Brain Development and Cognition (Psyc 3666)

T/Th 11:00 - 12:50, Spring 2000
Frontier Hall 354
Department of Psychology
University of Denver

	Professor	**Teaching Assistant**
Name:	Yuko Munakata	John McGoldrick
Office:	Frontier Hall 343	Frontier Hall 333
Phone:	871-4151	871-4939
Email:	munakata@kore.psy.du.edu	jmcgoldr@nova.psy.du.edu
Office Hours:	By appointment	By appointment

Course Goals

The overarching goal of this course is to explore the relation between brain development and cognitive development. We will examine how cognitive neuroscience can inform our study of development, and how a developmental approach can advance progress in cognitive neuroscience. In other words, we will ask: What does the brain tell us about development, and what does development tell us about the brain?

The field of developmental cognitive neuroscience is evolving rapidly. In this class, we will focus on understanding the issues that have arisen in the course of this evolution. With your participation and ideas, we will evaluate potential avenues for addressing these issues, rather than focusing on the "right answers" (which may not exist in some cases). We will cover topics ranging from the embryology of the brain and subsequent cortical and subcortical developments to the development of memory, language, and locomotion.

Course Prerequisites

SOCS 1107 or SOCS 1157
and
PSYC 1050 or PSYC 3031 or BIOL 3640

Required Text

The course is based primarily around readings from Johnson, M.H. (Ed.). (1993). *Brain Development and Cognition: A Reader.* Cambridge MA, Blackwell Publishers.

These readings will be supplemented (and in some cases replaced) with readings from the second edition of this reader, in progress: Johnson, M.H., Munakata, Y. & Gilmore, R.O. (in preparation). *Brain Development and Cognition: A Reader (Second Edition)*. Cambridge MA, Blackwell Publishers. These supplements/replacements will be available for photocopying in a file box in Frontier Hall 130 (near the department fax machine). To abide by copyright laws, students are responsible for making their own copies. You may speak with Nancy Pleiman about making copies with the Psychology Department copier.

Evaluation

Your grade will consist of the following:

Component	Points
Reading "summaries"	30
Attendance and participation	25
Session leading	10
Final paper	35
Total	100

Let's consider each of these in turn.

Reading summaries:

For many of the readings, you will be asked to contribute questions and comments for discussion and/or answer questions.

Attendance and participation:

You are expected to come to class prepared by reading the assigned readings, thinking carefully about them, and being ready to ask questions and actively participate in discussion. Your active participation in the course will help you to get the most out of it. To support and encourage effective discussions, the first class meeting will be largely devoted to a discussion of "What makes a discussion bad (and what we can do about it)." Throughout the class term, we will evaluate the effectiveness of our discussions and welcome suggestions on improving them to help you to understand issues in brain development and cognition.

Two of the participation points come from activities targeted at increasing your participation.

Participation #1:
Help us learn about you.
Due 3/28/00 in class

To help us get to know you, please photocopy your DU picture ID (or other recent picture ID like a driver's license), cut it out and tape or glue it to the card that you received in class today. On the SAME side of the card that you attached the copy of your ID, please print the following information:

a. your name as it appears on our class registration list
b. the name you use if different from your first name (such as middle name or nickname)
c. your email address
d. your phone number
e. your year and major
f. where you are from (city, state/province, country if outside of North America)
g. your hobbies or interests
h. whether you know how to access the World Wide Web

Participation #2:
Learn from each other.
During 5/18 or 5/23 class (whichever day you are not presenting your talk)

Ask a question about a classmate's talk.

Session leading:

For one or two of the sessions, you will be asked to lead the class discussion. You may wish to begin with a BRIEF summary ($\tilde{5}$ mins) of the papers, to get everyone on the same page. This summary should not be lengthy, because everyone is expected to have read the papers already – the summary should only serve as a reminder. You will then be responsible for initiating and moderating the class dicussion. Again, this task should not be too demanding for you given that everyone will have read the papers and will be expected to come prepared for discussion. John and I will each lead a session at the start of the class to provide a sense of what is expected.

Final Paper:

The final paper (8-12 double-spaced pages) will require a discussion of the following two questions:

How can data on brain development inform the study of cognitive development? How can data on cognitive development inform the study of brain development?

This course will be focused on these questions, so you should be in a good position to answer them for the final paper. In your papers, you may discuss topics raised in class in further detail, or explore new domains which you think might benefit from a crosstalk between cognitive neuroscience and development. You will be expected to read several outside articles in preparing your final papers. More details on the paper and what is expected will be discussed later in the course.

This assignment will require careful preparation and thought. The following timeline is designed to ensure that you make progress on your paper (5 of the 35 points for the paper will come from simply making each of the 5 deadlines before the final due date) and that you receive multiple forms of feedback on it before turning in the final version.

Deadline	**Assignment**
Apr 20	Paper topic (typed)
Apr 27	Outline and references to two outside articles (typed)
May 4	First draft (typed, double-spaced, page-numbered)
May 16	Second draft (typed, double-spaced, page-numbered)
May 18, 23	Oral presentations
May 26	Final paper (typed, double-spaced, page-numbered) and first draft
	NOTE: For each day paper is late, 5% deducted from final paper grade.

Grading Policy

Grades are *not* curved; they are based on percentages:

97-100	A+
93-96	A
90-92	A-
87-89	B+
83-86	B
80-82	B-
77-79	C+
73-76	C
70-72	C-
67-69	D+
63-66	D
60-62	D-

Class Schedule

Day	Date	Topic	Reading (ˆ = update available, * = supplement/replacement)	Due
Thu	Mar 23	**Introduction**		
Tue	Mar 28	**Brain Develops Mind**	Lorenz, Oyama	Student info card
Thu	Mar 30	**Debate on Perspectives**	Piaget, Gottlieb*	
Tue	Apr 4	**Brain maturation**	Nowakowski	
Thu	Apr 6	**”**	Rakic, Huttenlocher, Chugani	
Tue	Apr 11	**Brain mat. and cognition**	Johnson*, Nelson*	
Thu	Apr 13	**Prep for Spelke colloquium**	Spelke*	
Fri	Apr 14	**Spelke colloq**	2:30-4 FH 157	
Tue	Apr 18	**Brain plasticity**	Greenough et al.	
Thu	Apr 20	**”**	O’Leary, Shatz*	Paper topic
Tue	Apr 25	**Brain plasticity and cognition**	Neville et al.*, Merzenich et al.*	
Thu	Apr 27	**Constraints on plasticity**	Marler, Stiles & Thal*	Paper outline + 2 refs
Tue	May 2	**New directions**	Bates & Elmanˆ	
Thu	May 4	**Self-organization and dev.**	O’Reilly/Johnson*	First draft
Tue	May 9	**”**	Thelenˆ, Karmiloff-Smith*	
Thu	May 11	**New directions**	Diamond*	
Tue	May 16	**”**	Pennington*, neurogenesis*	Second draft
Thu	May 18	**Paper presentations**	Other students’ papers	
Tue	May 23	**Paper presentations**	Other students’ papers	
Thu	May 25	**Grand Finale**		
Fri	May 26			Final paper

Journals of Interest

Behavioral and Brain Sciences
British Journal of Developmental Psychology
Child Development
Cognition
Cognitive Development
Current Directions in Psychological Science
Developmental Psychology
Developmental Science
Human Development
Infancy
Infant Behavior and Development
Journal of Cognitive Neuroscience
Journal of Experimental Psychology
Monographs of the Society for Research in Child Dev.
Nature
Psychological Bulletin
Psychological Review
Science
Trends in Cognitive Sciences