

# Attention!

This is a *representative* syllabus.

The syllabus for the course when you enroll may be **different**.

Use the syllabus provided **by your instructor** for the most up-to-date information. Please refer to your instructor for more information for the specific requirements for a given quarter.

**THE BIOLOGICAL BASES OF PSYCHOPATHOLOGY**  
**(PSYCH H613 – UNDERGRADUATE VERSION – SEMESTER CALENDAR)**

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**\*\*\*PDFs of Readings and PPTs from Lectures are on Carmen\*\*\***

**TOPICAL SYLLABUS**

<b>WEEK</b>	<b>TOPIC TO BE DISCUSSED</b>
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**MOOD DISORDERS**

- |          |   |
|----------|---|
| <b>1</b> | <b>SYMPTOMS - DSMIV – VIDEOS – AFFECTIVE NEUROSCIENCE</b>     |
| <b>2</b> | <b>EXECUTIVE AND PREFRONTAL DYSFUNCTION IN MOOD DISORDERS</b> |
| <b>3</b> | <b>HIPPOCAMPAL AND AMYGDALOID DYSFUNCTIONS</b>                |
| <b>4</b> | <b>CONTEMPORARY AND NOVEL THERAPEUTICS</b>                    |

**\*\*\*\* EXAM #1 (TAKE HOME – DUE 24 HR LATER)**

**ANXIETY DISORDERS**

- |          |   |
|----------|---|
| <b>5</b> | <b>SYMPTOMS – DSMIV – VIDEOS - NEUROBIOLOGY</b> |
| <b>6</b> | <b>NEUROBIOLOGY</b>                             |
| <b>7</b> | <b>THERAPEUTICS</b>                             |

## PTSD/DISSOCIATIVE DISORDERS

- 7 SYMPTOMATOLOGY – DSMIV – VIDEOS
- 8 NEUROPATHOLOGY
- 9 ETIOLOGY AND THERAPEUTICS
- 10 COMPLEX PTSD AND DISSOCIATIVE IDENTITY DISORDER

\*\*\*EXAM #2 (TAKE HOME – DUE 24 HR LATER)

## SCHIZOPHRENIA

- 11 SYMPTOMATOLOGY – DSMIV – VIDEOS – NEUROPATHOLOGY
- 12/13 ETIOLOGY/NEURODEVELOPMENTAL HYPOTHESES/MODELS
- 14 CURRENT/EXPERIMENTAL THERAPEUTICS

\*\*\*EXAM #3 (TAKE HOME – DUE 24 HR LATER)

### Required Readings and Power Points:

The goal of this course is to provide a high-level, contemporary discussion of the scientific literature, thus, each section contains several required journal articles from the primary literature (see preliminary list below). **Electronic copies of all articles, not distributed in class, along with color versions of the Power Points used during class, will be available on Carmen (<https://carmen.osu.edu/>) under my name/Spring 2010/Psychology/H613.**

### Recommended Background Reading:

Professor Bruno will be happy to recommend (and possibly provide) a few background chapters/texts on neurophysiology, neuroanatomy and psychopharmacology.

### **Course Objectives:**

The purpose of this course is to provide a contemporary survey of our understanding of the biological bases of several significant psychopathologies. The course will highlight four disorders - depression, anxiety disorders, post-traumatic stress disorder (PTSD), and schizophrenia. For each disorder, students will learn the diagnostic classifications, presenting symptomatology, underlying neurobiological dysfunctions, and current and future (experimental) therapeutic strategies. As appropriate, the utility of animal models for each of these disorders will also be discussed.

An important goal of this course is to train advanced students to critically read the primary literature. The required readings in this course are complex, written at a high scholarly level and will require a significant effort to process. You will have to devote sufficient time at the beginning of each week to read these articles in preparation for the discussions in class.

An additional goal of this course is to develop critical thinking and writing skills that are vital to any post-graduate training experience. **Thus, the examinations will consist of essay questions focusing on the ability to support or refute hypotheses on the basis of the scientific literature.**

### **Student Evaluation:**

This is a high level course and the instructor expects that all students will read the material *prior* to class and come prepared to *discuss* the readings.

There will be **three examinations** in this course. The 1<sup>st</sup> exam will contribute **25%** of the grade whereas the 2<sup>nd</sup> and 3<sup>rd</sup> exams will each contribute **30%** of the grade. The exams will be short-essay and take-home; with a **non-flexible** 24 hr return policy. Importantly, the quality of classroom participation will contribute significantly to your final grade (**15%**). **Thus, class attendance and active participation is critical to your success in this course.**

**Rather than assuming that performance in this class will follow a theoretical normal distribution (i.e.  $\geq 90\%$  = A,  $\geq 80\%$  = B, etc...), the course grades may be curved depending upon overall class performance.**

**Academic Misconduct:**

**All students at the Ohio State University are bound by the Code of Student Conduct (see [http://studentaffairs.osu.edu/pdfs/csc\\_12-31-07.pdf](http://studentaffairs.osu.edu/pdfs/csc_12-31-07.pdf) ). Violations of the code in this class will be dealt with according to the procedures detailed in that code. Specifically, any alleged cases of misconduct will be referred to the Committee on Academic Misconduct.**

**Students with Special Needs:**

**Any student who feels that she/he may need an accommodation based on the impact of a disability should contact Professor Bruno (2-1770) privately to discuss her/his specific needs. Also, contact the Office of Disability Services (2-3307) to coordinate such accommodations.**

## REPRESENTATIVE READING LIST – PSYCH H613

### I. Mood Disorders (Depression)

#### Weeks 1/2

- Handout from the DSMIV-R manual - Depression.
- Davidson, R.J. & Irwin, W. The Functional Neuroanatomy of Emotion and Affective Style. *Trends in Cognitive Sciences*, 3, 11-21, 2002.
- Le Moal, M. & Mayo, W. Functional Neuroscience of Mood Disorders, in *Biological Psychiatry*, (Eds: H. D'haenen, J.A. den Boer & P. Willner), pp 803-814, John Wiley & Sons, Ltd.:London, 2002).

#### Weeks 3

- Rogers, M.A., Ksaii, K., Koji, M., Fukuda, R., Iwanami, A., Nakagome, K., Fukuda, M., and Kato, N. Executive and Prefrontal Dysfunction in Unipolar Depression: A Review of Neuropsychological and Imaging Evidence. *Neuroscience Research*, 50, 1-11, 2004.
- Kalia, M. Neurobiological basis of depression: an update. *Metabolism Clinical and Experimental*, 54 (Supp 1), 24-27, 2005.

#### Week 4

- McEwen, B.S. Glucocorticoids, depression, and mood disorders: structural remodeling in the brain. *Metabolism Clinical and Experimental*, 54 (Supp 1), 20-23, 2005.
- Wurtman, R.J. Genes, stress, and depression. *Metabolism Clinical and Experimental*, 54 (Supp 1), 16-19, 2005.
- Nemeroff, C.B. The burden of severe depression: a review of diagnostic challenges and treatment alternatives. *Journal of Psychiatric Research*, 41 (3-4), 189-206, 2007.

## **II. Anxiety Disorders**

### **Week 5**

- Handout from the DSMIV-R manual - Anxiety Disorders.
- Charney, D.S. Neuroanatomical Circuits Modulating Fear and Anxiety Behaviors. *Acta Psychiatr Scand*, 108 (Suppl. 417), 38-50, 2003.
- Garakani, A., Mathew, S., and Charney, D.S. Neurobiology of Anxiety Disorders and Implications for Treatment, *The Mount Sinai Journal of Medicine*, 73, 941-949, 2006.
- Goddard, A.W., Coplan, J.D., Shekhar, A., Gorman, J.M., and Charney, D.S. Principles of Pharmacotherapy for the Anxiety Disorders, in *Neurobiology of Mental Illness*, (Eds: D.S. Charney & E.J. Nestler, 2 edition), pp 661-679, Oxford Press: New York, 2004.

## **III. PTSD**

### **Weeks 6/7**

- Handout from the DSMIV-R manual.
- van der Kolk, B.A. The psychobiology of posttraumatic stress disorder. *Journal of Clinical Psychiatry*, 58 (Supp 9), 16-24, (1997).
- Lanius, R.A., Williamson, P.C., Boksman, K., Densmore, M., Gupta, M., Neufeld, W.J., Gati, J.S. and Menon, R.S. Brain activation during script-driven imagery induced dissociative responses in PTSD: a functional magnetic resonance imaging investigation. *Biological Psychiatry*, 52, 305-311, (2002).
- Deckersbach, T., Dougherty, D.D., and Rauch, S.L. Functional imaging of mood and anxiety disorders, *J Neuroimaging*, 16, 1-10, (2006)

## **IV. SCHIZOPHRENIA**

### **Weeks 8/9/10**

- Wong, A.H.C. & Van Tol, H.M. Schizophrenia: from phenomenology to neurobiology. *Neuroscience and Biobehavioral Reviews*, 27, 269-306, (2003).

- Kapur, S. Psychosis as a state of aberrant salience: a framework linking biology, phenomenology and pharmacology in schizophrenia. *American Journal of Psychiatry*, 160, 13-23, (2003).
- Tamminga, C.A. Principles of the pharmacotherapy of schizophrenia, in *Neurobiology of Mental Illness*, (Eds: D.S. Charney & E.J. Nestler, 2 edition), pp 339-356, Oxford Press: New York, 2004. (Weeks 9)
- Sarter, M., Nelson, C.L., and Bruno, J.P. Cortical cholinergic transmission and cortical information processing in schizophrenia. *Schizophrenia Bulletin*, 31, 117-138, (2003).