

**Neuroscience 765: Developmental Neuroscience (3 credits)
Spring 2008**

Tuesday/Thursday, 1:20 – 2:35 pm, 116 SMI

The main objectives of this course are 1) to gain an extensive understanding of mechanisms of neural development; and 2) to acquire the ability to critically analyze current studies in neural development.

We will cover several topics in Neural Development. Each topic will include a lecture on Thursday and a student-led discussion of primary research papers the following Tuesday. Some topics will be covered by guest lecturers. Problem sets will be due each Tuesday.

General Schedule:

Thursdays:

- Lecture
- Hand out problem set.
- Determine pro/con teams for Tuesday discussion.

Tuesdays:

- Problem sets due.
- Discussion of two papers. “Pro” team for each paper describes results and importance, “Con” team critiques.
- Participation in discussion will be the most important aspect of the course. This requires reading and thinking about the papers.

Grading

Approximately 2/3 of the final grade will be based on problem sets and active participation in discussion. The remainder will be based on the final paper.

Problem set and discussion format

- Problem sets are designed to be preparation for discussion.
- You will be asked to answer a few (2-3) thought questions about the papers.
- Graded by A, B, C, etc.
- Things to think about while reading papers, doing problem sets and preparing for discussion:
 - What are the strengths of the paper?
 - How did this study advance the field?
 - Are the results convincing?
 - What are other possible interpretations of the results?
 - What questions remain?
 - What would be the next logical experiments to do?

Discussion points:

Pro team:

Central question
Briefly explain experiments/results
Use of clever method/approach?
Importance of paper

Con team:

Problems with methods?
Results convincing?
Other interpretations of results
Next experiments to do

Final Paper

- Choose a topic related to something covered in class and write a review type paper critically analyzing the state of the field. (approximately 10-12 pages, double spaced)
- Discuss topic ideas with Mary, Tim and/or other relevant faculty. Topic must be approved by Tim or Mary.
- Due on last class day.

General Recommended References:

Current Opinion Neurobiology **17**(1) Feb. 2007. Development issue (every Feb. issue)

Nature Neuroscience, Vol. 4 supplement, Nov. 2001. Special issue on molecular approaches to neural development.

Textbook: Sanes et al. (2005) Development of the Nervous System (2nd edition). Academic Press

Required weekly reading will include at least one review article on the topic of the week and two current primary research papers that will be presented and discussed in class.