

Junior Capstone in Cognitive Psychology
Tuesday and Thursday 8:30-10:00; Olin 103

Instructors:

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Course Description:

This section of the Junior Capstone seminar focuses on cognitive and developmental projects. The structure should enable student participants to develop an effective proposal that sets them on the pathway to a successful comps project during the fall (and winter) of their senior year. The focus will be development of an effective research question, discussion and evaluation of supporting literature that informs the investigation, presentation of effective arguments that convey the merit of the proposal, detailed consideration of how the question is to be addressed (e.g., method or where the review goes), and finally communication of your ideas (both oral and written).

Course Objectives:

- To review and combine skills and knowledge acquired in the psychology major thus far.
- To develop expertise in a particular subfield of cognitive psychology.
- To develop an appropriately scoped research question and a possible approach to finding an answer.
- To practice effective communication of research hypotheses and support both orally and in written form.

Course Evaluation:

- 50% final proposal, 40% coursework, 10% class presentation

Course Schedule:

Thurs, 4/14: Group meeting – orientation; recommended tools

Tues, 4/19: Group meeting – exploring research topics

Thurs, 4/21: Group meeting – defining research questions

Friday, 4/22: Super Friday! Watch seniors present their comps projects

Tues, 4/26: Group meeting – organizing evidence and arguments

Wednesday, 4/27: **Submit outline**

Thurs, 4/28: Group meeting – peer review of outlines

Tues, 5/3: Individual meetings

Wednesday, 5/4: **Submit introduction rough draft 5/5**

Thurs, 5/15: Group meeting – peer review introductions

Tues, 5/10: Group meeting – methods, predictions and models

Thurs, 5/12: Individual meetings

Monday, 5/16: **Submit conclusions**

Tues, 5/17: Group meeting – peer review methods, predictions and models

Thurs, 5/19: Group meeting – discuss giving oral presentations

Sunday, 5/22: **Submit proposal draft**

Tues, 5/24: Individual meetings – review draft

Thurs, 5/26: Group meeting – presentations

Tues, 5/31: Super Tuesday!

Monday, 6/6, 5:00 pm: **Submit final draft of comps proposal**

Exploring research topics and identifying questions

I. Select a topic and identify primary sources (due Monday, 4/18)

You need to brainstorm a possible domain of research to explore for your Comps proposal. You will need to settle on a topic area very quickly so that you can get deeply into the literature in the next few weeks. While one of the criteria for comps is originality, that doesn't mean that your research questions need to establish new paradigms or change the face of the field of psychology; often the most interesting questions ask about small changes to existing theories or paradigms, which is original and also much more likely to work out.

Once you have a research topic, you need to **spend some time with PsychInfo, Web of Science, and primary sources to find more primary sources** that will be useful in thinking of an interesting question. If you get stuck, I recommend making an appointment to work with one of the professors or Ann Zawistoski on advanced search strategies. You should try to find and read 3-5 interesting and relevant articles or chapters by Tuesday. (This may require that you find and scan/skim through 10-15 to find 3-5 useful ones.) **Each student should (a) post an annotated bibliography to Moodle by 8pm the night before class. Each citation should include a full citation (in APA format) and a brief 1-2 sentence description of how the article relates to your project, and (b) include a .pdf of the most relevant article in your Moodle post.**

II. Article critiques: What makes research questions interesting? (due Tuesday, 4/19)

Readings (on Moodle): Sternberg & Gregorio chapter; Strayer article; Cooke article; one paper selected from your literature search.

Based on these readings, bring to class a brief set of written notes (approx. 1 page) to the following questions for class discussion:

- Did the author(s) identify an “interesting” hypothesis in the experimental articles? If yes, what makes it interesting and how did the author(s) convey those qualities to the reader? If no, what about the introduction made the hypothesis not interesting?
- What was the scope of the hypothesis, i.e., how broad is the research question?
- Why did the author(s) include the articles that they cited? How much detail did the author(s) include about each article they cited?
- What would be a logical extension of the research question?

III. Tuesday's Class (4/19)

In class on Tuesday, we will have a general discussion about selecting good and manageable hypotheses, the differences in structure of empirical and theoretical papers, and how professional articles make use of sources.

Introducing research questions

I. Continue to review the literature (due Wednesday, 4/20)

Any good research question is interesting because it has practical applications and/or theoretical implications. To demonstrate these applications or implications to your reader, you will need a sound grounding in the existing literature, referring to both theoretical notions and empirical findings.

This week, you need to find additional sources that will provide background and support for your proposed research question. Spend some more time with PsychInfo, Web of Science, and your primary sources to find additional sources in your research domain. You should try to find and read another 3-5 interesting and relevant articles or chapters by Thursday (again, this may require that you find and scan/skim through 10-15 to find 3-5 useful ones.) **Each student should post an annotated bibliography to Moodle before class.**

II. Refining a research question (due Thursday, 4/21)

Readings (on Moodle): Mitchell & Jolley (Research Design Explained, Chapter 2); Gamble & Walker article; Jerez-Fernandez article; one empirical article selected from your literature search.

Based on these readings, bring to class a brief set of written notes (approx. 1 page) to the following questions for class discussion. You can also consider the questions from Tuesday's class.

- What are the independent and dependent variables in each experiment?
- How does each of the empirical articles expand and build on existing theoretical models and empirical findings? What are the next logical research steps? What questions remained unanswered?
- What differences, if any, do you note in how the two types of papers (empirical and theoretical) introduced and addressed their research questions? What are some general principles for identifying and stating an interesting research question for these two types of papers?

Based on your preliminary research, consider what research questions might be interesting to propose. Write down a few potential versions of research questions that you could ask. Consider the scope of your project given your stated research question. Is that scope reasonable for a one-year project? Consider how you might frame and organize an argument in support of your research question in a short paper. Your paper would need to demonstrate *why* your research question is interesting practically or theoretically.

III. Thursday's class (4/21)

We will continue Tuesday's discussion about what makes a good and manageable research hypothesis.

IV. Attend SuperFriday and listen to senior comps talks (Friday, 4/22)

Organizing evidence and arguments

I. Continue to review the literature (due Monday, 4/25)

Continue to find additional sources that will provide background and support for your proposed research question. Select some key articles and do some citation chasing on Web of Science. You should try to find and read at least another 3-5 interesting and relevant articles or chapters by Thursday (again, this may require that you find and scan/skim through 10-15 to find 3-5 useful ones.) **Post annotated bibliography to Moodle before class.**

II. Marshalling evidence to support a thesis (Tuesday, 4/26)

Reading (on Moodle): Sternberg (Psychologists Companion, Chapters 2 & 3); review introductions of the Cooke, Strayer, Jerez-Fernandez, and Gamble articles; one article selected from your literature search.

Create a brief outline of the main arguments for your article. Consider the following:

- What is the thesis? For the empirical study, what are the hypothesis and the independent and dependent variables?
- Did the articles make use of the same organizing principles? If so, what were they? If not, how did the organization of the two articles differ?
- To what extent did the articles discuss the studies that they referred to?
- What role did the empirical data play in the overall argument of the empirical article?
- What kind of narrative story, if any, did the articles tell?

II. Tuesday's class (4/26)

In class, we will discuss strategies for organizing different types of arguments, including how to use sources effectively and how to form a coherent argument. We will explore specifically how articles create tension about the possible outcome and specify how they intend to resolve tension between competing explanations or hypotheses. We will look at this in the context of empirical and review articles. We will cover the rest of the Psychological Science introduction sections to gain an appreciation for how an effective research article's argument evolves. We will discuss the outline of arguments in the Psychological Science articles as well as in one article chosen by each of the participants (to be read by all).

Writing outlines

I. Continue to review the literature (due Wednesday, 4/27)

Continue to find additional sources that will provide background and support for your proposed research question. Select some key articles and do some citation chasing on Web of Science. You should try to find and read at least another 3-5 interesting and relevant articles or chapters by Tuesday (again, this may require that you find and scan/skim through 10-15 to find 3-5 useful ones.) **Post your annotated bibliography to Moodle before class.**

EndNote is a useful tool for organizing your primary sources and for applying APA style for citations and references in your final document. If you are not familiar with EndNote, this is a good opportunity to check it out.

II. Introducing your research question (due Wednesday, 4/27, 8pm)

Each group or individual should write a 1 page (double-spaced) outline, introducing your research area, reviewing relevant prior work, and stating the specific question you plan to address. You may end up not using all of the primary sources that you've found thus far, and you shouldn't feel that you need to. As you write, consider the four questions Sternberg (2003) suggests an introduction needs to address:

1. What previous research led to your research?
2. What does your research add to this previous research?
3. Why is the addition made by your research important or interesting?
4. How is the addition made?

This outline doesn't commit you to anything yet, but it should be a first shot at trying to organize your material. Try to organize your argument around main ideas rather than around individual studies or articles that you have. You should include a clear statement of your research question at the end of your outline. **Post the outline to Moodle by 8pm Wednesday evening.** Include an APA style reference section.

III. Peer review of outlines (due Thursday, 4/28)

We'll spend class time doing peer review on the outlines. **Please read through each one before class and bring a set of written notes.** Think about the organization of papers that we have read thus far and focus on high-level organization in your comments. Some specific questions to consider while doing the peer review:

- Does the topic catch your interest? Does the structure demonstrate relevance of the thesis to an understandable problem?
- Does the outline indicate what some of the main arguments of the paper will be?
- Is it clear how the ideas presented in the outline are related?

Writing an introductory paragraph

I. Individual meetings with Mija, Adam, or comps advisor (Tuesday, 5/3)

II. Continue to review the literature due Wednesday, 5/4)

Continue to find additional sources that will provide background and support for your proposed research question. Select some key articles and do some citation chasing on Web of Science. You should try to find and read at least another 3-5 interesting and relevant articles or chapters by Tuesday (again, this may require that you find and scan/skim through 10-15 to find 3-5 useful ones.) **Post annotated bibliography to Moodle before class.**

III. Outlining support for your research question (due Wednesday, 5/4, 8pm)

Decide on a research question. Draft an introduction that demonstrates how this research question is interesting, considering which theories and empirical evidence support your question. Use your introduction outline and the feedback you received on it to structure the document. It may be helpful to revisit the Sternberg chapters.

If you are proposing an empirical or applied project, start considering your study design or project implementation details.

Post your introduction to Moodle by 8pm Wednesday evening.

III. Peer review of introductions (due Thursday, 5/7)

We'll spend class time doing peer review on the introductions. **Please read through every intro before class and be prepared to give feedback on it. Bring a set of written notes for each; you can use the rubric that is attached.** Focus more on high-level organizational comments rather than on specific details of the writing.

Testing and supporting theories

I. Review your literature and expand your introduction

You should have a good number of resources to pull from at this point. Feel free to investigate relevant new topics as they arise from your outline, argument structure, or methodological design. Revise your outline, as appropriate, and flesh out and revise the writing in the introduction.

II. Marshaling evidence to support a thesis (due Tuesday, 5/10)

Readings (on Moodle): Spellman et al. chapter; review introductions and discussions of the Cooke, Strayer, Jerez-Fernandez, and Gamble articles; one article selected from your literature search.

Based on these readings, bring to class a brief set of written notes (approx. 1 page) addressing the following questions.

- What is the thesis? What are the hypotheses and the independent and dependent variables?
- How did the authors establish a theoretical framework?
- How did the theoretical framework lead to predictions?
- How are those predictions then tested by the methods used (not all studies use methods that test their hypotheses thoroughly)?

III. Tuesday's class (5/10)

In class, we will discuss strategies for designing experiments and making informed predictions. We will also discuss how theoretical papers also make use of a theoretical framework to make predictions and potentially test them with existing, published findings.

IV. Individual meetings with Mija or comps advisor (Thursday, 5/12)

Making predictions and proposing theories

I. Review your literature

You should have a good number of resources to pull from at this point. If you want to find additional sources at this point, don't. Jot down notes for any additional topics to research somewhere safe; you can pursue these in the summer, fall, or winter. Finish writing and revising the introduction.

II. Proposing theories and making predictions (due Monday, 5/16)

If you are proposing an empirical or applied project, consider your study design or project implementation details. If you are proposing a library research paper, consider what you plan on finishing this term and what you propose to do in the fall and/or winter terms. In either case, you should have a strong theoretical basis for either your study or your proposed organization of published research.

Write 2-3 pages that will be at the end of your proposal. This would include: predictions, methods, models, applied projects, etc. You should include a brief reminder for the reader of the critical points raised in the introduction and pull together these critical points into a coherent whole that leads to your thesis, method and predictions. **Post your writing to Moodle by 8pm Monday evening.**

III. Peer review of methods (due Tuesday, 5/17)

We'll spend class time doing peer review on the writing. **Please read through every methods section before class and be prepared to give feedback on it. Bring a set of written notes for each.**

Elements of successful oral presentations

I. Review your proposed methods or theoretical structure

Based on the feedback you've received, revise your methods and proposed theoretical structure. If you're planning an empirical project, complete and submit the IRB (http://apps.carleton.edu/governance/institutional_review_board/).

II. Consider the elements that go into a successful oral presentation (due Thursday, 5/19)

Reading (on Moodle): Platow chapter; Displaying Your Findings chapters.

Based on these readings, bring to class a brief set of written notes (approx. 1 page) addressing the following questions.

- What are some key differences between presenting ideas in written form and presenting ideas in poster form or orally?
- How might the presentation of content differ? What makes for good/poor visual aids?
- How might the organization differ?
- What are some elements of delivery that are important to consider? Why are they important?

III. Thursday's class (5/19)

In class, we will discuss what makes for a good presentation and how oral presentation content, structure, and delivery might differ from written formats.

IV. Finish and revise draft (due Sunday, 5/22)

You should have most of a whole draft of the paper at this point. You might need to bridge the introduction and the methods/predictions sections. Put it all together and figure out what else you need. Post your completed draft to Moodle by **8pm, Sunday evening**.

V. Individual meetings with Mija, Adam, or comps advisor (Tuesday, 5/24)

Presenting your research

I. Revise your whole paper.

Based on feedback from Mija, Adam, and your peers, revise your papers.

II. Prepare a brief presentation of your research question (due Thursday, 5/26)

Design an oral presentation (10 minutes max.) of your research question. This presentation should establish why your question is interesting to an audience of your peers. Consider your primary audience is your classmates, not the professor. While preparing your presentation, try to remember that your audience will not have read the same articles or theories that you have read. Most likely, you will not be able to cover all of the material in all of your primary sources, so you will have to select what you think are the key theoretical points and research findings.

We will need to keep to strict timing, so if your talk goes over time, you will have to stop where you are, even if you have not explained your question fully at that point. **Practicing and timing your talk several times out loud**, in front of a mirror, or for friends is a good way of ensuring that you can cover everything that you plan on covering in your talk.

III. Class presentations (5/26)

You'll give a presentation to Mija, Adam, and the group. Presentations will be critiqued. Revise the presentations accordingly.

IV. Department presentations: SuperTuesday! (5/31)

Final presentations will be given with other sections.

V. Final paper revisions (due Monday, 6/6, 5:00 pm)

Complete a final round of revisions of your proposal (approximately 10 pages, not including title page, figures, or references). You might want to incorporate some of the feedback you received from your oral presentations. **Submit your completed final proposals on Moodle.**