Purpose of the course
This course is an introduction to the study of thinking. An underlying theme will be rationality: In what ways are we rational and irrational, when and why an understanding is and isn’t an illusion, when we are doing our best, unencumbered by extrinsic constraints. Three specific goals are: 1) to present a brief survey of current findings and theories on thinking, predominantly in humans, but also in other species, 2) to enable you to apply the knowledge to your everyday judgments and decisions, 3) to impart a greater understanding of scientific reasoning, and in particular, of a cognitive-science approach to the study of the mind.

Course materials
The readings are from cognitive psychology, cognitive science, comparative psychology, and philosophy (see page 3). They consist of journal articles, book chapters, and news media articles, all of which will be posted on the class website. In addition, there are academic lectures from the internet (see page 2).

Course requirements and grading
Your grade will be based on two midterms (45 points each), class participation (10 points), and an optional paper for 5 bonus points. Because basic concepts important for understanding thinking and reasoning are covered in the first 5 weeks, mastery of these basic concepts will be assumed in Midterm 2, even though the test is not explicitly cumulative.

• The midterms will consist of multiple-choice and short-answer questions on class lectures, discussions, and the reading assignments. For the more difficult reading assignments, study questions will be provided to guide your reading. Some midterm questions will be selected from the study questions. Lectures and discussions do not completely overlap with the reading assignments.

• If you choose to write a paper, a 1- to 2-page outline is due Week 8. The outline defines the question you are addressing, notes the key points of some plausible answers, and lists 2 - 3 relevant papers. The final paper fleshes out your outline: It poses a question and evaluates plausible answers. Aim for 5 pages double-spaced. You may want to consider topics in the recommended readings on Pages 3- 4.

There will be no final examination, but the optional final paper is due finals week. There will be no incompletes.

COURSE SCHEDULE

<table>
<thead>
<tr>
<th>WEEK</th>
<th>TOPIC</th>
<th>Readings</th>
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</thead>
<tbody>
<tr>
<td>1 &amp; 2</td>
<td>Preview: a cognitive science framework</td>
<td>Hawking &amp; Mlodinow</td>
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<td>Some common fallacies:</td>
<td>Tversky &amp; Kahneman</td>
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<td>judgment under uncertainty: heuristics and biases</td>
<td>Arkes &amp; Ayton</td>
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<td>the sunk-cost fallacy</td>
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<td>deductive reasoning errors</td>
<td>Henle</td>
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<tr>
<td>WEEK</td>
<td>TOPIC</td>
<td>Readings</td>
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<tr>
<td>3 &amp; 4</td>
<td><strong>Causal reasoning:</strong> &lt;br&gt;nature of problem of causal induction &lt;br&gt;association versus causation &lt;br&gt;a theory of causal induction &lt;br&gt;adaptive reasoning in nonhuman species</td>
<td>Cheng &amp; Buehner &lt;br&gt;Blaisdell et al. &lt;br&gt;Hollis</td>
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<td>5</td>
<td><strong>If rats &amp; fish are rational, why do humans err?</strong></td>
<td>Nisbett &amp; Wilson</td>
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<td>5</td>
<td>*** First Midterm: <em>Wednesday February 5</em>**</td>
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<td>6</td>
<td>Dual-process Theories of Reasoning &lt;br&gt;Review of midterm</td>
<td>Evans</td>
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<td>7-8</td>
<td><strong>Creativity, science, and two realisms:</strong> &lt;br&gt;Youtube homework <em>before</em> Monday February 17 class: &lt;br&gt;<a href="http://www.youtube.com/watch?v=dBniua6-oM">http://www.youtube.com/watch?v=dBniua6-oM</a> &lt;br&gt;evaluating science – an example &amp; an exercise</td>
<td>Lustig’s lecture &lt;br&gt;Shute’s commentary &lt;br&gt;Kuhn &lt;br&gt;Hawking &amp; Mlodinow &lt;br&gt;Ramachandran &amp; Rogers-Ramachandran &lt;br&gt;Wagner et al. &lt;br&gt;Holyoak</td>
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<td>9</td>
<td>*** (Optional) Paper outline due: <em>Wednesday February 26</em>**</td>
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<td>9</td>
<td><strong>Thinking in nonhuman species:</strong> &lt;br&gt;How smart are apes and birds?</td>
<td>Heinrich &amp; Bugnyar &lt;br&gt;Reaux &amp; Povinelli</td>
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<td>10</td>
<td><strong>Moral reasoning:</strong> &lt;br&gt;moral judgment &lt;br&gt;prisoner’s dilemma &lt;br&gt;Review</td>
<td>Waldmann, Nagel &amp; Wiegmann &lt;br&gt;Basu</td>
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<tr>
<td>10</td>
<td>*** Second Midterm: <em>Wednesday March 11</em>**</td>
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<tr>
<td>11</td>
<td>***** (Optional) Final paper due: <em>Wednesday March 18, 11.59pm</em> *****</td>
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Required Readings


Lustig, R. (2009) lecture at UCSF Medical School on the toxicity of added sugar: [http://www.youtube.com/watch?v=dBnniua6-oM](http://www.youtube.com/watch?v=dBnniua6-oM)


Shute, N. (2011). Sugar may be an empty nutrient, but is it poisonous? [NPR.org](http://www.npr.org)


Recommended Readings


