

**PY/NS 361: TOPICS IN AFFECTIVE NEUROSCIENCE**  
**Winter 2007**  
**Wednesdays 1:05-4:00 pm**  
**Location: Pettengill 321**

Instructor: Nancy S. Koven, Ph.D.  
Email: nkoven@bates.edu  
Office: 365 Pettengill Hall  
Office Hours: as needed, by appointment

### **Required Text**

- Lane, R. D., & Nadel, L. (2000). *Cognitive neuroscience of emotion*. Oxford University Press.

The above text is required for this course and is available at the campus bookstore or through on-line book vendors.

### **Suggested Text**

- Kalat, J. W., & Shiota, M. N. (2007). *Emotion*. Thomson Wadsworth.

The above text is recommended but not required. Several chapters from this text are assigned. The chapters will be available our WebCT course page.

### **Texts on Reserve**

- Davidson, R. J., Scherer, K. R., Goldsmith, H. H. (2003). *Handbook of Affective Sciences*. Oxford University Press.
- Cacioppo, J. T. & Berntson, G. G. (2004). *Essays in social neuroscience*. MIT Press.
- Barrett, L. F., Niedenthal, P. M., & Winkielman, P. (2005). *Emotion and consciousness*. Guilford Press.
- Ramachandran, V. S., & Blakeslee, S. (1998). *Phantoms in the brain: Probing the mysteries of the human mind*. William Morrow & Co.
- Illes, J. (2006). *Neuroethics: Defining the issues in theory, practice, and policy*. Oxford University Press.

The above texts are on reserve for you to consult in Ladd Library. Several chapters in the Davidson et al. (2003) are on our reading list for the course.

### **Course Description**

A seminar that examines advances in the emerging interdisciplinary field of affective neuroscience. Topics include autonomic psychophysiology, genetics of emotional development, expression of emotion, cognitive components of emotion, emotion in personality and temperament, emotion and social processes, evolutionary perspectives of affect, emotion dysregulation and psychopathology, and emotion and health. A wide range of research techniques are introduced, including positron emission topography, functional magnetic resonance imaging, neuropsychological assessment, genetic assay, startle blink response, event-related potentials, skin conductance, facial reactivity,

transcranial magnetic stimulation, and neuropharmacology. Prerequisite(s): Neuroscience/Psychology 200 and Psychology 261.

### **Special Considerations: Students with Disabilities and Learning Differences**

If you have a condition or disability that causes difficulty with learning in the classroom or completing assignments as described, please see me as soon as possible. Documentation from the Office of the Dean of Students is needed before accommodations can be made.

### **Classroom Environment**

It is essential that our classroom be a place in which people feel comfortable expressing their thoughts, feelings, and opinions without fear of unduly critical or judgmental responses, especially during discussions. I expect all students to be respectful of the widely varied experiences and backgrounds represented by the classroom members as a group. Disrespect or discrimination on any basis will not be tolerated.

### **Academic Honesty**

Cheating includes plagiarism, which is the representation of someone else's work as your own. Please familiarize yourself with the College's policy on academic dishonesty at: <http://abacus.bates.edu/pubs/Plagiarism/plagiarism.html#0>.

## **Grading Elements**

This course will follow a seminar format, with primary foci on reading, class participation, and writing. There are no exams or quizzes in this course. It is imperative that you complete all assigned readings prior to the class period for which it is assigned. The reading load is such that you may wish to spread out the readings across the week so that you are not trying to process volumes of information in a single afternoon or evening. Topics for each week are outlined in the course calendar. For each weekly topic, half of the students are assigned to be discussion leaders and the other half of the students are assigned to write thought papers. These responsibilities will be rotated so that each student will serve as a discussion leader six times and will write thought papers six times throughout the semester.

### **Thought Papers**

Thought papers are brief, reactionary papers (1.5 – 2.0 pages single spaced) that summarize your responses to the assigned readings. Though written in the first person and from the perspective that the audience is familiar with you, these thought papers should nonetheless be formal in that you should adhere to the mechanics of good writing. The purpose of the thought paper is (1) to stimulate analytic thinking prior to class discussion for the writer and (2) provide fodder for the students assigned as discussion leaders to draw upon during class discussion. Thought papers are due no later than 2:00 pm on the Monday preceding the Wednesday meeting. It is each writer's responsibility to email me his/her thought paper by this deadline so that I can post the papers on our WebCT course page. Points will be deducted for lateness. Thought papers will be accessible by other members of the class; in fact, it is expected that the discussion leaders will access and read each thought paper prior to the class meeting. Altogether, each student will write 5 thought papers over the course of the semester.

## Class Participation

Class participation is crucial for success of this class and success in this class. Class participation for this course is two-part: (1) ability to stimulate and lead class discussion for the weeks in which you are assigned as a discussion leader and (2) actively contribute to class discussion during the weeks that you have been assigned to write a thought paper.

## Term Paper

There is one term paper for this course, which is due no later than the time assigned by the Registrar as what would normally be our final exam time: Thursday, April 12<sup>th</sup> at 10:30 am. The paper is due in hard copy form, to be turned in to the box outside my office door. You are welcome to finish and turn in your paper anytime sooner than April 12<sup>th</sup>. Points will be deducted for each 24 hour period in which the paper is late. Papers are expected to be in 15 pages (excluding references) and written in APA format, with no fewer than 10 independent references.

The paper can be on any topic within the broad scope of affective neuroscience. It can be related to one of the topics covered in class or to any number of topics that we will not have time to cover in class. Keeping in mind that neuroscience is inherently interdisciplinary, you are encouraged to think creatively and to weave in material from other disciplines such as computer science, social psychology, philosophy, linguistics, biology, law and politics, women and gender studies, religion, anthropology, or ethnic and race studies, as appropriate. Topics must be approved by me in advance. It is not acceptable to recycle a paper you have written for another course. Email me your topic of interest no later than Sunday afternoon of February 11<sup>th</sup>.

## Grading

There are 9 grading elements for this course:

Class-Based Writing		
- Thought Paper 1	7% of total grade	} 35%
- Thought Paper 2	7% of total grade	
- Thought Paper 3	7% of total grade	
- Thought Paper 4	7% of total grade	
- Thought Paper 5	7% of total grade	
Discussion Participation		
- Discussion Facilitation Skills	20% of total grade	} 40%
- Contribution to Discussion	20% of total grade	
Term Paper	25% of total grade	

## Course Calendar

Reading the assigned material before the day on which it is listed is critical for success in this course. If not found in our course text, most assigned readings for the discussion sections will be posted on our WebCT page. Readings not available on WebCT will be put on reserve in Ladd Library.

1/10/07 Week 1: Overview of affective neuroscience

- Textbook chapter 1: The study of emotion from the perspective of cognitive neuroscience (pgs. 3-8)
- Textbook chapter 2: A second chance for emotion (pgs. 12-23)
- Kalat & Shiota chapter 1: The nature of emotions (pgs. 2-28)

Discussion Leader: Prof Koven

Thought Paper Writers: no one

1/17/07 Week 2: Background reading on emotions

- Textbook chapter 3: Cognition and emotion: Always, sometimes, or never? (pgs. 24-61)
- Kalat & Shiota chapter 2: Classification of emotions (pgs. 29-48)
- Kalat & Shiota chapter 3: Culture and emotion (pgs. 49-74)
- Davidson (2002). Seven sins in the study of emotion: Correctives from affective neuroscience. *Brain & Cognition*, 52, 129-132.
- Panskepp (1992). A critical role for 'affective neuroscience' in resolving what is basic about basic emotions. *Psychological Review*, 99, 554-560. SKIM

Discussion Leaders: Ryan, Elizabeth, Alli, Chris

Thought Paper Writers: Cary, Mimi, Jon

1/24/07 Week 3: Methods of affective neuroscience

- Textbook chapter 11: Measuring emotion: Behavior, feeling, and physiology (pgs. 242-276)
- Damasio et al. (2003). The contributions of the lesion method to the functional neuroanatomy of emotion. In *Handbook of Affective Sciences*, 66-92.
- Zubicaray (2006). Cognitive neuroimaging: Cognitive science out of the armchair. *Brain & Cognition*, 60, 272-281.
- Nicholson (2006). Thinking it over: fMRI and psychological science. *Association for Psychological Science*, 19, 21-27.

Discussion Leaders: Cary, Mimi, Jon

Thought Paper Writers: Ryan, Elizabeth, Alli, Chris

1/31/07 Week 4: Neuroethics: Implications of and for affective neuroscience

- Glannon (2006). Neuroethics. *Bioethics*, 20, 37-52.
- Laureys et al. (2004). Brain function in coma, vegetative state, and related disorders. *Lancet*, 3, 537-546.
- Riggs (2004). Medical ethics, logic traps, and game theory: An illustrative tale of brain death. *Journal of Medical Ethics*, 30, 359-361.
- Green (2006). From genome to brainome: Charting the lessons learned. In *Neuroethics: Defining the issues in theory, practice, and policy*, 105-122.

Discussion Leaders: Alli, Chris, Cary

Thought Paper Writers: Elizabeth, Ryan, Mimi, Jon

2/7/07 Week 5: Neuroscience of psychopathy: My brain made me do it!

- Tost et al. (2004). Pedophilia: Neuropsychological evidence encouraging a brain network perspective. *Medical Hypotheses*, 63, 528-531.
- Greene & Cohen. (2004). For the law, neuroscience changes nothing and everything. *Philosophical Transactions of the Royal Society of London*, 359, 1775-1785.
- Newman & Lorenz (2003). Response modulation and emotion processing: Implications for psychopathy and other dysregulatory psychopathology. In *Handbook of Affective Sciences*, 904-929.
- Sapolsky (2004). The frontal cortex and the criminal justice system. *Philosophical Transactions of the Royal Society of London*, 359, 1787-1796.

Discussion Leaders: everyone

Thought Paper Writers: no one

2/14/07 Week 6: Neuroscience of fear and anxiety

- Textbook chapter 7: Cognitive-emotional interactions: Listen to the brain (pgs. 129-155)
- Textbook chapter 17: Positron emission tomography in the study of emotion, anxiety, and anxiety disorders (pgs. 389-406)
- Kalat & Shiota chapter 5: Fear and anxiety (pgs. 100-123)

Discussion Leaders: Elizabeth, Chris, Ryan

Thought Paper Writers: Alli, Cary, Mimi, Jon

NO CLASS ON 2/21/07: WINTER VACATION

2/28/07 Week 8: Neuroscience of other negative emotions

- Kalat & Shiota chapter 6: Anger (pgs. 124-147)
- Kalat & Shiota chapter 10: Disgust and contempt (pgs. 212-225)
- Harmon-Jones, E. (2003). Clarifying the emotive functions of asymmetrical frontal cortical activity. *Psychophysiology*, 40, 838-848.
- Schienle et al. (2005). Relationship between disgust sensitivity, trait anxiety, and brain activity during disgust induction. *Neuropsychobiology*, 51, 86-92.

Discussion Leaders: Alli, Cary, Mimi, Jon

Thought Paper Writers: Elizabeth, Chris, Ryan

3/7/07 Week 9: Neuroscience of moral emotions

- complete Moral Sense Test online: <http://moral.wjh.harvard.edu/index2.html>
- Haidt (2003). The moral emotions. In *Handbook of Affective Sciences*, 852-870.
- Greene & Haidt (2002). How (and where) does moral judgment work? *Trends in Cognitive Sciences*, 6, 517-523.

- Berthoz et al. (2006). Affective response to one's own moral violations. *NeuroImage*, 31, 945-950.
- Greene (2003). From neural 'is' to moral 'ought': What are the moral implications of neuroscientific moral psychology. *Nature Neuroscience*, 4, 847-850.

Discussion Leaders: Elizabeth, Alli, Chris, Jon  
Thought Paper Writers: Ryan, Cary, Mimi

3/14/07 Week 10: Neuroscience of love and positive emotion

- Kalat & Shiota chapter 9: Love (pgs. 187-211)
- Gable et al. (2005). What (and why) is positive psychology? *Review of General Psychology*, 9, 103-110.
- Buck (2002). The genetics and biology of true love: Prosocial biological affects and the left hemisphere. *Psychological Review*, 109, 739-744.
- Gray (2002). Does a prosocial-selfish distinction help explain the biological affects? Comment on Buck. *Psychological Review*, 109, 729-738.
- Carter (2004). Oxytocin and the prairie vole: A love story. In *Essays in Social Neuroscience*, 53-64.

Discussion Leaders: Ryan, Cary, Mimi  
Thought Paper Writers: Jon, Elizabeth, Alli, Chris

3/21/07 Week 11: Neuroscience of alexithymia, emotional intelligence, and emotion regulation

- Moriguchi et al. (2007). Empathy and judging other's pain: An fMRI study of alexithymia. *Cerebral Cortex*, 1-12.
- Kalat & Shiota chapter 13: Emotional decisions and emotional intelligence (pgs. 260-280)
- Ochsner et al. (2002) Rethinking feelings: An fMRI study of the cognitive regulation of emotion. *Journal of Cognitive Neuroscience*, 14, 1215-1229.
- Jackson et al. (2003). Now you feel it, now you don't: Frontal brain electrical asymmetry and individual differences in emotion regulation. *Psychological Science*, 14, 612-617.

Discussion Leaders: Elizabeth, Ryan, Mimi, Jon  
Thought Paper Writers: Alli, Chris, Cary

3/28/07 Week 12: Neuroscience of religious experience, art appreciation, and other fervor

- Panskepp & Bernatzky (2002). Emotional sounds and the brain: The neuro-affective foundations of music appreciation. *Behavioural Processes*, 60, 133-155.
- Whitley (1998). Cognitive neuroscience, shamanism, and the rock art of native California. *Anthropology of Consciousness*, 9, 22-37. SKIM
- Boyer (2003). Religious thoughts and behavior as by-products of brain function. *Trends in Cognitive Sciences*, 7, 119-124.
- Ramachandran & Hirstein (1999). The science of art. *Journal of Consciousness Studies*, 6, 15-51.
- New York Times article about Dali Lama and neuroscience of meditation

Discussion Leaders: Elizabeth, Chris, Ryan  
Thought Paper Writers: Alli, Cary, Mimi, Jon

4/4/07      Week 13: Neuroscience of unconscious emotions

- Textbook chapter 12: Blindsight: Implications for the conscious experience of emotion (pgs. 277-295)
- Textbook chapter 13: Unconscious emotion: Evolutionary perspectives, psychophysiological data, and neuropsychological mechanisms (pgs. 296-327)
- McClintock (2004). On pheromones, vasanas, social odors, and the unconscious. In *Essays in Social Neuroscience*, 65-76.
- Clore et al. (2005). Seven sins in the study of unconscious affect. In *Emotion and Consciousness*, 384-408.

Discussion Leaders: Alli, Cary, Mimi, Jon

Thought Paper Writers: Elizabeth, Chris, Ryan