Overview:

This seminar aims to critically examine the intersection between neuroscience research and broad domains of society, including education, law, politics, and the marketplace. In what ways can scientific developments in understanding the brain be appropriately applied to advance policy or application in these societal domains? In what ways is neuroscience being inappropriately interpreted or misapplied, and what are some of the causes of these misapplications? How does neuroscience research intersect with money, the media, and political agendas? Course materials will encompass both primary scientific literature and critical perspectives.

Course Goals:

- Deepen critical thinking about neuroscience from inside and outside the discipline
- Gain appreciation for the ways in which scientific practice is socially situated
- Develop the ability to evaluate different positions on controversial issues and form independent opinions supported by reasoning and evidence

Schedule:

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Aug. 31</td>
<td>Overview/critical neuroscience</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ethical Issues in Neuroscience</td>
</tr>
<tr>
<td>2</td>
<td>Sept. 7</td>
<td>Ethics in patient research &amp; human neuroimaging</td>
</tr>
<tr>
<td>3</td>
<td>Sept. 14</td>
<td>Ethics in animal research</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Neuroscience and Individual Differences</td>
</tr>
<tr>
<td>4</td>
<td>Sept. 21</td>
<td>Neuroscience and childhood adversity</td>
</tr>
<tr>
<td>5</td>
<td>Sept. 28</td>
<td>Neuroscience and gender</td>
</tr>
<tr>
<td>6</td>
<td>Oct. 5</td>
<td>Neuroscience and race</td>
</tr>
<tr>
<td>7</td>
<td>Oct. 19</td>
<td>Neurodiversity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Neuroscience, Law, and Business</td>
</tr>
<tr>
<td>8</td>
<td>Oct. 26</td>
<td>Neuroscience and criminal culpability</td>
</tr>
<tr>
<td>9</td>
<td>Nov. 2</td>
<td>Neuroimaging approaches to lie detection</td>
</tr>
<tr>
<td>10</td>
<td>Nov. 9</td>
<td>Neuroscience and marketing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Building a Better Brain</td>
</tr>
<tr>
<td>11</td>
<td>Nov. 16</td>
<td>Neuroscience of cognitive enhancement</td>
</tr>
<tr>
<td>12</td>
<td>Nov. 23</td>
<td>Neuroscience and the military</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Medical Dilemmas</td>
</tr>
<tr>
<td>13</td>
<td>Nov. 30</td>
<td>Brain injury in professional sports</td>
</tr>
<tr>
<td>14</td>
<td>Dec. 7</td>
<td>Neuroscience and the end of life</td>
</tr>
</tbody>
</table>
Grading requirements and expectations:

20% -- discussion questions for each class period

- Students will be expected to submit an original discussion question based on the reading by noon the day before the seminar meets. These student-generated DQs will be compiled, distributed to other students in class, and used to guide discussion during the class period. The DQs should be brief (1-3 sentences) and can focus on any aspect of the reading that the student thinks would stimulate discussion by the class.
- DQs will be graded on a 3-point basis (3 points = original/insightful; 2 = satisfactory; 1 = shows little evidence of reflection on reading).
- Each student is allowed two “opt-outs” (week with no DQ submitted); 11 expected in total

15% -- leading discussion for one class period

- During this class period, the student will be responsible for (1) preparing the sheet of DQs, (2) guiding other students through discussion of the reading using the DQs, and (3) contributing additional ideas and materials for discussion (e.g., activity or video). Discussion leading will be graded on normal 4.0 scale.

15% -- active oral participation in all other class periods

- Participation for the semester will be graded on 3-point scale: 3 = consistently engaged and reflective; 2 = generally good but inconsistently engaged, or reflections are not consistently pertinent or clearly expressed; 1 = not much contribution to discussion.

20% -- empirical article presentation for one class period

- Class presentation of a primary research article pertaining to the day’s topic, which other students have not read. Presentations should be about 15 minutes long, and should use slides to summarize the key aims, methods, results, and conclusions, and then relate the findings conceptually and critically to the day’s topic. Grading will be on the normal 4.0 scale.
- Article choice should be communicated to the professor for approval by (at the latest) the Thursday prior to presentation.

30% -- final project

- In-depth analysis of an issue in the intersection of neuroscience and society that was not fully covered in class.
- Requires engagement with primary research literature as well as synthesis and critique from a societal perspective.
- Approximately 12-15 pages, graded on normal 4.0 scale
- Due at the end of finals period.
Assigned readings:

Week 1 (Aug 31): Critical neuroscience


Week 2 (Sept. 7): Ethics in patient research & human neuroimaging


Week 3 (Sept. 14): Ethics in animal research


Week 4 (Sept. 21): Neuroscience and childhood adversity


Week 5 (Sept. 28): Neuroscience and gender


Week 6 (Oct. 5): Neuroscience and race


Week 7 (Oct. 19): Neurodiversity


Week 8 (Oct. 26): Neuroscience and criminal culpability

Week 9 (Nov. 2): Neuroimaging approaches to lie detection


Week 10 (Nov. 9): Neuroscience and marketing


Week 11 (Nov. 16): Neuroscience and cognitive enhancement


Week 12 (Nov. 23): Neuroscience and the military

Week 13 (Nov. 30): Head injury in professional sports


Week 14 (Dec. 7): Neuroscience and end-of-life dilemmas