methods II | Ch.2 |
| 2/7 | Second language & bilingualism | Li etal, Costa etal. |
| 2/14 | Aphasia | Ch.3-4 |
| | (Quiz Two; Feb. 16) | |
| 2/21 | Speech perception | Ch.5 |
| 2/28 | Speech production | Ch.6 |
| | (Quiz Three; Mar. 2) | |
| 3/5 | Spring break; no class | |
| 3/14 | Prosody | Ch.7 |
| 3/21 | Reading and writing | Ch.8 |
| 3/28 | Meanings of words I | Ch.10-11 |
| 4/4 | Meanings of words II | Ch.12 |
| | (Mid-term Paper; Apr. 4) | |
| 4/11 | Morphological processing | Ch.13 |
| 4/18 | Sentence comprehension | Ch.15 |
| | (Quiz Four; Apr. 18) | |
| 4/25 | Reading comprehension | Ch.16 |
| | (Final Exam; TBD) | |

* All readings are based on chapters of the textbook. Supplementary or other readings will be announced.