

SCIE 612: Topics in Neuroscience and Behavior Summer 2010
Instructors: Janice Naegele and Paul Lombroso

Days: Mondays and Wednesdays
 Dates: June 21-July 21, 2010

Time: 6-8:30 PM
 Location: Science Center Rm 121

CLASS	DATE	TOPIC	READINGS	LECTURER	WEEKLY ASSIGNMENT
1	June 21 Mon	The formation of the nervous system in the human embryo and anatomical organization of the mature brain	NETB Ch. 1, 2 (pp. 3-48) Ch 7 (pp. 167-205) Human Brain coloring book pages	Naegele	Class work with human brain models; brain coloring book
2	June 23 Wed	Wiring the brain: neurogenesis, synaptogenesis, cell death	NETB Ch. 23 (pp 689-708)	Naegele	#1 Problem set
3	June 28 Mon	Molecular Biology: DNA to mRNA to Protein	MBOTC pp. 41-60, 89-128. NETB, Ch. 3 (pp. 51-71) ST, Ch. 9	Lombroso	
4	June 30 Wed	Molecular Biology of Developmental Disorders	1. Venkitaramani & Lombroso <i>Child Adolesc Psychiatr Clin N Am</i> (2007) 16(3): 541-56. 2. BP: Ch 16 (pp. 488-514)	Lombroso	#2 Problem set
5	July 5 Mon	Role of neural activity and sensory experience in patterning the brain during early critical periods.	1. NETB, Ch. 23 (pp 709-723) 2. Fox SE, Levitt P, Nelson CA (2010) <i>Child Dev.</i> 81(1): 28040.	Naegele	

6	July 7 Wed	Translational Neuroscience: gene and stem cell therapies for neurodegenerative disorders	Naegele et al (2010) <i>Neuropharmacology</i> 58: 855-864. Naegele JR and Maisano X (2010) (book chapter) <i>Epilepsy: Mechanisms, Models, and Translational Perspectives</i> .	Naegele	#3 Short essay (2-3 pages)
7	July 12 Mon	Learning and memory; memory disorders	1. NETB, Ch. 24 & 25 (pp. 725-792) 2. Lombroso & Ogren Columns 5,6	Lombroso	
8	July 14 Wed	Translational neuroscience: from bench to clinic and back again for treatment of Alzheimer's disease	1. Pangalos, Jacobsen, Reinhart (2005) <i>Biochemical Society Transactions</i> 33(4): 553-558.	Lombroso	#4 Short essay (2-3 pages)
9	July 19 Mon	Child Psychiatry and Translational neuroscience: Tourette Syndrome and Fragile X	1. Comery, T.A., et al (1997). <i>Proc. Natl. Acad. Sci. USA</i> 94, 5401-5404. 2. Bear, M.F., Huber, et al. (2004). <i>Trends Neurosci.</i> 27, 370-377. 3. Lombroso & Scahill (2008) Tourette syndrome and OCD. <i>Brain & Development</i> 30: 231-237. 4. Scahill, Erenberg, Berlin et al (2006) <i>NeuroRx</i> 3, 192-206.	Scahill & Goebel-Goody	
10	July 21 Wed	Autism and autism spectrum disorders	Klin et al (2002) <i>Arch Gen Psychiatry</i> 59: 809-816. Gliga & Csibra (2007) <i>Prog Brain Res.</i> 164: 323-339	Klin	#5 short essay (2-3 pages)

Course Description:

Neuroscience is a highly interdisciplinary field drawing from diverse disciplines including psychology, biology, philosophy, and psychiatry. This seminar and lecture course focusing on understanding how the molecular, cellular, and functional organization of the brain changes during embryonic and postnatal life and how these changes are regulated the environment and sensory experience. Topics include the neurobiology of learning and memory. The field of translational neuroscience research and clinical studies of neurological disorders is also highlighted. Topics include: stem cells, epilepsy, Alzheimer's disease, attention deficit disorder, Fragile X, and autism. Hands-on work with human brain models will reinforce readings and lectures. There are five weekly assignments that include problem sets and short written essays, 2-3 pages in length. Grades are based on the weekly assignments (75%) and class participation (25%).

Readings:

BP= <i>Biological Psychiatry</i> by Mark Rosensweig et al.	MBOTC = <i>Molecular Biology of the Cell</i> by Bruce Alberts et al
NETB = <i>Neuroscience: Exploring the Brain</i> by Mark Bear et al.	ST = <i>Signal Transduction</i> by Bastien Gomperts et al.

Additional reprints will be available in the readings packet and on-line through the Wesleyan University library. A reading package will be available for purchase the first week of class.

Instructors:

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