Psy 802: Basic Cognitive Processes (Spring 2016)

Time and place: 119 Psychology Building, Thursdays 12:40-3:30pm

Instructor: Dr. Erik Altmann (ema@msu.edu, Psychology 298A)

Office hours:

Walk-in hours for general questions will be Wednesdays 1:00pm-3:00pm. Required meetings (see below) are by appointment.

Course website: Link at msu.edu/~ema

Required readings:

Anderson, J. R. *Cognitive Psychology and its Implications* (7th or 8th ed.), Worth.

Research articles posted on the article reading list on the course website

Assessment:

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

20% weekly assignments

20% presentation of research article (including the meeting beforehand)

40% research proposal (planning meetings, class presentation, and paper)

Course objectives

The course will survey behavioral research on perception, attention, knowledge representation, and memory, with an emphasis on critical evaluation of experimental design, empirical results, and theoretical inference. Students will gain in-depth experience evaluating, presenting, and developing ideas for cognitive research.

Class format

Classes 1-2 will involve preliminary material. Classes 3-8 will involve weekly assignments and student presentations of research articles. Class 9 will address special topics. Classes 10-15 will be student presentations of research proposals.

Class participation

The class is organized as a structured seminar in which class participation will play a central role. The weekly homework assignments are in part devices to make sure everyone is prepared to contribute to class discussion, but ultimately each of you is responsible for engaging with the material and making your questions, insights, and comments known.

Use of computers, tablets, smartphones, and similar devices during class is a distraction for the user and a slight to the person presenting, and is not permitted.
Weekly assignments

Quizzes on book chapters

Classes 3-8 will each start with a quiz on the book chapter for that class (see the Class Schedule, below). Questions will be short-answer and will sample material from throughout the chapter.

Article evaluations

In preparation for each of Classes 3-8, you will write a brief evaluative comment ("evaluation") for each article to be presented that day. Your evaluations should fit on one page, which you will hand in at the start of class. If you are presenting that day (see below), integrate your evaluation for each article you are presenting into your presentation.

Each evaluation should accomplish one or more of the following goals:

1. Identify a real or potential confound and indicate how it could change the authors’ conclusions or interpretation of results.
2. Assess how well the study generalizes to some target situation, activity, or human condition, indicating specific characteristics of the study that match or mismatch.
3. Draw connections between the study and other research or application domains, identifying implications in one or both directions.
4. Give an alternative interpretation of behavioral measures or empirical patterns in the study.
5. Identify assumptions, operational definitions, or theoretical inferences that are unclear or otherwise problematic, and indicate how they are unclear or what the problem is.
6. Identify a theoretical or empirical question raised or left open by the study, indicate why this question is interesting, and sketch how you could address it or why this would be difficult.

In general, a good evaluation, whether it achieves one of these goals or another, will involve some kind of constructive insight related to specific details of the study. For example, it is not enough to note that a sample is limited to college-age undergraduates and therefore might not generalize to other populations; you must indicate how a different sample could have changed the results, based on a specific if hypothetical interaction between the study design and population characteristics.

Presentation of research article

Each of you has been assigned either one longer or two shorter articles to present in class. Your article(s) and presentation dates are posted on the article reading list on the course website. You may switch assignments with a classmate, but must confirm the switch with me.

You must meet with me the week before your presentation to discuss a Powerpoint draft of your presentation, which you will bring to the meeting. It is your responsibility to contact me to set up an appointment.

The presentation, in its final form, should describe the rationale for the research, including relevant background work; describe the methods, including the sample, materials, and procedure as appropriate; present the major or most relevant results, using figures and if necessary plotting data from tables or the narrative; and identify conceptual and/or methodological limitations or issues left open. Depending on the article, some aspects of the background and method may be more important to emphasize than others.
In class, everyone will have read the articles for that day and therefore will be prepared to comment. The goal is for us to emerge from the presentation with a clear understanding of the main findings, as well as insights into subtleties and limitations of the method and results and ideas for follow-up questions and relationships to other work.

Research proposal

Each of you will develop a proposal for research, by designing two interrelated experiments to address a question that falls within the purview of the course. The proposed research must promise to further our understanding of cognitive mechanisms discussed in the course or in the textbook, or promise to use what we already know about these mechanisms to understand other behavioral phenomena in psychology or a related field. Further requirements for the proposal are posted on the course website.

Each of you must meet with me no later than the week of Class 8 to discuss your proposal and have a topic and plan approved. It is your responsibility to contact me to set up an appointment. It may take more than one meeting to converge on a topic and plan.

Each of you will present your proposal to the class, in a slot in one of Classes 10-15. I have randomly assigned presenters to slots in a schedule posted on the course website. You may switch slots with a classmate, but must confirm the switch with me.

Finally, you will submit a 10 to 15-page APA-format paper to me for grading. The paper should incorporate feedback generated by the class presentation. The paper is due Thursday, May 5 (a week after the last class) in hardcopy form.

Class schedule

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<th>Topic</th>
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<td>14-Jan</td>
<td>Introduction; Ch1. 1, History</td>
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<td>2</td>
<td>21-Jan</td>
<td>Ch. 1, Methods, brain</td>
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<td>Ch. 5, Knowledge representation</td>
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<td>25-Feb</td>
<td>Ch. 6, Memory - Encoding and storage</td>
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<td>Ch. 7, Memory - Retention and retrieval</td>
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<td>17-Mar</td>
<td>Special topics</td>
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