

INSC/CAMB 597 - Developmental Neurobiology 2011

Wednesday and Friday 2:00 – 3:30; Room 1105, BRB II/III

Mandatory Organizational Meeting: January 19th,
2:00PM in 1105 BRB II/III

Course Director: Greg Bashaw (gbashaw@mail.med.upenn.edu)

General Description: The goal of this course is to examine the principles underlying nervous system development. This is not a survey course in Developmental Neurobiology. Rather, the course will focus on selected topics, for which we will discuss the genetic, molecular and cellular strategies employed to study these problems in different model organisms.

Spring 2011 Topics: Generation of Neuronal Diversity; Cell Migration in the Cortex; Specification Of Spinal Cord Neurons; Axon Guidance at the Midline; Tiling and Branching; Synapse Formation; Wiring the Olfactory System.

Textbooks: No specific textbooks are required. The following texts are useful resources. *Developmental Biology* by Scott Gilbert; *Development of the Nervous System* by Sanes, Reh, and Harris; and *Molecular and Cellular Approaches to Neural Development* edited by Cowan, Jessell, and Zipursky.

Format: Each class is 1.5 hours in length. During the first hour, an assigned paper will be discussed in detail. During the last 20-30 minutes, faculty will introduce methods, concepts, and background information pertinent to the paper that will be discussed at the following meeting.

While faculty will provide guidance during the discussion, students will be primarily responsible for presenting and discussing the papers. So that every participant can contribute thoughtfully to the discussion, you should come prepared to answer these questions:

- 1) What was the main finding of the paper (3-4 sentences)?
- 2) What experiment produces the authors' most convincing data?
- 3) What experiment is the least convincing or weakest? Why?

4) What hypothesis derived from this paper would you set out to test next, and how (3-4 sentences)?

You will submit written answers to these questions at the beginning of each class- so do not try to read the paper just before class.

Grading: A) Participation in paper presentation and discussion: 50%. During the semester, you will receive feedback on your participation by e-mail. B) Two 2-page research type proposals, 25% each. Each proposal will be on a topic of your choice that has already been discussed in the course. Guidelines on the proposal as well as an example will be posted on the Blackboard.

Course Web page: This course will use Penn's "Electronic Blackboard" web software at: <https://courseweb.upenn.edu/>. All materials and updates will be posted here. This is a secure site requiring your PennKey. A guide on how to get up and running with the Blackboard can be found at http://www.library.upenn.edu/courseware/usingbb_students.html. If you have trouble with access, please contact the support staff at bb-support@pobox.upenn.edu

Syllabus: Developmental Neurobiology (Spring 2011)

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Date	Topic	Faculty
Wed 1/19 2:00PM	ORGANIZATIONAL MEETING Introduction to first paper	Greg Bashaw gbashaw@mail.med.upenn.edu
Fri 1/21 Wed 1/26 Fri 1/28	SPECIFICATION OF NEURAL CELL TYPES I <i>Generation of Neuronal Diversity</i>	Greg Bashaw
Wed 2/2 Fri 2/4 Wed 2/9 Fri 2/11	CELL MIGRATION I <i>Cell Migration in the Cortex</i>	Jeffrey Golden goldenj@mail.med.upenn.edu
Wed 2/16 Fri 2/18 Wed 2/23 Fri 2/25	SPECIFICATION OF NEURAL CELL TYPES II <i>Specification Of Spinal Cord Neurons and Motor Connectivity</i>	Michael Granato granatom@mail.med.upenn.edu
1st written proposal due March 7th		
Wed 3/2 Fri 3/4 Wed 3/9 Fri 3/11	CELL MIGRATION II: <i>Axon Guidance At The CNS Midline</i>	Greg Bashaw
Wed 3/16 Fri 3/18 Wed 3/23	PATTERNING NEURONAL CONNECTIONS: Tiling and Branching	Michael Granato
SPRING BREAK		
Wed 4/6 Fri 4/8 Wed 4/13 Fri 4/15	SYNAPSE FORMATION	Matthew Dalva dalva@mail.med.upenn.edu
Wed 4/20 Fri 4/22 Wed 4/27 Fri 4/29	WIRING THE OLFACTORY SYSTEM	Jonathan Raper raperj@mail.med.upenn.edu
Wed 5/4	WRAP-UP <i>Student Feedback</i>	Greg Bashaw
2nd written proposal due May 9th		