AFFECTIVE NEUROSCIENCE
Psychology 831 -- Fall 2012

Graduate seminar

Companion grad seminar to Psychology 433: Biopsychology of Motivation

Kent Berridge
The University of Michigan

Class: The 831 seminar will meet Fridays 2-4 or at another mutually convenient time. In first week we’ll consider the feasibility of changing seminar time.

Description: This 3-credit course will focus upon topics in the affective neuroscience of motivation. The 831 seminar is a graduate level companion to the 431 Biopsychology of Motivation lectures & readings. All 831 students are invited to attend the 431 lectures on Mon & Wed. It is your option to attend 431 but we’ll assume in 831 discussions that you are up to date on topics and readings covered in 431. Our purpose in 831 is to continue the discussion at a more sophisticated level.

433 lecture: Monday & Wednesday 1:00-2:30 pm in Rm. 3254 LSA
831 seminar: a 1 to 2 hr discussion will be held Friday 2 – 4 2234 EH (or TBA) (final choice of time will be decided once we know schedules of those who wish to enroll)

Office: 4038 East Hall
Email: berridge@umich.edu  Phone: 763-4365

Office Hours: T 2:30-4:00 or by appointment

Readings: Readings are posted on the Ctools 433 website. All members of 831 will have access to the 433 site. It is also possible for 831 discussion leaders to add or substitute readings for their topics, and post the readings on the 831 site.

Topics will include:

- Concepts of motivation and emotion
- Can emotions be unconscious?
- Brain limbic system organization
- Pleasure and the brain
- Roles of mesolimbic dopamine systems in reward
- Brain mechanisms of:
  o Addiction
  o Thirst, salt appetite, and hunger
  o Sexuality

8/18/2012
Graduate seminar activities:

1) **Reading.** Each graduate student should try to **read all 433 assigned and extra readings** each week. It is okay to skim some readings but important to at least look at all. I know this is a lot of reading but we are a graduate seminar 😊

2) **Attend 433 lectures (recommended).** I expect that most grad students will attend most lectures. It is okay to skip a topic if you feel you know it already, but everyone is expected to know the material discussed in 433.

3) **Online comments.** Please enter **1 seminar comment each** week on the readings or topic on the 831 Ctools site by 24 hours before we meet. You can choose to respond to a comment question I pose for 433 or address any other aspect you choose. Everyone should also read the other comments online and in 433 each week.

4) **Lead a couple seminars.** Each participant will lead at least one discussion topic and hopefully more. It is okay to co-lead several in partnership with others. The idea is to help start and guide our discussion with your head-start take on the issues. Powerpoints are allowed if you feel but are NOT required, and an ideal seminar really doesn’t need powerpoints.

Grading for 831 will be based on seminar participation, comments and topic. It is optional but definitely not required to participate in 433 exams and/or paper.

*More detailed information on readings is in the 433 syllabus on following pages. Readings are available on the 433 Ctools site. Everyone in 831 seminar will also have access to the 433 Ctools site.*
AFFECTIVE NEUROSCIENCE
Sample for Psychology 333 (renumbered from Psychology 433)

BIOPSYCHOLOGY OF MOTIVATION
Psychology 433 -- Winter 2012 Example
The University of Michigan
Professor Kent Berridge

Class: Mondays & Wednesdays at 1:00 -2:30 pm
Office: 4038 East Hall
Email: berridge@umich.edu
Office Hours: T 2:30-4:00 or by appointment
Phone: 763-4365

Readings: Readings are posted on the Ctools website

Description: This 3-credit course will focus upon topics in the affective neuroscience of motivation. Please note that the syllabus may change during the semester. The latest version is always posted on the Ctools web site. The date of a syllabus is at displayed bottom so you will know if you have the latest version.

Tentative Weekly Schedule (see Ctools for latest schedule):

<table>
<thead>
<tr>
<th></th>
<th>Monday</th>
<th>Wednesday</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 4</td>
<td>Introduction</td>
<td>Introduction</td>
</tr>
<tr>
<td>January 9 &amp; 11</td>
<td>Traditional concepts of motivation &amp; interaction with learning</td>
<td>Traditional emotion &amp; brain</td>
</tr>
<tr>
<td>January 16 &amp; 18</td>
<td><strong>MLK Day</strong></td>
<td>Limbic system</td>
</tr>
<tr>
<td>Jan 23 – 25</td>
<td>Limbic system</td>
<td>Limbic system</td>
</tr>
<tr>
<td>Jan 30 - Feb 1</td>
<td>New limbic systems</td>
<td>New limbic systems</td>
</tr>
<tr>
<td>February 6 &amp; 8</td>
<td>Pleasure Neuroscience</td>
<td>Pleasure Neuroscience</td>
</tr>
<tr>
<td>February 13 &amp; 15</td>
<td>Pleasure consciousness</td>
<td><strong>1st Exam Feb 15</strong></td>
</tr>
<tr>
<td>February 20 &amp; 22</td>
<td>No class</td>
<td>Dopamine in reward</td>
</tr>
<tr>
<td>February 27 &amp; 29</td>
<td><strong>Winter Break Week</strong></td>
<td></td>
</tr>
<tr>
<td>March 5 &amp; 7</td>
<td>Dopamine</td>
<td>Addiction</td>
</tr>
<tr>
<td>March 12 &amp; 14</td>
<td>Addiction</td>
<td>Thirst &amp; salt appetite</td>
</tr>
<tr>
<td>March 19 &amp; 21</td>
<td>Salt &amp; Hunger</td>
<td><strong>2nd Exam Mar 21</strong></td>
</tr>
<tr>
<td>March 26 &amp; 28</td>
<td>Hunger</td>
<td>Hunger-Reward &amp; Pain</td>
</tr>
<tr>
<td>April 2 &amp; 4</td>
<td>Pain, fear &amp; stress</td>
<td>?no class? Fear &amp; Sex</td>
</tr>
<tr>
<td>April 9 &amp; 11</td>
<td>Sex</td>
<td>Sex &amp; Aggression</td>
</tr>
<tr>
<td>April 16</td>
<td>Aggression</td>
<td></td>
</tr>
</tbody>
</table>

8/18/2012
In class exams are February 15 and March 21. Third exam (not cumulative) is in final exam period: Friday, April 20 4:00 pm - 6:00 pm 1 (4-6 pm)

Grading

Your grade will be based on 3 exams, and on your depth paper, online entries and class participation. Relative weighting for grades will be:

- Online comments & class discussion = 10%
- Paper & class presentation = 20%
- Exams = 20%, 25%, 25%

Other Student Responsibilities & Grading

Our goal in this class is to make you into an expert in affective neuroscience 😊.

Commit to Read!: The readings are a major part of this class and there is a lot of reading. You can choose somewhat what to read but everyone must read before class! Reading before class (and sometimes re-reading again after class) is essential to determining what you gain from this course, and I ask you to commit to keep up with reading.

Every student is expected to read the all assigned regular articles prior to that class. In addition, you are expected to choose one extra reading for each topic prior to discussion (or two extra readings for the topics you give online comments on; and all readings for the topic you write your paper on [up to 4 extra readings]).

Depth topic: Paper & Expert panel discussion. Everyone will pick 1 depth topic for a paper (7-10 pages) and expert panel. I will pose questions to guide you for each topic. The expert panel will post a web entry to summarize its opinion (e.g., wiki; 1 – 2 pages total). The panel entry must be posted by Saturday midnight before the week of the topic so that everyone can read in time for class. Panel members will also be expected to help in class discussion of that topic. Your paper on the depth topic is due within two weeks of class discussion of the topic (or before the beginning of Finals period for topics near the end of semester).

3 Comments Online: We will have online discussions to help stimulate thought about weekly topics. Everyone must contribute 3 online comments (half-page length). One comment is expected per month. Two comments must be given before that week’s topics (entered by 3 pm Sunday prior to that week’s topic; double-length if you miss the deadline), and the remaining comment can be entered within 1 week after the topic is discussed. You are also expected to participate in discussion in class of topics you comment on.

Ethical note on writing

Here’s the order of how we write comments, papers or exam essays. First we read, then we think and discuss in class, and then we write our own conclusions. It is never acceptable to copy-and-paste or simply closely paraphrase something from the web or a publication. You can always quote or refer to another source as long as you acknowledge the source and use quotation marks when quoting. In short, we always write our own thoughts in our own words, and we give credit to others when we present their thoughts in our writing.

Depth Topic List

- Brain limbic systems
- Pleasure generators in the brain
- What do reward electrodes really do?
- Unconscious emotion?
- What is dopamine’s role in reward?
- Addiction
- Thirst and salt appetite
- Hunger

8/18/2012
- Connecting Hunger & Reward: new brain circuits
- Sex

- Stress, Fear, & Pain
- Aggression
Reading List – Psychology 433

Traditional Motivation & Learning Concepts

Regular readings:


Extra readings:


Traditional Emotion Concepts

Does the brain have specialized emotion structures or does all the brain generate emotion?

Regular readings:

James, W., What is an emotion, Mind, 9 (1884) 188-205.


Extra readings:


Old Limbic System

What is the limbic system? Is it still a good idea?

Regular readings:


Extra readings:


8/18/2012
New Limbic system

How should new limbic structures fit into the limbic system? (nucleus accumbens, ventral pallidum, extended amygdala, orbitofrontal cortex, ventromedial cortex [infralimbic and limbic cortex], insula cortex, etc)?

Regular readings:


Extra readings:


Expanding new limbic system?

Is nearly every brain structure part of the limbic system? Even sensory and motor structures?


Pleasure

Where does pleasure come from? What in the brain generates pleasure? What are the roles of cortex versus subcortical brain structures in pleasure? Can a pleasure ever be truly unconscious and yet exist?

Regular readings:


Extra readings:


8/18/2012


Optional extra readings on pleasure electrodes


Can pleasure be unconscious?
Yes or no?

Regular readings:

Extra readings:

**What is the role of dopamine in reward?**


**Regular readings:**


**Extra reading:**


**Addiction**


**Regular readings:**


**Extra reading:**


**Thirst & Salt Appetite**

**Regular reading:**

**Extra reading:**

**Hunger**

*Is hunger driven by a body weight set-point? What brain mechanisms control appetite?*

**Regular readings:**

**Extra reading:**
Bolles: "Some functionalistic thoughts about regulation"

8/18/2012
New hunger-reward connections

How does hunger alter the brain's response to food reward stimuli? How do hypothalamic regulatory and limbic reward structures interact?

Regular readings:


Extra readings:


Pain, Fear & Stress

What in the brain causes pain? What is special about insula cortex? How do accupuncture or hypnosis control pain?

Regular readings:


Extra reading:


Hilgard: Hypnotic experience


8/18/2012


Sex

What brain systems generate sexual desire? Are male and female ‘styles’ of human sexuality entirely different, with different neural systems? Or are they essentially similar? What determines human sexual orientation or gender identity? How do sexual stimuli & experiences (including pheromone exposure) alter subsequent physiology or fertility?

Regular readings:


Extra readings by subtopic:

Brain mechanisms in female & male

Sexual orientation & gender identity


**Experiential control of sexual physiology:**

*More detail on experiential controls of physiology (if you’re really interested)*


**Culture & Identity:**


**Aggression**

*What are the chief brain bases of aggression? Do different types of aggression correspond to different neural systems? Can any type of pathological aggression be controlled in principle via drugs Can any type of pathological aggression be controlled by psychosurgery? In violent patients? In prisoners*

**Regular readings:**


**Extra readings:**


