Psych 5270 Section 01 – NeuroDevelopment and Plasticity *(rev 2/8/2011)*
Spring 2011, Tuesdays, 3-6p, Bousfield 109
Dr. Holly Fitch, 486-2554, Roslyn.h.fitch@uconn.edu
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Jan 18 – SNOW DAY

Jan 25 - Introduction, distribute syllabus, finish sign-ups.
General review of neural development and behavioral milestones, Dr. Fitch.

Feb 1 - SNOW DAY again….

Feb 8 – NeuroDevelopment: Mechanisms and Genetics; Normal Development	*Diaz & Gleeson, 2009,* The molecular and genetic mechanisms of neocortex development 7 pages *Mitsuhashi & Takahashi, 2009*, Genetic regulation of proliferation/differentiation characteristics of neural progenitor cells in the developing neocortex 5 pages plus… *Walsh, 2000,* Genetics of neuronal migration in the cerebral cortex 5 pages (10 total, present together)	1. Lena O'Keefe 2. Samantha Podurgiel & 3. Lauren Long
	a) Webb, Monk & Nelson, 2001, Mechanisms of postnatal neurobiological development: Implications for human development 20 pages (shared)	4. Amanda Smith 5. Jessica Santerre

Feb 15 – NeuroDevelopment, Phylogeny, and Evolution	a) *Willmore, 2010,* Development influences evolution 7 pages *Basar, 2009,* Darwin's evolution theory, brain oscillations, and complex brain function in a new "Cartesian view" 7 pages (to be presented together)	6. Lauren Long 7. Lauren Long
	b) Finlay, 1998, Patterns of vertebrate neurogenesis and the paths of vertebrate evolution 10 pages *Rakic, 2009*, Evolution of the neocortex: a perspective from developmental biology 9 pages	8. Samantha Podurgiel 9. Jessica Santerre
Feb 22 – NO CLASS		
Mar 1 - Perinatal NeuroDevelopment and Vulnerability	*a) Rice & Barone, 2000*, Critical periods of vulnerability for the developing nervous system: Evidence from humans and animal models 18 pages (shared)	10. Katie Moritz 11. Jessica Lurie
	b) *Aylward, 2005*, Neurodevelopmental outcomes of infants born prematurely 11 pages *El-Dib et al., 2010*, Neuroimaging and neurodevelopmental outcome of infants born prematurely 12 pages (suggest these be presented together)	12. Amanda Smith 13. Sudha Srinivasan
March 8 – NO CLASS	***UConn Spring Break***	

Mar 15 – Plasticity, Part I. Synaptic circuits and experience.	*a) Johnston et al., 2001*, Sculpting the developing brain. 32 pages (shared)	14. Lena O'Keefe 15. Anuja Kanaskar 16. Emily Szkudlarek
	b) *Katz & Shatz, 1996*, Synaptic activity and the construction of cortical circuits 5 pages *Randy Nudo, 2006*, Plasticity 6 pages	17. Nicole Depowski *18. Anuja Kanaskar*
March 22 – Plasticity, Part II. Deprivation and re-organization.	*a) Mauerer et al. 2005,* Missing sights: consequences for visual development. 6 pages *Bavelier et al. 2006*, Do deaf individuals see better? 6 pages	19. Julianna Flynn 20. Katie Moritz
	b) *Finney et al., 2001,* Visual stimuli activate auditory cortex in the deaf 2 pages *Harrison et al., 2005*, Is there a critical period for cochlear implantation in congenitally deaf children? Analyses of hearing and speech perception performance after implantation 9 pages	21. Michelle Spina 22. Nicole Depowski
March 29 -- Cognitive NeuroDevelopment.	*a) Casey et al., 2005,* Imaging the Developing Brain: What Have we Learned about Cognitive Development? 5 pages	*23. Emily Carrigan*

	Toga et al., 2006, Mapping brain maturation 10 pages	24. Nicole Depowski
	b) Kuhl & Rivera-Gaxiola, 2008, Neural Substrates of Language Acquisition 17 pages (shared)	25. Jinhee Park 26. Emily Carrigan
April 5 – Motor Development and Cerebral Palsy	a) *Martin, 2005*, The corticospinal system: from development to motor control 11 pages *Martin et al., 2004,* Corticopsinal system development depends on motor experience 9 pages	27. Sudha Srinivasan 28. *Katie Moritz*
	b) *Silbereis et al., 2010*, Towards improved animal models of neonatal white matter injury associated with cerebral palsy. 9 pages (present together) *Johnston, 2009*. Plasticity in the developing brain: implications for rehabilitation. 6 pages	29. Amanda Smith & 30. Sam Podurgiel 31. Julianna Flynn
April 12 - LLI/Dyslexia and neurodevelopment.	*a) Bishop, 2009,* Genes, cognition and communication. Insights from neurodevelopmental disorders. 15 pages (shared)	32. Jinhee Park 33. Anuja Kanaskar
	b) Shaywitz & Shaywitz, 2008, Paying attention to reading: The neurobiology of reading and dyslexia 16 pages (shared)	34. Grace Jasminski 35. Emily Szkudlarek 36. Anish Kurian

April 19 – Autism and neurodevelopment.	*a) Geschwind and Levitt, 2007*, Autism spectrum disorders: developmental disconnection syndromes 6 pages *Amaral et al., 2008*, Neuroanatomy of autism. 7 pages	37. Julianna Flynn 38. Sudha Srinivasan
	b) Courchesne et al., 2007, Mapping early brain development in autism. 11 pages (shared)	39. Jessica Lurie *40. Emily Carrigan*
April 26 – Williams syndrome and neurodevelopment; Savante syndrome	*a) Bellugi et al., 1999*, Bridging cognition, the brain and molecular genetics: evidence from Williams syndrome 10 pages (shared) *b) Levitin et al., 2004,* Characterizing the musical phenotype in individuals with Williams Syndrome 15 pages (shared)	41. Lena o'Keefe & 42. Michelle Spina 43. Emily Szkudlarek & 44. Anish Kurian
	c) Heaton & Wallace, 2004, The savante syndrome. 10 pages *Trefferet, 1999*, The savante syndrome and autistic disorder	45. Grace Jasminski 46. Elizabeth Ciccarelli
May 3 (Final Class) – ADHD and neurodevelopment	a) *Durston, 2008,* Converging methods in studying attention-deficit/hyperactivity disorder: What can we learn from neuroimaging and genetics? 10 pages *Mahone & Wodka, 2008*, The neurobiologic profile of girls with ADHD 7 pages	47. Jinhee Park & 48. Anish Kurian 49. Jessica Lurie

	b) *Andersen & Navalta., 2004*, Altering the course of neurodevelopment: a framework for understanding the enduring effects of psychotropic drugs. 13 pages (shared) Final 30 min, final discussion (no paper for following week)	50. Jessica Santerre 51. Michelle Spina 52. Elizabeth Ciccarelli

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CLASS FORMAT

The format of the class will require full student participation – there are no tests or submitted papers. Rather, the scholarly product of the class will be **3 in-class presentations per student** (3X18 students=54), with the only exception provided to the 2 Juniors in class, who may sign up for 2 presentations = total 52. ALL students are expected to read assigned papers and to participate in weekly discussions.

Each class is scheduled to provide for 2 student presentations of approximately 30 min (20-25 min plus 5-10 min discussion, 1 hour total for 2 presentations), with a short 10 min break, and then 2 additional student presentations of 30 min each (1 hour). These presentations are designed to be highly integrated – ***it is critically important for the presenters on a given day to carefully read each others papers, to discuss any areas of overlap and congruity and how these will be presented, and to reference each others presentations.***

To accommodate this requirement, the final 30 min of each class (5:30-6p) is allocated to allow the 4 students in the upcoming week to draft their joint presentations. Combined presentations in which papers are presented simultaneously side by side with each student participating equally, are encouraged. In fact, some longer papers are shared and thus *require* 2 students to work together. *This organization will be the responsibility of presenters, and will likely require some meeting time beyond the 30 min provided in class.*

The requested format for student presentations is PowerPoint or an equivalent, but if for some reason this is absolutely not possible, the use of hand-outs is permissible.

Each 30 min talk should proceed as follows:
1) Providing *introduction and background* to the topic. Summary slides from resources outside the paper itself may be used -- for example, when discussing the developmental effects of blindness, a quick review of the brain areas involved in visual processing prior to discussion of the paper would be appropriate. This might reasonably cover **3-5 min**.
2) Presentation of the *hypothesis or topic* itself. What does the paper hope to address? **1-2 min.**
3) *How* was the study or studies conducted. For review papers, this may require a brief overview of various *methods* employed in various fields. For example, in the presentation of genetic papers, some background on the methodology for studying the gene(s). For neuroimaging, a brief review of fMRI, etc. **5 min.**
4) *What was found*. This will comprise the bulk of the presentation. For review papers, the results and findings should be presented in order as described in the paper (section by section). Graphs and diagrams from the paper should be used to illustrate and describe key findings. **10-15 min. for single paper, 30 min for shared**.
5) Take home points. Provide an overall summary of the work, and why it is important. **2 min**.
Hopefully the above will allow for 5-10 min of discussion following each presentation.

Class timetable will thus follow:
3-3:30, Presentation 1
3:30-4, Presentation 2 (or combined)
4-4:10, break
4:10-4:40, Presentation 3
4:40-5:10, Presentation 4 (or combined)
5:10-5:30, General Discussion
5:30-6, Planning session for upcoming class

Other Student Responsibilities
All students are expected to read through topic papers *prior to class* when not presenting, and participate actively in discussion following presentations.

Instructor Responsibilities

I will make all papers available in advance for download/printing on a class website at www.fitchlab.com. I will be available by appointment (Bous 113) or email (Roslyn.h.fitch@uconn.edu) to assist in answering questions or help in preparing presentations, and I can provide additional resources to presenters if needed (e.g., additional diagrams, or ideas for short YouTube videos to supplement class presentations). I may (likely will) interrupt presentations to provide points of clarification or to note additional information. I will guide discussion after each presentation, and at the end of class.

Grades

Grades will be based *solely* on class participation, and typically vary (based on past experience) from A+ to B (although the instructor always reserves the right to grade an unexpectedly poor performance accordingly). Any grade lower than A- indicates inadequate weekly participation and/or preparation on presentations.