BIBB 380: BIOLOGICAL BASIS OF PSYCHIATRIC DISORDERS

Faculty: Nedra Lexow, Ph.D.
Email: nedralexow@comcast.net
Office telephone number: 610 212 2664
Office hours: Monday and Wednesday 3:00-5:00
Soloman Labs B28

Required Reading
The class readings are carefully selected from the vast literature available on topics related to the biological basis of psychiatric disorders. Assigned journal articles will be available either in the biomedical library or on-line via Penn Library e-journals. Students are encouraged to explore the scientific literature as they locate specific assigned articles.

Resources
University of Pennsylvania
Blackboard
Biomedical Library
Penn Library Online E-Journals
http://www.library.upenn.edu/cgi-bin/res/sr.cgi?resourcetype=17

PubMed http://www.ncbi.nlm.nih.gov/entrez/query.fcgi

Online Brain Atlases
http://www.med.harvard.edu/AANLIB/home.html
http://www.vh.org/adult/provider/anatomy/BrainAnatomy/BrainAnatomy.html
http://www9.biostr.washington.edu/da.html

NIMH http://www.nimh.nih.gov
FDA http://www.fda.gov/
World Health Organization http://www.who.int/whr/2001/en/
DSM-IV-TR http://www.behavenet.com/capsules/disorders/dsm4TRclassification.htm
Medical Dictionary http://www.nlm.nih.gov/medlineplus/mplusdictionary.html
Google (Scholar, Images) http://www.google.com/
Web NeuroGuide **http://www.neuroguide.com/**

Prerequisites
Successful completion of BIBB 109 or an equivalent is required for this course. The level of presentation of course material assumes that all students have mastered the content in the prerequisite courses. Texts used in these prerequisite courses will be most helpful for review and as additional resources for this course.

Course Description
The goal of the course is to explore the biological basis of neuropsychiatric dysfunction and resulting behavioral syndromes. The contributions of a broad expanse of disciplines in preclinical and clinical arenas to the etiology, diagnosis, treatment, and management of brain dysfunction will be presented. Emphasis is placed on critical evaluation of research strategies and hypotheses. A key thematic thread throughout the course will be the parallel evolution of our understanding of the organization and function of the brain, theories of the pathophysiological basis of neural dysfunction, and research methodologies used in the investigation of neural mechanisms involved in the control of complex behaviors.

Course Objectives
The following objectives will be achieved through lectures, reading of scientific literature, class discussions, large and small group exercises, individual and group presentations, and written assignments.

1. Student will understand the current state of knowledge regarding the demography, clinical phenomenology, diagnosis, etiology, pathology and treatment/management of psychiatric disorders.
2. Student will critically evaluate reports of original research with regard to the rationale, hypothesis, research design, sources of error and variability, and significance of findings.
3. Student will recognize the strengths and weaknesses of a diverse range of methodologies – animal models, neuroimaging, neurogenetics, neuroanatomy, neurophysiology, neuropharmacology, neuroendocrinology and clinical trials – used in the exploration of the biological basis of psychiatric disorders.
4. Student will acknowledge the roadblocks that constrain scientists in the quest to resolve the mystery of brain dysfunction and the pursuit to provide satisfactory treatment for those suffering from these disorders.
5. Student will share informed opinions about the biological basis of psychiatric disorders with peers and recognize constructive contributions of all participants in the discourse.

IMPORTANT NOTE: I will communicate with the class through Blackboard email Communications may include class, office hours,cancellations, changes in meeting rooms or timesPlease go into your personal profile in Blackboard and confirm that the email address listed is the email you will be reading on a daily basis. he class topics and reading assignments WILL change.

NOTE
I will not accept papers that are not stapled
I will not grade papers that are not reference properly

Grading
Grading will be based on a total of 100 points as outlined below:

Class participation (25 points) Class participation is required. The assigned readings provide the basis of class discussions. A written assignment based on the readings will be required for each class – usually 3-5 pages. Your participation grade will be based on the quality and accuracy of the written assignment, plus

your contribution to class discussion. In the event that you do not have an opportunity to contribute in class, your written assignment will
Participation scores are determined on the following 3-point system:

Present, no participation = 1 point
Present and accurate and informed participation = 2 points
Present and exceptional/inspired participation = 3 points
Not present = 0 points
Written comments on the topic/readings presented **prior to class** will be accepted if you must miss class.
2 points, accurate and informed
3 points exceptional/inspired

There will be 10 scheduled classes where participation points can be earned. Your participation grade will be the sum of your eight best participation scores +1 point for a total possible participation score of 25. Earned points will be posted on Blackboard within 2 days of class. If you do not agree with your score, please provide written explanation of your contribution.

Class participation is evaluated at 3 levels: 1) comments not related to reading but associated with student's previous training and/or personal experience, 2) contributions directly related to the assigned reading, 3) comments which indicate a synthesis of the learnings from the readings into a new level of understanding with regard to the previous experience and training of the student (this does not mean that the student must "buy" the biological basis point of view, but everyone at the 3 point level is expected to rigorously defend their point of view)

Midterm (25 points) The take-home midterm will be a written analysis of an assigned topic (see examples on Blackboard/Course Information/Student Midterms). The Midterm is due October 27, 2005.

Group Participation and Presentation (25 points - evaluation provided by team members) Each group will develop a 55-minute presentation on an assigned topic (presentation - 40 minutes, group discussion -15 minutes). For examples of past student presentations please refer to Blackboard/Course Documents/Student Presentations.

Attendance for all team presentations (see schedule for exact dates) is required. Absence from any portion of these classes will result in a **deduction** of 3 points from your presentation score.

***Research Paper (25 points*)** The 10 – 20 page final research paper will be based on some aspect of the topic assigned to your group. The research paper is due on the first day of group presentations (see schedule). The final research paper is due December 1, 2005.

Final grade
Grades for the course will be assigned according to the following guidelines:

A+	>100 and discretion of faculty	B	83-87
		B-	80-82
A	93-100	C+	78-79
A-	90-92	C	73-77
B+	88-89	C-	70-71

Late assignments are penalized 2 points for each late day.
Grading criteria will be at the discretion of the faculty. Students may petition to have their grade re-evaluated by submitting a written rationale for the change of grade. The faculty will then have the option to increase, decrease or keep the grade the same.

IMPORTANT NOTE
All assignments must be "typed" or "word processed." I cannot accept handwritten assignments. Please use at least a 12-point font and single space (to save paper). All pages of the assignment must be stapled (not folded, not paper clipped) as one unit, regardless of the number of questions or components of the assignment. Please include a running footer with name and page number (example: J. Brown page 3/5).

SPRING 2006 CLASS SCHEDULE			
#	**DATE**	**TOPIC**	**Assigned Reading**
1	11Jan06	Introduction Overview of Course Psychiatric Disorders: Clinical Phenomenology Diagnosis Etiology Treatment	Diagnostic and Statistical Review of Psychiatric Disorders IV-TR Mood Disorders Anxiety Disorders Schizophrenia and Psychotic Disorders Review NIH, NIMH, and WHO Websites Review Patient Advocacy Sites Neuroanatomy Overview
2	18Jan06	Mood Disorders Neurogenic Hypothesis of Depression	Gross (2000) **Neurogenesis in the adult brain: death of a dogma**. Nature Reviews Neuroscience 1: 67-73. • Duman (2004) **Deepression: A case of neuronal life and death?** Biological psychiatry 2004 56:140-145. • Sapolsky (2004) **Is impaired neurogenesis relevant to the affective symptoms of depression?** Biological Psychiatry 56:137-139. • Henn and Vollmayr (2004) **Neurogenesis and Depression: Etiology or Epiphenomenon?** Biological Psychiatry 56:146-150. Karten, Olariu, Cameron (2005) Stress in early life inhibits neurogenesis in adulthood. Trends in Neuroscience 28(4):171-172.
3	25Jan06	Depression and Stress Gene x Environment Interaction	1. Caspi, Sugden, Moffitt, Taylor, Craig, Harrington, McClay, Mill, Martin, Braithwaite, and Poulton (2003) **Influence of life stress on depression: moderation by a polymorphism in the 5-HTT gene**. Science 301:386. Study Guide on Blackboard. 2. Assigned bibliographic resource
4	O1Feb06	Bipolar Disorder Focus on Pediatrics	1.Leibenluft, Charney, and Pine (2003) **Researching the pathophysiology of pediatric bipolar disorder.** Biological Psychiatry 53:1009-1020. Study Guide on Blackboard. 2.Friedman, Dager, Parow, Hirashima, Demopulos, Stoll, Lyoo, Dunner, and Renshaw (20040 **Lithium and valproic acid treatment effects on brain chemistry in bipolar disorder**. Biological Psychiatry 56:340.
5	O8Feb06	Anxiety Disorders Placebo Effect Symptom Provocation	1.Huppert, Schultz, Foa, Barlow, Davidson, Gorman, Shear, Simpson, Woods (2004) **Differential response to placebo among patients with social phobia, panic disorder, and obsessive-compulsive disorder**. American Journal Psychiatry 161(8):1485-1487 2.Ho, Westberg, Annerbrink, Olsson, Melke, Nilsson, Baghaei, Rosmond, Holm, Bjorntorp, Andersch, Allgulander, Eriksson (2004) Psychoneuroendocrinology 29(9):1138-1141.

SPRING 2006 CLASS SCHEDULE			
#	**DATE**	**TOPIC**	**Assigned Reading**
6	15Feb06	Suicide in Psychiatric Disorders	Bourgeois, Swendsenm Young, Amador, Pini, Cassano, Lindenmayer, Hsu, Alphs, Meltzer, InterSePT study Goup (2004) **Awareness of disorder and suicide risk in the treatment of schizophrenia: results of the international suicide prevention trial**. American Journal Psychiatry 161:1494-1496
	22Feb06	Drop Period Ends	
7	01Mar06	Schizophrenia and Psychotic Disorders	1. Holden (2003) **Deconstructing Schizophrenia**.. Science 299:334-339 2. Ragland, Gur, Valdez, Turetsky, Elliott, Kohler, Siegel, Kanes, Gur (2004) **Event-related fMRI of frontontemporal activity during word encoding and recognition in schizophrenia**. American Journal Psychiatry 161(6):1004-1015 3. Egan et al (2004) **Variations in GRM3 affects cognition, prefrontal glutamate, and risk for schizophrenia.** PNAS 101:12604**. Family-based association study** 4. Trachev, Mimmack, Ryan, Wayland, Freeman, Jones, Starkey, Webster, Yolken, and Bahn (2003**) Oligodendrocyte dysfunction in schizophrenia and biopolar disorder**. Lancet 362:798. Global expression-profiling study.
8	08Mar06	Schizophrenia: Endophenotypes	1. Meincke, Light, Geyer, Braff, Gouzoulis-Mayfrank(2004) **Sensitization and habituation of the acoustic startle reflex in patients with schizophrenia**. Psychiatry Research 126:51-61. 2. Light and Braff (2001) **Measuring P50 suppression and prepulse inhibition in a single recording session**. American J Psychiatry 158:2066-68 3. Braff, Stone, Callaway, Geyer, Glick, Bali (1978) **Prestimulus effects on human startle reflex in normals and schizophrenics**. Psychophysiology 15:339-343. handout in class
9	15Mar06	Circuits: Fear Circuit OCD Circuit (Symptom Specificity)	Honey, Fletcher, Bullmore (2002) **Functional brain mapping of psychopathology**. Journal of Neurology Neurosurgery Psychiatry 72:432-439. Saxena, Brody, Maidment, Smith, Zohrabi, Katz, Baker, Baxter (2004) **Cerebral Glucose Metabolism in Obsessive Compulsive Hoarding.** American Journal of Psychiatry 161:1038-1041.
10	22Mar06	Circuits con't.: Hallucination Circuit Emotion Circuit	1. Hubl, Koenig, Strik, Federspiel, Kreis, Boesch, Maier, Schroth, Lovblad, Dierks (2004**) Pathways that make noise**. Archives of General Psychiatry 61:658-668 2. Silbersweig, Stern, Frith, Cahill, Holmes, Grootoonk, Seaward, McKenna, Chua, Schnorr, Jones, Frackowiak (1995) **Functional neuroanatomy of hallucinations in schizophrenia**. Nature 378:176-179 1. Mayberg (1997) **Limbic-Cortical Dysregulation: A proposed model of depression**.

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#	**DATE**	**TOPIC**	**Assigned Reading**
			Journal of Neuropsychiatry9:471-481 2. Neumeister, Nugent, Waldeck, Geraci, Schwartz, Bonne, Bain, Luckenbaugh, Herscovitch, Charney, Drevets (2004) **Neural and behavioral responses to tryptophan depletion in unmediated disorder and controls**. Archives of General Psychiatry 61:765-773.
11	29Mar06	Psychosurgery: Depression Anorexia Schizophrenia OCD	1.Feldman, Alterman, Goodrich (2001) **Contemporary psychosurgery and a look to the future**. Journal of Neurosurgery 95:944-956. 2. Presaud,Crossley, Freeman (2003) **Should neurosurgery for mental disorder be allowed to die out?** British Journal of Psychiatry 183:195-196 Group 1: Dougherty, Weiss, Cosgrove, Alpert, Cassem, Nierenberg, Price, Mayberg, Fishman, Rauch (2003) **Cerebral metabolic correlates as potential predictors of response to anterior cingulotomy for treatment of major depression**. Journal of Neurosurgery 99:1010-1017. Group 2: Morgan, Crisp (2000) **Use of Leucotomy for intractable anorexia nervosa: A long-term follow-up study**. International Journal of Eating Disorders 27:249-258. Group 3 da Costa (1997) :**The role psychosurgery in the treatment of selected cases of refractory schizophrenia: a reappraisal.** Schizophrenia Research 28:223-230. Group 4: Dougherty, Baer, Cosgrove, Cassem, Price, Nierenberg, Jenike, Rauch (2002) **Prospective long-term follow-up of 44 patients who received cingulotomy for treatment-refractory obsessive-compulsive disorder.** American Journal of Psychiatry 159:269-275.
12		Group Presentations	
13		Group Presentations	

NOTE: The class topics and reading assignments WILL change. I will communicate these changes in class, via email and Blackboard. You must stay in touch to assure you are prepared for participation in class discussions. Please go into your personal profile in Blackboard and confirm that the email address listed is the email that you will be reading on a daily basis.