Course Syllabus
EDHD775: Physiological Development and Neuroscience

Spring 2017  Mon 10:00pm-12:45pm  Benjamin 3236
Instructor: Dr. Donald J. Bolger  Office: 3304N Benjamin Building
Phone: 301-405-9103  Email: djbolger@umd.edu
Hours: Mondays 1:00pm-2:30pm or by appt.

Texts: Selected readings from on Blackboard/Canvas (elms.umd.edu) or at my office

Course Description and Objectives:
Introductory survey into the neural basis of cognitive development and applications to classroom learning. This course will focus on typical areas of cognitive development including language (spoken and written), conceptual change, numerical/quantitative processing, and social cognition as well as burgeoning areas of developmental research in general cognitive processes such as attention, memory, and visual-spatial processing. These topics will be discussed with respect to typical and atypical development with some focus on developmental disabilities including autism, specific language impairment, reading and math impairment, and attention deficit disorders among others. This course will focus on theoretical distinctions and delve into the biological aspects of brain development.

Course Goals:
By the end of this course, students should be able to:
• Understand theoretical perspectives in cognitive development, including their strengths and weaknesses.
• Recognize the importance of the interaction between children and their environment, and how cognitive skills and abilities change with age and experience.
• Develop the ability to critically evaluate scientific research and interpret research findings.
• Explore implications for applied issues relating to education and public policy.

Evaluation & Course Grading:
1. Preparation each class (30%)
Students will be required to present articles in class on the topic matter that will be discussed each day. Students will also be asked to prepare questions on each of the articles (other than the ones they are presenting). These questions should be poignant and directed at fostering critiques and discussion of the strengths and weaknesses of the articles.

2. Final Take-Home Exam (40%)
There will be an essay final that will be given during finals week. Students will have 48 hrs to complete the exams from the time they are administered.

3. Writing Assignment & Presentation (30%)
There will be a presentation/writing assignment due at the last week of classes. These assignments require that the student address a particular research question of interest to them based on the content of the materials covered in the course. These papers will be roughly the length and scope of a TINS or TICS review with complete references.
These presentations will outline a specific research question, provide background summary of research on the topic, propose novel experimental design(s) or synthesis that would answer the specific question posed, and discuss the possible implications of findings from such an investigation.

Course Evaluations:
As a member of our academic community, you as a student have a number of important responsibilities. One of these responsibilities is to submit your course evaluations each term though CourseEvalUM in order to help faculty and administrators improve teaching and learning at Maryland. Please make a note now of the dates for *Fall 2010 (Tuesday, November 30 through Sunday, December 12)* and the link at which you can access the submission system (www.courseevalum.umd.edu). If you submitted all of your evaluations in the fall or are a new student, you can also access all posted results from Fall 2007 forward via Testudo under CourseEvalUM Reporting. To retain this access, you must submit all of your evaluations each semester. If you do not have access right now, you can gain it by submitting all of your Fall 2010 evaluations. More information is at: www.irpa.umd.edu/Assessment/CourseEval/stdt_faq.shtml.

CLASS POLICIES

Academic integrity: The University of Maryland, College Park has a student-administered Honor Code and Honor Pledge. For more information on the Code of Academic Integrity or the Student Honor Council, please visit http://www.studenthonorcouncil.umd.edu/whatis.html. This Code sets standards for academic integrity at Maryland for all undergraduate and graduate students. As a student you are responsible for upholding these standards for this course. It is very important for you to be aware of the consequences of cheating, fabrication, facilitation, and plagiarism. The code prohibits students from cheating, fabrication, facilitating academic dishonesty, and plagiarism. Instances of this include submitting someone else’s work as your own, submitting your own work completed for another class without permission, or failing to properly cite information other than your own (found in journals, books, online, or otherwise). Any form of academic dishonesty will not be tolerated, and any sign of academic dishonesty will be reported to the appropriate University officials.

Special needs: If you have a registered disability that will require accommodation, please see the instructor so necessary arrangements can be made. If you have a disability and have not yet registered with the University, please contact Disability Support Services in the Shoemaker Building (301.314.7682, or 301.405.7683 TTD) as soon as possible.

Religious observances: The University of Maryland policy on religious observances states that students not be penalized in any way for participation in religious observances. Students shall be allowed, whenever possible, to make up academic assignments that are missed due to such absences. However, the must contact the instructor before the absence with a written notification of the projected absence, and arrangements will be made for make-up work or examinations.

Course evaluations: As a member of our academic community, students have a number of important responsibilities. One of these responsibilities is to submit course evaluations each term though CourseEvalUM in order to help faculty and administrators improve teaching and learning at Maryland. All information submitted to CourseEvalUM is confidential. Campus will notify you when CourseEvalUM is open for you to complete your evaluations for fall semester courses. Please
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go directly to the website (www.courseevalum.umd.edu) to complete your evaluations. By completing all of your evaluations each semester, you will have the privilege of accessing online, at Testudo, the evaluation reports for the thousands of courses for which 70% or more students submitted their evaluations.

Missed single class due to illness: Once during a semester, a student's self-authored note will be accepted as an excuse for missing a minor scheduled grading event in a single class session if the note documents the date of the illness, acknowledgement from the student that information provided in the note is correct, and a statement that the student understands that providing false information is a violation of the Code of Student Conduct. Students are expected to attempt to inform the instructor of the illness prior to the date of the missed class.*

Major scheduled grading events: Major Scheduled Grading Events (MSGE) are indicated on the syllabus. The conditions for accepting a self-signed note do not apply to these events. Written, signed documentation by a health care professional, or other professional in the case of non-medical reasons (see below) of a University-approved excuse for the student's absence must be supplied. This documentation must include verification of treatment dates and the time period for which the student was unable to meet course requirements. Providers should not include diagnostic information. Without this documentation, opportunities to make up missed assignments or assessments will not be provided.

Non-consecutive, medically necessitated absences from multiple class sessions: Students who throughout the semester miss multiple, non-consecutive class sessions due to medical problems must provide written documentation from a health care professional that their attendance on those days was prohibited for medical reasons.

Non-medical excused absences: According to University policy, non-medical excused absences for missed assignments or assessments may include illness of a dependent, religious observance, involvement in University activities at the request of University officials, or circumstances that are beyond the control of the student. Students asking for excused absence for any of those reasons must also supply appropriate written documentation of the cause and make every attempt to inform the instructor prior to the date of the missed class.

Late Assignments: All assignments are expected on the day indicated in this syllabus. Any assignment received after the due date will automatically receive a 5% lower grade for every day it is late.
# Course Syllabus

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<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Assigned Readings</th>
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<tbody>
<tr>
<td>1/30</td>
<td>Introduction</td>
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National Scientific Council on the Developing Child (May 2010). Early Experiences Can Alter Gene Expression and Affect Long-Term Development. Center on the Developing Child at Harvard University  
Fair et al 2009  
Dosenbach et al 2010  
Cole, Pathak & Schneider 2010  
Biswal et al 2010 Connectome |
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## Optional Background:


## 3/6  
**Attention & Executive Control**

Diamond (2013)

Luna, Velanova, & Geier, (2008)


## 3/13  
**Memory**


Paz-Alonso PA, Ghetti S, Matlen BJ, Anderson MC, Bunge SA. (2009) Memory suppression is an active process that improves over childhood. Frontiers in Human Neuroscience


## 3/20  
**SPRING BREAK**

## 3/27  
**Language**


Grodzinsky & Friederici 2006 Syntax

Pinker & Ullman 2002 Words & Rules

Abutalebi et al 2008 Second Language

Hickok & Poeppel 2004

## 4/3  
**Dyslexia & Learning Disabilities**

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<thead>
<tr>
<th>4/10</th>
<th>Mathematics</th>
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<tbody>
<tr>
<td></td>
<td>Dehaene (2009)</td>
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<tr>
<td></td>
<td>Dehaene et al. (2004)</td>
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<td>Libertus &amp; Brannon (2009)</td>
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<td>Cappelletti et al (2009)</td>
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<tr>
<th>4/17</th>
<th>Fluid Reasoning, &amp; Higher Order Cognition</th>
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<td>Hampshire et al (2012)</td>
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<td>Mackey, Whitaker &amp; Bunge (2012)</td>
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<tr>
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<th>Broader Impacts &amp; Issues</th>
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<tr>
<th>5/8</th>
<th>CLASS PRESENTATIONS</th>
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<td>* This schedule is flexible depending on students’ interest and other timing factors.</td>
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