Psy 803: Higher Order Cognitive Processes (Spring 2019)

Time and place: 121 Baker Hall, Tuesdays 12:40pm-3:30pm

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

Office hours:

Walk-in hours for general questions are Mondays noon-2:00pm. Required preparation meetings 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 (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 structure and comprehension. 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 four phases. Classes 1-2 will be a quick look at basic cognitive constructs. Classes 3-8 will involve weekly reading assignments, quizzes, and student presentations of research articles. Classes 9-10 will be guest lectures from MSU faculty. Classes 11-15 will be student presentations of final projects.

Use of computers, tablets, smartphones, and similar devices during class 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. Questions will be short-answer and will sample material from throughout the chapter.
Article evaluations

For each of Classes 3-8, you will write one brief evaluative comment ("evaluation") for every article to be presented that day. The purpose of these evaluations is to give you practice thinking analytically about cognitive research at the graduate level, and will also help ensure that everyone has read the paper and is ready to contribute to class discussion.

Your set of evaluations for a class should fit on one side of one hardcopy page, which you will hand in at the start of class. If you are presenting that day, your evaluation of the article(s) you are presenting should be incorporated in your presentation.

An evaluation should make a specific technical comment about the study, as you would find in a peer review of a manuscript submitted for publication. Unlike a peer review, however, your evaluation need not be comprehensive; it can focus on just one or two carefully made points. 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 (including your own).

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 of this problem for understanding the study.

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.

Note that generic criticisms are not sufficient. For example, it is not enough to note that a sample of college-age undergraduates is not representative of other populations. A successful version of this critique might indicate how a different sample could have changed the results, based on a specific if hypothetical interaction of 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. This presentation is an opportunity for the presenter to develop an in-depth understanding of a representative study, 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 other work, and, ideally, ideas for follow-up research.

Your article(s) and presentation date 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, 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, and your evaluation. Note, however, that the studies we will read vary quite a bit, so your emphasis will also, as we can discuss in our meeting. The time available for presentation plus discussion is about one hour.
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 options. The first is to develop a research proposal, and thereby gain experience generating a 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 option 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 can take 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. It is your responsibility to contact me to set up an appointment.

Presentations will be in Classes 11-15, 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 about one hour.

The paper should incorporate feedback generated by the presentation. Research proposals should be 10 to 15 pages and synthetic reviews 15 to 20 pages, both in APA format. Papers are due via email to me by 5pm on Thursday, May 2.

Class schedule

<table>
<thead>
<tr>
<th>Class</th>
<th>Date</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10-Jan</td>
<td>Introduction, basic constructs</td>
</tr>
<tr>
<td>2</td>
<td>17-Jan</td>
<td>Basic constructs</td>
</tr>
<tr>
<td>3</td>
<td>22-Jan</td>
<td>Ch. 8, Problem solving</td>
</tr>
<tr>
<td>4</td>
<td>29-Jan</td>
<td>Ch. 9, Expertise</td>
</tr>
<tr>
<td>5</td>
<td>5-Feb</td>
<td>Ch. 10, Reasoning</td>
</tr>
<tr>
<td>6</td>
<td>12-Feb</td>
<td>Ch. 11, Judgment and decision making</td>
</tr>
<tr>
<td>7</td>
<td>19-Feb</td>
<td>Ch. 12, Language structure</td>
</tr>
<tr>
<td>8</td>
<td>26-Feb</td>
<td>Ch. 13, Language comprehension</td>
</tr>
<tr>
<td>9</td>
<td>12-Mar</td>
<td>Special topics</td>
</tr>
<tr>
<td>10</td>
<td>19-Mar</td>
<td>Special topics</td>
</tr>
<tr>
<td>11</td>
<td>26-Mar</td>
<td>Project presentations</td>
</tr>
<tr>
<td>12</td>
<td>2-Apr</td>
<td>Project presentations</td>
</tr>
<tr>
<td>13</td>
<td>9-Apr</td>
<td>Project presentations</td>
</tr>
<tr>
<td>14</td>
<td>16-Apr</td>
<td>Project presentations</td>
</tr>
<tr>
<td>15</td>
<td>23-Apr</td>
<td>Project presentations</td>
</tr>
<tr>
<td></td>
<td>2-May</td>
<td>Project paper due</td>
</tr>
</tbody>
</table>

Page 3 of 3