Cognitive Development
HCS/PSY/ACN 6331
Spring 2017
Monday 10:00-12:45

Dr. Mandy J. Maguire
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Office Hours: By Appointment

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Course Description
This course surveys major theories and research findings relating to cognitive development from birth to adulthood. Class time will be spent fostering the understanding of various perspectives, and evaluating the strengths, weaknesses and implications of empirical research related to covered topics. Because discussion is critical to the success of the course, you will need to come to class having completed all assigned readings and prepared to participate actively.

Course Prerequisites
Though there are no formal prerequisites for this class, it is highly recommended that enrolled students have completed the following undergraduate courses: Introduction to Psychology, Developmental/Child/Lifespan Psychology, Cognitive Psychology, and Research Design and Statistics for Psychology. If you are unfamiliar with content from these courses, the material presented in this class may prove challenging.

Learning Objectives:
Students will be able to:

1. Recognize and evaluate current theories of cognitive development in children, distinguish key developmental milestones, and assess implications of these theories and milestones for research, social policy and professional practice.

2. Develop skills in the analysis, synthesis, and critique of research findings within areas of cognitive development, including infant perception, social and nonsocial representational thought, memory, intelligence and more.

3. Refine personal research interests within cognitive development through the exploration of research funding in cognitive development, and develop academic communication abilities by leading the class in a presentation and discussion of assigned articles.

Course Materials

Required readings from academic journals will also be assigned each week. These are listed below under “Course Schedule” and are available for download on the e-learning webpage for this course. It is possible that additional articles not listed may also be assigned during the course of the semester.

Grading Scale

Scores for all components listed above will be compiled and grades assigned according to the following scale. Plus and minus (+/-) grades may also be assigned at the discretion of the instructor. *No extra credit assignments will be offered.*

A: 90-100
B: 80-89
C: 70-79
F: below 70

Course Requirements

Final course grades are based on the following requirements:

1. Participation 40%
   a. Discussion Questions (10%)
   b. Class Leader (15%)
   c. In-Class Participation including attendance (15%)
2. Paper 20%
3. Exam 1 20%
4. Exam 2 20%

1. Participation

a. Discussion Questions

Each week you will submit two substantive questions designed to elicit class discussion on the assigned journal articles**.** You will post these questions within the e-learning Discussion Forum designated for that week**.** Each student should create a thread within the forum for his/her questions, and title the thread with his/her name in order receive credit for submitting them. You do not need to submit discussion questions for the week you are class leader. **Discussion questions must be posted by Friday at noon.** Class leaders can then incorporate these questions in their discussion of the article**s**.

Your questions should be substantive and theoretical; for instance they may relate to thoughts, ideas, or critiques generated by the assign readings (e.g., "From my perspective, theory X and theory Y are not necessarily mutually exclusive. Do you think it's possible they could be integrated to account for different aspects of this phenomenon?"). You may include a question that seeks clarification on some aspect of the reading (e.g., "Could we discuss theory X in class? I'm not sure I understand what it is proposing"), but this question does not count towards your required two questions. Whatever questions you pose, be prepared to elaborate on it and address it in class.

Your questions will be graded on a scale of 1 to 5 each week. You can miss one week without penalty and your lowest grade will be dropped, and the remainder will be averaged to determine your final grade.

b. Class Leader

For one class during the semester, you and another student will act as class leaders. During class, the leaders will give a short presentation (5-7 minutes) summarizing the articles assigned that week. Remember that everyone should have read the article, so your job is not to teach the material, but just to highlight the information that the class will be discussing. You have flexibility in how you design your presentation. You may choose to use the A/V equipment (e.g., via Powerpoint) to assist your presentation, but this is not required. These presentations may incorporate additional resources, including the corresponding textbook chapter, to supplement and contextualize your

summary of the articles. You may also choose to present demonstrations of relevant tasks or concepts, either live in class or via a previous videotaping. Following the presentation, the class leaders will then lead the class in a discussion of the articles using the questions submitted by the other students. Because these questions will be publically available on e-learning for everyone to review by Friday afternoon, **all students should come to class prepared to discuss their peers' discussion questions for the week**.

Class leaders will lead class beginning on Feb. 13th. You will sign up for a slot during our first class meeting.

c. In-class Participation

The benefit you derive from this course will be limited unless you come to class prepared and use our time together to engage with the assigned material. I will be looking for thoughtful input that indicates you are helping yourself and other students extract meaning and relevance from the readings. Brilliance is not required (though it is of course welcomed). If you are shy about speaking up in groups, this is a good time to work on overcoming it in a supportive environment. Overall, my role, and that of your fellow students in this class, is to support you in your development as a thinker, researcher and writer.

3. Papers

To better understand the current state of Cognitive Development and hone critical thinking skills about the topic, this paper will be sort of a precursor to writing a grant. Your goal will be to write an argument for why a particular area of cognitive development requires more research. While you may choose any topic related to cognitive development, this proposal will help you the most if it informs, refines and furthers your own personal research goals. Selecting a topic of personal relevance and interest is therefore preferred. If you are currently developing or pursuing a research or thesis project, the proposal may relate to it but may not consist of work you have already completed outside this course. Journals that will have relevant articles include *Developmental Psychology, Journal of Experimental Child Psychology, Journal of Cognition and Development, Child Development, Journal of Child Language, Infant Behavior and Development, Infancy,* and *Developmental Science.*

Paper Requirements:

This will be a relatively short paper, but do not let the length fool you-- I expect this to be a well written, well researched argument. It should be **3-4 pages single-spaced with clear headings and subheadings throughout**. Do not forget to include references (your citation page doesn't count as one of the 3-4 pages). At least five primary source articles and one review article on your topic (outside of any assigned for this course) should be cited, however, you will likely have more. Formatting should adhere to APA style. Your paper should consist of the following:

1. *Important research topic area:* List the area of research you believe is important to be studied in this field, why it is important and, why it hasn't been studied enough up until this point. All three of these points need to be explicitly addressed in this section. You will ideally have a broad topic that you can do research on (what has been previously done, what is currently funded) and a specific question that has yet to be addressed. An example from my work would be that I study the impact of poverty on brain and language development. Specifically, I use EEG and behavioral responses to

study word learning differences related to the child's home environment. There is research on language development, on poverty and language development and even poverty and brain development. I can use all of those topics as background research, and to see what currently is being funded. I can argue that (1) there is funding in these areas, but there is relatively little given how much we know about how poverty impacts language and brain development and how many children in the US live in poverty (that this area is important/ has broad impacts) and (2) there isn't research on word learning in these areas (this area is unique and needed to move the field forward). **This section should be about ½ - 1 page.**

2. *Background research:* What is known in this field at this point and how has that knowledge helped moved us forward? This should end by stating again what is missing from the literature that should be better researched. **The complete background research section should be approximately 1 ½ - 2 pages**.

3. *What are current funding sources for this type of proposal and are they sufficient or not?* This is an area that will take some research and I will give you time to do this together in class.. There are both public and private funds that offer funding for research in cognitive development, but those resources are often allocated to specific topics. Here I would like you to review the potential funding sources for questions like yours and how much money is actually available for your area. This will include something like (these numbers are not accurate, this is just an example): "Within NIH both NICHD and NIDCD provide funds to study language development, however only NICHD funds research related to typically developing children. The budget of NICHD is $XXXXXX annually, which is XX% of NIH's annual budget. Within this budget, the NICHD must fund topics ranging from X-Y. In my search I found 8 research grants funded between 2015-2016 that focused on typical language development. These funds totaled $XXXX.XX". I would also include information about the Department of Education and the American Speech Hearing and Language Association, as both those funding agencies are related to my research. **This section should be about ½ - 1 page**. You can use a table or figure to help illustrate any points here.

The paper is due by 5pm on <u>March 10th</u>. You are welcome to turn it in earlier.

4. **Exams.** You will have two exams. These will both consist of multiple choice and essay questions. More information about the exams will be available in class.

Overview of each class:
Student led discussion. Start with student led discussions. There will be 2-3 of these a day lasting about 30 minutes each. At the end of each of these you will be asked to turn in a page that specifies what you liked and did not like about the readings as well as the number of times you contributed to the discussion. I will keep track of this personally, but I would like you to submit it as well.

Paper related topics: In the beginning of the semester we will devote some time during the class to your papers. This may be me lecturing about funding sources, giving you time to discuss your topics with me, or to review potential funding sources with your peers.

Lecture for the next topic. Here I will give a short overview of the topic to be discussed the next week, including which aspects of the reading you should focus on and how they should tie together.

Course Schedule

January 9h: Introduction

January 16th no class

January 23th: : Is anything "predetermined".

Papers for Discussions:

1. http://publications.mcgill.ca/mcgillnews/2011/06/01/are-your-genes-your-destiny-not-if-your-mom-has-anything-to-say-about-it/
2. Gottlieb, G. (2007) Probabilistic epigenesis. *Developmental Science, 10(1),* 1-11.
3. Boersma, G.J., Bale, T.L., Casanello, P., Lara, H.E., Lucion, A.B., Suchecki, D., & Tamashiro, K.L. (2014). Long-term impact of early life events on physiology and behaviour. *Journal of Neuroendocrimology, 26,* 587-602.

Paper related topics: Overview of federal funding for Cognitive Development.

Lecture: Piaget's theory of cognitive development

January 30th Theories and Methods of cognitive development

Papers for Discussion.

1. Flavell, J.H. (1996). Piaget's Legacy. *Psychological Science, 7(4),* 200-203.
2. Gopnik, A. (1996). The post-Piaget Era. *Psychological Science, 7(4),* 221-225.
3. Karmiloff-Smith, A. (2009) Nativism versus neuroconstructivism: Rethinking the study of developmental disorders. *Developmental Psychology, 45,* 56-63.

Paper related topics: The review process. Also time to think of your research question.

Lecture: Research methods for infant cognition

February 6th20th: Infant Development

Papers for Discussion.

1. Spelke, E.S. & Kinzler, K.D. (2007). Core Knowledge. *Developmental Science,* 10, 89-96.
2. *Baillargeon,* R. (1994). How do infants learn about the physical world? *Current Directions in Psychological Science, 3,* 133-140.
3. Aslin, R.N. (2007) What's in a look? *Developmental Science,* 10(1), 48-53.

Information and example related to doing student presentations

Paper related topics: Work in groups to research funding and discuss paper topics with Dr. Maguire.

Lecture: Early Social Development, infant face processing

February 13h: Early Social Development

Papers for Discussion.

1. Jakobsen, K. V., Umstead, L., & Simpson, E.A. (2016). Efficient Human face detection in infancy. *Developmental Psychobiology*, 58, 129-136. – Presenter: **Priscilla Jacobs**
2. Sodian, B. (2011). Theory of mind in infancy. *Child Development Perspectives*, 5, 39-43.
3. *Hamlin, J. K., Wynn, K., & Bloom, P (2007). Social evaluation by preverbal infants. *Nature*, 450(22), 557-560. Presenter: **Claudia Correno**
4. *Warneken, F. & Tomasello, M. (2006). Altruistic helping in human infants and young chimpanzees. *Science*, 311(5765), 1301-1303.
   *These two short papers go together and will be presented by one student. – Presenter: **Ayisat Akintoye**

Paper related topics: Work in groups to research funding and discuss paper topics with Dr. Maguire.

Lecture. Theory of Mind: Classic theory of mind studies and developmental trends

February 20th: Theory of mind

Papers for Discussion.

1. Birch, S.A.J., & Bloom, P. (2004). Understanding children's and adults' limitations in mental state reasoning. *Trends in Cognitive Science, 8,* 255-260. – presenter: Richard Cole
2. Mills, C. (2013). Knowing when to doubt: Developing a critical stance when learning from others. *Developmental Psychology*, 49(3), 404-418. Presenter: Hans Klein
3. Peterson, C. (2014). Theory of mind understanding and empathic behavior in children with autism spectrum disorders. *International Journal of Developmental Neuroscience*, 39, 16-21. Presenter: Sana Ali

Lecture. Executive Functions: Classic Studies, Developmental Trends and current theories

Time permitting: Review for Midterm

February 27th Exam 1

March 6th: Executive function in young children

Publications for Discussion.

1. Valian, V (2014). Bilingualism and cognition. *Bilingualism: Language and Cognition, 18(1),* 3-24. Presenter: Kendra Vander Kamp
2. Brock, L.L., Rimm-Kaufam, S.E., Nathanson, L., & Grimm, K.J. (2009). The contributions of 'hot' and 'cool' executive function to children's academic achievement, learning –related behaviors, and engagement in kindergarten. *Early Childhood Research Quarterly*, 24(3), 337-349. Presenter: Hatty Lara
3. Thierry, K. L., Bryant, H. L., Nobels, S. S. & Norris, K.S. (2016). Two year impact of a mindfulness-based program on preschoolers' self-regulation and academic performance. *Early Education and Development*, 27(6), 805-821. Presenter – Sarah Gammon

Lecture: Memory and its basic development

Papers due by 5:00 pm March 10th

March 13th Spring break

March 20th Memory

Publications for Discussion.

1. Madsen, H.B. & Kim, J. H (2016). Ontongeny of memory: An update on 40 years of work on infantile amnesia. *Behaviour Brain Research*, 298, 4-14. Presenter: Paul Wilson
2. Principe, G.F. & Schindewolf, E. (2012). Natural conversations as a source of false memories in children: Implications for the testimony of young witnesses. *Developmental Review*, 3, 205-223. Presenter: Candler Paige

Lecture: Language

March 27th Language

Publications for Discussion.

1. Chomsky, N. (2011). Language and other cognitive systems. What is special about language? *Language learning and development*, 7(4), 263-278 Presenter: Shruthi Ravi
2. Ramirez-Esparza, N., Garcia-Sierra, A., & Kuhl, P.K. (2014) Look who's talking: speech style and social context in language input to infants are linked to concurrent and future speech development. *Developmental Science*, 17(6), 880-891. Presenter Yvonne Ralph
3. Conboy, B.T., Brooks, R., Meltzoff, A.N. & Kuhl, P.K. (2015). Social Interactions in Infants' Learning of Second-Language Phonetics: An Exploration of Brain-Behavioral Relations, *Developmental Neuropsychology, 40(4),* 216-29. Presenter Kelly Park

Lecture: Executive Functions in Adolescents

April 3rd Executive function adolescents

Publications for Discussion.

1. Precipe, A., Kesek, A., Cohen, J., Lamm, C., Lewis, M.D., & Zelazo, P.D. (2011). Development of hot and cool executive function during the transition to adolescence. *Journal of Experimental Child Psychology*, 108, 621-637. Presenter: Whitney McColly
2. Steinberg, L. (2008) A social neuroscience perspective on adolescent risk taking behavior. *Developmental Review, 28,* 78-106 Presenter: Kieth Gryder
3. * Bonnie, R. J. & Scott, E.S. (2013) The teenage brain: Adolescent brain research and the law. *Current Directions in Psychological Science, 22(2),* 158-161.
4. * Steinberg, L., (2013). The influence of neuroscience on US Supreme Court decisions about adolescents' criminal culpability. *Nature Reviews: Neuroscience, 14,* 513-518.

   * These two short papers go together and will be presented by one student. Presenter: ??? Fahmida Begum

Lecture: Poverty in America and its impact on language, brain, and cognitive development

Time permitting: Review for Exam 2

April 10th Exam 2

April 17th Poverty

Publications for Discussion.

1. Perkins, S. C., Finegood, E.D., & Swain, J.E (2013). Poverty and language development: Roles of parenting and stress. *Innovations in Clinical Neuroscience, 10(4),* 10-19.
2. Song, L., Spier, E.T., Tamis-Lemonda, C.S. (2014). Reciprocal influences between maternal language and children's language and cognitive developmentin low-income families. *Journal of Child Language*, 41, 305-326.
3. Hackman, D.A., Gallop, R., Evans, G.W. & Farah, M.J. (2015). Socioeconomic status and executive function: developmental trajectories and mediation. *Developmental Science*, *18*(5), 686-702. ** *SKIM METHODS and RESULTS, focus on introduction and discussion.*

April 24th Cognitive development in the modern world.

Publications for Discussion.

1. Reich, S. M., Yau, J.C., & Warschauer, M., (2016). Tablet-based eBooks for young children: What does the research say? *Journal of Developmental and Behavioral Pediatrics*, 37(7), 585-591
2. Sosa, A. V. (2015). Association of the type of type toy used during play with the quantity and quality of parent-infant communication. *JAMA Pediatrics*, DOI 10.1001/jamapediatrices.2015.3753
3. Sherman, L. E., Payton, A.A., Hernandez, L.M., Greenfield, P.M., Dapretto, M. (2016). The power of Like in adolescence: Effects of peer influence on neural and behavioral responses to social media. *Psychological Sciences, 27*(7), 1027-1035.