

**NEUROBIOLOGY 724
DEVELOPMENTAL NEUROBIOLOGY
Fall Semester 2007**

Course summary: NBIO 724 is a course that provides a comprehensive and detailed examination of contemporary research and ideas about vertebrate and invertebrate developmental neuroscience. The course is restricted to graduate students and class time is divided between lectures and discussion of the current literature.

Organizers: Dr. Stephen Crews, FDH 321, 962-4380, steve_crews@unc.edu
Dr. Franck Polleux, NRB 8109C, 966-1449, polleux@med.unc.edu

Instructors: Dr. Eva Anton, eva_anton@med.unc.edu
Dr. Manzoor Bhat, Manzoor_Bhat@med.unc.edu
Dr. Mohanish Deshmukh, mohanish@med.unc.edu
Dr. Larysa Pevny, larysa_pevny@med.unc.edu
Dr. Benjamin Philpot, benjamin_philpot@med.unc.edu

Lectures: Tue & Thu 10a.m. until noon in Taylor 124.

Textbook: Development of the Nervous System by Sanes et al. (2nd ed.). Supplementary readings on specific topics will also be assigned; these will be available as PDF files on Blackboard.

Office Hours: By appointment. The instructors will be available to answer questions for a short time in the classroom immediately after each lecture. Please also feel free to schedule appointments at additional times.

E-mail contact: You are free to send e-mail to your instructors, but please be aware that the instructors receive an enormous number of messages each day and cannot always respond promptly. A face-to-face conversation remains the most reliable and effective mode of communication and should be used whenever possible.

Grading: Grading will be based on the following:

One in-class exam	50 points
One written assignment	50 points
Final Exam	100 points
Total Points	200 points

Please be aware that the final exam can only be taken at the designated time. This is UNC policy.

LECTURE SCHEDULE:

August

Thu 23 Introduction to the developing nervous system: definitions, developmental neuroanatomy. (FP, SC)
Tue 28 Genetic model systems, experimental tools, imaging technologies (FP, SC)
Thu 30 Induction and patterning of the mammalian central nervous system-1 (LP)

September

Tue 4 Induction and patterning of the mammalian central nervous system-2 (LP)
Thu 6 Cell fate specification and differentiation-1 (SC)
Tue 11 Cell fate specification and differentiation-2 (LP)
Thu 13 Glial development: radial glia and astrocytes (EA)
Tue 18 Glial development: oligodendrocytes (MB)
Thu 20 Neuronal migration-1 (EA)
Tue 25 Neuronal migration-2 (EA)
Thu 27 **In-class exam (2 hours)**

October

- Tue 2 Neural stem cells: potential clinical applications (LP)
- Thu 4 Establishment of neuronal polarity (FP)
- Tue 9 Axon guidance-1 (FP)
- Thu 11 Axon guidance-2 (SC)
- Tue 16 Target selection and establishment of topographic maps (FP); **Written assignment due**
- Thu 18 **No Class: Fall break**
- Tue 23 **General discussion 1: workgroups and problem solving**
- Thu 25 Dendrite development-1 (FP)
- Tue 30 Dendrite development-2 (SC)

November

- Thu 1 Synapse formation: cellular and molecular mechanisms (MB)
- Tue 6 Synaptic maintenance and elimination (BP)
- Thu 8 Neurotrophins: developmental functions (MD)
- Tue 13 Molecular mechanisms controlling neuronal cell death and survival (MD)
- Thu 15 Cognitive development, language acquisition (FP)
- Tue 20 Neurodevelopmental disorders (FP, EA)
- Thu 22 **No Class: Thanksgiving holiday**
- Tue 27 **General Discussion 2: workgroups and problem solving**
- Thu 29 **Final exam distributed: (due back Dec. 4 at 5pm)**