

Psy 803: Higher Order Cognitive Processes (Spring 2021)

Time: Tuesdays, 12:40pm-3:30pm, via Zoom

Zoom link: <https://msu.zoom.us/j/96508939697> (passcode PSY803)

Instructor: Dr. Erik Altmann (ema@msu.edu)

Office hours:

Open office hours for general questions and discussion are Fridays 1:00pm-3:00pm.
Required preparation meetings are by appointment.

Course website: "SS21-PSY-803-001 - High Order Cognitive Processes" on D2L

Required readings:

Anderson, J. R. *Cognitive Psychology and its Implications* (8th or 9th ed.), Worth
Research articles posted on the course website

Assessment:

20% class participation (attendance, contributions to class discussion)

20% weekly assignments (quizzes, article evaluations)

20% presentation of research article (including preparation meeting)

40% final project (preparation meeting(s), class presentation, and paper)

Objectives and organization

The course will survey foundational behavioral research on problem solving, reasoning, judgment and decision making, and language. You will gain broad exposure to research in these areas and in-depth experience evaluating, presenting, and discussing representative research.

Textbook readings will provide broad exposure to relevant research. Class time will be reserved for discussion of representative research articles and student projects, led by students. Preparation meetings with me outside of class will help you get ready for presentations and plan your final project.

The semester will have three phases. Classes 1-2 will be a quick look at basic cognitive constructs. Classes 3-7 will involve weekly reading assignments, student presentations of research articles, and quizzes. Classes 8-12 will be student presentations of final projects.

Weekly assignments for classes 3-7

Quizzes on book chapters

Each of classes 3-7 will start with a quiz on the book chapter for that class (see the class schedule, below). Quiz questions will be short-answer and will sample material from throughout the chapter.

Article evaluations

For each of classes 3-7, you will write a brief evaluative comment for each article to be presented that day. The purpose of this assignment is to get practice thinking analytically about cognitive research at an advanced level and to ensure that everyone has read the paper and is ready to contribute to class discussion.

All your comments for a given class should fit on one side of one hardcopy page. The document with your comments is due by the start of class, via upload to D2L. If you are presenting that day, your comments on the article(s) you are presenting should be incorporated in your presentation as well as the document you submit.

Your comments should address specific technical aspects of the article you are evaluating, in the manner of a peer review of a manuscript. Unlike a peer review, however, your comments need not be comprehensive; they should be limited to one or two carefully articulated points that you think are most relevant.

Possible ways to approach an evaluation include, but are not limited to, assessing:

Internal validity: Identify a real or potential confounding variable and indicate how it could alter or undermine the authors' conclusions or interpretation of results.

External validity: Suggest specific ways in which the study generalizes, or would fail to generalize, to some target situation, such as a real-world task or a different research or application domain that you are familiar with.

Construct validity: Give an alternative interpretation of a theoretical construct, behavioral measure, or empirical pattern.

Clarity and precision: Identify ambiguity or vagueness in assumptions, definitions, or inferences, and state the relevance to understanding the study or interpreting the results.

Open questions: Identify a question raised or left open by the study and indicate why it is interesting or how you could address it in follow-up research.

Your comments should engage with the details of the study rather than make generic or superficial criticisms. For example, it's easy to criticize a study for lack of generalizability (external validity), but a successful form of this kind of critique will propose a specific target situation or population that the results may not transfer to, and explain the underlying reasoning.

You will likely find yourself referring to specific claims or passages in the research articles you are commenting on. Please include page, figure, or other references that will help me find them when I am reading your comments.

Presentation of research article(s)

Each of you will give a presentation in class on either one longer or two shorter articles. This presentation is an opportunity for you to develop an in-depth understanding of representative research, to the point of being the local authority, and for the class to come away with a clear understanding of the main findings, insights into subtleties and limitations and related work, and, ideally, ideas for follow-up research.

I have assigned articles and presentation dates and posted them on the course website. You may switch assignments with a classmate (a class roster is posted on the course website), but must confirm the switch with me.

You must meet with me the week before your presentation and bring a draft of your slides to the meeting. It is your responsibility to contact me to set up the appointment.

Your presentation should describe the research question, methods, major or most relevant results, how the study is cited in the textbook (if it is), and your evaluation as reflected in your written comments for that day. Note, however, that the studies we will read vary quite a bit, so the emphasis of your presentation will also vary, as we can discuss in our preparation meeting.

The time available for your presentation, including discussion, is one hour. Accordingly, you will need to monitor your time and may need to make time-management decisions on the fly, which is another important skill to practice.

Final project

Each of you will develop a final project, present it to the class, and write it up as a paper. There are two different approaches you can take. The first is to develop a research proposal, and thereby gain experience generating a research question and a plan to address it. For example, your question might be based on the article you presented, which would leverage your investment in that, or you might find a way to study higher order cognitive processes in context of your own research. The second approach is to conduct an in-depth and synthetic review of results in a domain we encountered in the course, and thereby develop broad familiarity with an area you are especially interested in.

You must meet with me to discuss your project and have it approved no later than four weeks before your presentation. It often takes more than one meeting to converge on a topic and plan, so the earlier we meet the better. Starting with fairly general ideas is fine; we can refine them in our conversation. It is your responsibility to contact me to set up an appointment.

Presentations will be in classes 8-12 according to a schedule posted on the course website. You may switch slots with a classmate, but must confirm the switch with me. The time available for presentation plus questions and discussion is one hour.

Your final paper for the project should incorporate feedback generated by the presentation. Papers for a research proposal should be 10 to 15 pages and for a synthetic review should be 15 to 20 pages, in a format approximating APA (12-point font, double-spaced). Papers are due via upload to D2L by 5pm on Tuesday, April 27.

Class schedule

<i>Class</i>	<i>Date</i>	<i>Topic</i>
1	19-Jan	Introduction, basic constructs
2	26-Jan	Basic constructs
3	2-Feb	Ch. 8, Problem solving
4	9-Feb	Ch. 9, Expertise
5	16-Feb	Ch. 10, Reasoning
6	23-Feb	Ch. 11, Judgment and decision making
	<i>2-Mar</i>	<i>Break day - no class</i>
7	9-Mar	Ch. 12, Language structure
8	16-Mar	Project presentations
9	23-Mar	Project presentations
10	30-Mar	Project presentations
11	6-Apr	Project presentations
12	13-Apr	Project presentations
13	20-Apr	Special topics
	27-Apr	Project paper due (5pm)