Paper Requirements

Your paper should be a review of a particular topic, and the goal of such a review is EITHER 1) to propose original research that could clarify or solve problems in the area of study (the comparative study of psychology, or mind-processes), OR 2) to propose a new account/theory of comparative cognition based on animal research and evaluate this theory based on logic, goodness of fit, and your interpretations of past research results.

The paper length is 10-15 pages, and I would prefer that you do not exceed the maximum length. The paper should be written in APA style; it must be organized so that particular sections are included (see below for details concerning each option and its organization), and references and figures should be cited as per the APA manual. Also, each paper should include a title page in front and a reference section in back. The references should be typed in APA style. There is an APA manual on reserve in the Psy office and in the library. The APA style for citations and references is followed consistently in your textbooks, with the exception that you indent the first line of each reference (rather than out-dent, as the prior APA manual had you do). The text of the paper should be typed and double-spaced.

Paper Organization (All Options)

Regardless of whether you want to propose a theory or develop an experiment to ask an original research question, you need the following general section in your paper:

Introduction

You should construct the introduction by posing and answering general questions about your topic first. For instance, define the concept under study (categorization, attention, working memory, spatial cognition, imitation, reasoning, language) as it is understood in the literature. Tell me why it is of interest to study this process across species. In other words, tell me why you think an animal study of this topic may reveal interesting and/or significant knowledge about this topic for human application. Also, if it is possible, tell me why you think this topic is interesting. Back up your comments with research, summary statements from theorists in the field, and so forth.

Next, you should progress to the thesis of your paper. You will need to a review of the critical animal experiments from which your problem with the study or the model emerged. You can confine yourself to articles and books from class, if they do a good job for your review. Note that this is a problem that you can construct for yourself; pick a topic not handled by the materials in class and you WILL have to find materials on your own, and make sure you can review them and they are solid.
The introductions for any option, the theoretical proposal, or the research proposal are organized similarly. Each needs to pose general arguments, and for each, a specific literature review and description of current theories and research practices are needed. It is in the next section that the two types of papers diverge.

**Option #1: Research Proposal**

a. **Critical Evaluation and Hypothesis.** Following the introduction, you need to point out theoretical issues that are not addressed in past research, and/or messy research designs that preclude or prevent answers to particular research questions. This section should end with a statement of hypothesis of original research that will address these neglected theoretical issues, or answer an original research question with a new/cleaner design.

b. **Methods.** You need to describe in specific detail the project that you would conduct to test this hypothesis. To do this, construct three dense and short sections to describe the method of your project. In a **Subjects** section, describe the subjects you would choose to study -- provide the number that would be used and the type (species), and any other manipulations of said subjects that warrant mention here (i.e., any surgical manipulations involved? developmental variables of interest? dietary measures to consider?). Next, in an **Apparatus** section, describe the kind of experiment you would employ. Dimensions of the chamber, light sources, and such details are not necessary, but be sure you define the stimuli that you would present, the responses collected (i.e., behavioral change resulting training, look rates, etc), and any reinforcement/feedback provided. In the final section of the methods, the **Procedure** section, please describe the conditions under which you would train subjects to respond, and the conditions of testing if there are special conditions under which subjects are tested. See me if you are having trouble designing the experiment, or if you are unsure whether it is counterbalanced, controlled, or if there are any confounding variables that could influence subjects’ behavior in some way. Also, review any of the empirical articles that have been assigned in class for proper style of writing in these sections. The APA manual describes each of these sections in fine detail.

c. **Data Analysis and Discussion.** You do not need to identify the particular statistical analysis you would use here. Instead, I would prefer that you draw hypothetical functions of how the data the you collect might look (include a "good" scenario and a "bad" scenario, i.e., one that supports your hypothesis, and a plausible outcome that would refute in some way your hypothesis) and discuss your interpretation/reformulation of your hypothesis or the theory from which it was generated, given these results.

d. **Concluding Remarks.** Suggest any necessary future research that would shed light on your research question. In addition, you should try to confront those general questions you set
up at the beginning of the paper here. Given a successful/unsuccessful outcome of your research project, what would you say about the study of comparative cognition in your topic of interest?

**Option 2: Theoretical Review: Theory Construction**

a. **Critical Review.** Following the introduction, you need to critically evaluate the current theories and research practices/applications in the field of comparative study on this topic. Try to point out flaws in a systematic/logical fashion so that the outcome of the critical review is a somewhat reformulated theory that will become apparent to the reader.

b. **Review again past research:** Are there any studies that test the flaws/suggestions you have identified? You need to demonstrate that any suggestions or changes in a theoretical account that you make still support past results/interpretations as easily as do current theories. In fact, if yours is better in some way (i.e., it can account for seemingly anomalous findings), point this out.

c. **Suggestions for future research.** If you have suggested changes/additions to a current theoretical account of a process, suggest in GENERAL TERMS how you might go about testing these changes. Merely point to areas of research that would require further consideration here, you need not propose particular experiments.

d. **Implications for topic/and for field.** Go back to those general issues you mentioned in the introduction. Tell me what ramifications your evaluation exerts in the field of comparative study of psychological processes, and specifically concerning your selected topic. It is very important here to provide some resolution after your critical analysis. It is all too easy to reject theories and application; find some redeeming value in them as well.

**General Ending: Both Options**

Remember that for any paper, a reference section should be included at the end of the paper. Please see me for clarification of any of these suggestions. The paper is due IN CLASS on TUESDAY, MAY 15TH. Please bring 2 copies. We need to exchange them at that time for peer review.

**Sample Topics:** DIFFERENCES in spatial representation, number ability, object permanence, play across species, different strategies for categorizing objects across species, different types of attentional processes, numerosity estimate abilities across species, spatial considerations, reasoning or theory of mind issues.