Course Syllabus

PSYC 131 – Seminar in Cognitive Neuroscience – Spring 2013

Instructor: Prof. Ryan Mruczek  
Office: Papazian 323  
Office Hours: by appointment  
Office Phone: x8674

E-Mail: rmrucze1@swarthmore.edu  
Web Site: moodle

Class Hours: Tue/Thur 2:40 – 3:55 pm  
Class Room: Papazian 324

Required Readings: Primary literature and review articles posted on Moodle.

Description
Cognitive neuroscience is the marriage of cognitive psychology and neuroscience. Using a multidisciplinary approach, along with diverse and converging methods, it aims to characterize the neural mechanisms that the brain uses to support complex cognitive processes. Through a combination of reading, writing and discussion, we will take an in depth look into one broad topic: from perception to action of visual objects. In addition, some weekly discussions will be reserved for student-selected topics. It is my hope that this course will foster an enthusiasm for studying the human brain and illustrate some current trends in the field of cognitive neuroscience.

Aims: Students who complete this course will:
1. Understand the methods used to study human cognition and its neural substrates.
2. Understand how neural functions support cognitive processes and how multiple cognitive processes are intertwined.
3. Be able to read, interpret, and critique experimental evidence pertaining to current theories and hypotheses in cognitive neuroscience.
4. Be able to organize information about cognitive neuroscience in a clear and concise manner.

Objectives: To achieve these aims, students will:
1. Attend weekly discussions of primary literature and review articles.
2. Interpret and critique the methods, results and conclusions of primary journal articles using various methodologies.
4. Propose and present (oral and written) a set of experiments to advance the field of cognitive neuroscience.
Assignments
The following is a brief, and potentially incomplete, list of assignments and expectations:

• Readings: Weekly readings will be selected from review articles and primary research articles. All readings will be posted on Moodle. Students are required to read all articles before each session so that they are prepared to discuss and ask questions about the material. Supplemental textbook readings will be provided upon request for students wishing to gain a quick review of relevant background information.

• Discussions: Weekly discussions will focus on summarizing, interpreting, and critiquing the readings, as well as integrating them into broader themes discussed throughout the course.

• Discussion Leaders: At various times throughout the semester, you will act as discussion leader for the week. Your job will be to (1) read the material at least 9 days (Mon) before class, (2) meet with me at least 1 day before class to briefly discuss the readings, (3) possibly select additional readings or refine the reading list, and (4) drive our discussion of the weekly readings by briefly summarizing the articles, posing discussion questions, and clarifying details. (Don’t worry; I’ll be there to help along the way!)

• Written Reflections: For each week that you are not the Discussion Leader, write a brief (~1 page) reflection on the weekly readings identifying at least one aspect that you found particularly interesting. In addition, list three questions you have about the readings or important points in the readings that you think we should clarify or discuss in class. I will use these questions to help guide our discussion. Reflections are due the day before our weekly meeting (Tue by 11:59 pm) and you can e-mail them to me directly.

• Written Summaries: For weeks that you act as discussion leader, you will also provide a brief (~2 page) summary outlining the readings and how they are related to each other and previous topics. Summaries are due one week after our in-class discussion.

• Project Proposal: In the second half of the semester, you will develop a set of related experiments that use multiple methods to advance the field of cognitive neuroscience. This proposal will specifically focus on the major topical theme of the first two-thirds of the course: from perception to action with visual objects. You will present your proposal to class in a brief oral presentation. You will then incorporate the feedback you receive into a written proposal. The assignment details for both the oral and written portions will be provided later in the course.

Grading
Participation and attendance 20%
Leading discussions 20%
Written summaries/reflections 15%
Project presentation 20%
Written proposal 25%
**Tentative Topic Schedule**

*(see Moodle for a more up-to-date schedule with readings and assignments)*

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
<th>Discussion Leader</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>01.23.13</td>
<td>Intro, Organization, Getting to Know Each Other and Our Motivations</td>
<td>Prof Mruczek</td>
</tr>
<tr>
<td>2</td>
<td>01.30.13</td>
<td>Action-Perception Hypothesis</td>
<td>Prof Mruczek</td>
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<tr>
<td>3</td>
<td>02.06.13</td>
<td>Object in the Dorsal (and Ventral) Stream</td>
<td>Student (TBD)</td>
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<tr>
<td>4</td>
<td>02.13.13</td>
<td>Affordances: Action and Perception Priming</td>
<td>Student (TBD)</td>
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<tr>
<td>5</td>
<td>02.20.13</td>
<td>Dual Dorsal Pathways</td>
<td>Student (TBD)</td>
</tr>
<tr>
<td>6</td>
<td>02.27.13</td>
<td>Prehension: Grasping and Reaching</td>
<td>Student (TBD)</td>
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<tr>
<td>7</td>
<td>03.06.13</td>
<td>Representing Movement Goals</td>
<td>All</td>
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<tr>
<td>8</td>
<td>03.13.13</td>
<td>Spring Break – Enjoy!</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>03.20.13</td>
<td>Tools and Apraxia</td>
<td>All</td>
</tr>
<tr>
<td>10</td>
<td>03.27.13</td>
<td>Evolution of Tool Usage and Language</td>
<td>Prof Mruczek</td>
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<tr>
<td>11</td>
<td>04.03.13</td>
<td>Project Proposal Presentations</td>
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<tr>
<td>12</td>
<td>04.10.13</td>
<td>Student Topic I</td>
<td>Student (TBD)</td>
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<tr>
<td>13</td>
<td>04.17.13</td>
<td>Student Topic II</td>
<td>Student (TBD)</td>
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<tr>
<td>14</td>
<td>04.24.13</td>
<td>Student Topic III</td>
<td>Student (TBD)</td>
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<tr>
<td>15</td>
<td>05.01.12</td>
<td>Student Topic IV</td>
<td>Student (TBD)</td>
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<tr>
<td>TBD</td>
<td></td>
<td>Final Written Proposal Due</td>
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**Academic Honesty**

Cheating and plagiarizing are not acceptable. Students are encouraged to discuss assignments with their peers. However, *all written work must be completed independently*. If you are unsure about this policy, please ask me beforehand.

**Accommodations Statement**

If you believe that you need accommodations for a disability, please contact Leslie Hempling in the Office of Student Disability Services (Parrish 130) or e-mail lhempli1@swarthmore.edu to set up an appointment to discuss your needs. Leslie Hempling is responsible for reviewing and approving disability-related accommodation requests. As appropriate, she will issue students with documented disabilities an Accommodation Authorization Letter. Since accommodations require early planning and are not retroactive, please contact her as soon as possible. For details about the Student Disabilities Service and the accommodations process, visit [http://www.swarthmore.edu/student-life/academic-advising-and-support/student-disability-services.xml](http://www.swarthmore.edu/student-life/academic-advising-and-support/student-disability-services.xml). You are also welcome to contact me privately to discuss your academic needs. However, all disability-related accommodations must be arranged through Leslie Hempling in the Office Of Student Disability Services.