Course Syllabus: Sr. Seminar in Cognitive and Information Sciences
(Cognitive Science Capstone, Q400)

Spring Semester 2015
Meeting times: Wed 4-5:25 pm (2 credits)
Location: Psychology 228

Professor: Peter Todd
Office Hours: W 2-4 pm (or other times) by appointment in Psychology 369
Email: pmtodd (at) indiana.edu

Course Description

This seminar will cover some current topics in cognitive science through student presentations and class discussions. The seminar has four major aims: 1) to foster an interdisciplinary discussion of cutting edge topics in cognitive science, 2) to increase students' ability to plan and evaluate research projects, 3) to enhance student skills in presenting research to peers, and 4) to enhance skills in presenting cognitive science ideas to other audiences. Using recent research articles as a starting point, each student will select a cutting edge topic in the cognitive sciences and give an oral presentation to the class reviewing the state of the current research. Students will then develop a project proposal or report that extends the reviewed research, and present it orally and write it up in a final paper or other form. Students will also submit short written evaluations of each other's presentations. Feedback received in this way from peers, and also from the instructor, will be used to revise final written projects.

Prerequisites: 4 courses from among Q240, Q250, Q270, Q301, Q320
Intended for junior and senior cognitive science majors.

Course Format

In each session, we will have presentations by you and your fellow students and critiques and discussions of those presentations. The first set of presentations (in the first half of the term) will be short, 3-minute background presentations followed by class discussions covering what research has been done on a topic of interest to you, indicating what remains to be done; the second set of presentations (second half of term) will be 10-minute project presentations (6 per class meeting) describing research that you have done or propose to do that answers one of the questions raised in your background presentation. Alternatively, the presentations can be designed for other audiences such as grade school or high school students or other college students, with the aim of communicating interesting ideas about cognitive science to them (and getting them interested in cogsci, too!). After each presentation, everyone will fill out a critique form indicating what was good about the presentation and what could be improved for next time, along with (for the background presentations) an open question you have about this topic. We will then discuss the presentation's content and mechanics.

What you will do

In this course, I want you to think about a hot topic of interest to you in cognitive science, about the functional reasons for that mechanism or behavior, about what important open questions remain regarding this topic and how they can be answered, about how to present these ideas, about the hot topics and proposals of others in the class, and about how to help others to present their ideas. All this will happen via four main activities: short presentations of background on some topic/problem of your choice, indicating its functional importance; longer presentations about a project or proposal to address one of the open questions on that topic; critiques of everyone's presentations; and a final paper or other project bringing together all the ideas you've come up with. Here are the details:

1. <u>Short background presentations</u>. Choose a topic of interest to you in cognitive science—which could be something you are already working on, or are working on for another course, or would like to learn about now—and give a 3 minute "elevator talk" presentation introducing the topic, indicating briefly what the scientific question is and why it's interesting, what is known about this topic, how your question follows on from that past work, and how you propose to investigate it in your project for the end of the course. Then you will have a few minutes for questions/suggestions from everyone else. To do this, you should read at least 3-4 papers on the topic—give (or email) me a list of your references when you give your presentation. You can also talk to me about possibilities—come see me in office hours or by appointment. In preparing your presentation, be sure to organize it well, follow the talk guidelines distributed in class, and PRACTICE!

2. <u>Longer project/proposal presentations</u>. Give a longer presentation describing a project that attempts to answer one of the open questions from your background talk. Alternatively, develop some kind of presentation for a different audience that conveys important ideas in cognitive science so as to increase interest, enthusiasm, and awareness of the field. This talk will be ~10 minutes long, and should begin with a 2-minute recap of the background you presented earlier, to place the project in context and indicate why it is interesting and important. (This talk should be an independent whole, as if nobody had heard the background talk.) The project you describe can be either one that you (or others) have actually worked on, or that you are proposing (you can use this as an opportunity to get feedback regarding future research ideas). In preparing your presentation, take into account the feedback you received after your background presentation, strive to answer the written questions you received then as well (if they fit with what you're talking about), remember the talk preparation guidelines, and PRACTICE! You will also pick a paper (probably one of those papers that you read in preparation for your elevator talk) to have distributed to everyone else in the class, that people can look at for more info on what you're working on— please email that to me a couple days before your talk.

   For the alternate version, developing a presentation for a different audience, this could take the form of, for example, a guest presentation for a grade school or lecture for a high school AP class, a display for a children's museum, an article for a student newspaper, blog, or other public outlet, or an organized event to entice and encourage new cogsci majors at IU (like a presentation in class or to a student group). Your presentation in class would be on what you are developing

for the presentation to another audience, giving us a detailed glimpse so we can provide feedback on it.

3. <u>Critiques of presentations.</u> After each presentation, everyone will fill out a written evaluation sheet indicating the good aspects and points for improvement on the talk. These will be collected and given to the speaker to aid her or him in preparing the next presentation (or other presentations in the future). And they will be signed, not anonymous (as well as being discussed in class)—so while you should stand behind your criticisms and suggestions, you must also make them friendly, constructive, and useful. Additionally, for each background/elevator presentation you will write down a question that you would like to have answered about this topic, which the speaker can then address (or at least think about) for the project presentation.

4. <u>Final paper or project.</u> Finally, you will write a paper synthesizing your two presentations and the discussions we have had about them, covering the importance of the topic, background research on it, open questions, and your project addressing one of those questions. This paper should be 10-15 pages long (double-spaced, 12-point, 1-inch margins, APA style), and fully referenced. It is DUE WEDNESDAY, MAY 6, MIDNIGHT (by email to me). Don't wait until the final week to start working on this—e.g., you can write up the background material after you give your background/elevator presentation.

　　For the alternate version, developing a presentation for a different audience, the paper would be replaced with the actual other presentation/display/ article/event itself; or it could be a set of web/Wiki pages covering an interesting topic in cogsci for an undergrad audience (e.g., "cogsci of music", "cogsci of food"), which could for example be added to the IU undergrad cogsci webpages.

<u>IMPORTANT NOTES</u>: Bring your presentations on a memory stick or laptop to class! Also, you can schedule a time during or outside my office hours if you'd like to come talk to me about your presentation before you have to give it.

Grading
You will be given points for the different requirements of the course as follows:
Discussion participation: 10 points
Presentation evaluation sheets OR paper outline: 10 points
Elevator talk presentation: 15 points
Project presentation: 30 points
Final paper/project: 35 points
Total: 100 points

Grades:
A	93-100	4.0
A-	90-92	3.7
B+	87-89	3.3
B	83-86	3.0
B-	80-82	2.7
C+	77-79	2.3

C	73-76	2.0
C-	70-72	1.7
D+	67-69	1.3
D	63-66	1.0
D-	60-62	0.7
F	0-59	0.0

Policies
1. Class attendance: You are expected to attend class, prepare your presentations, listen attentively and actively to the presentations of others, and participate in discussions. Please limit your in-class communication to discussing the topic at hand with all of us— no phone use/messaging/email/surfing. Let me know if you can't make it to a class.
2. Academic conduct: Aside from approved collaborations and building on cited work of others, your work should be your own. Clearly indicate whenever you use materials from other sources—see http://www.indiana.edu/~istd/overview.html for guidelines. Plagiarism will not be tolerated. Academic and personal misconduct by students in this class are dealt with according to the Student Disciplinary Procedures.

Q400 Spring 2015 Schedule (tentative):

Class	Date	Event
1	W 1/14	Introduction to each others' interests
2	W 1/21	Food choice (Todd)
3	W 1/28	Puzzle collection
4	W 2/4	Jobs and grad school, Presentations and publications
5	W 2/11	Neuroscience, meditation, religion (Josh Brown, Colin Allen)
6	W 2/18	Elevator talks by all students
7	W 2/25	Language development (Chen Yu, Tessa Bent)
8	W 3/4	WonderLab
9	W 3/11	Neuroscience and the connectome (Olaf Sporns, Franco Pestilli)
	W 3/18	NO CLASS (Spring Break)
10	W 3/25	Science of learning (Goldstone/Landy/Hmelo-Silver)
11	W 4/1	Social robotics (Selma Sabanovic, Eliot Smith)
12	W 4/8	Student project presentations (6)
13	W 4/15	Student project presentations (6)
14	W 4/22	Student project presentations (6)
15	W 4/29	Math and econ and cogsci (Larry Moss)