

**Cognitive Development**  
Psychology 455, Spring 2017  
1/27/2017: Syllabus version 1.1

**Time:** Tuesdays and Thursdays

2:00 to 3:15 pm

**Location:** BPS 1232

**Website:** <http://elms.umd.edu>

**Instructor:** Dr. Jonathan Beier

**Email:** [jsbeier@umd.edu](mailto:jsbeier@umd.edu)

**Office hours:** By appointment,  
BPS 2147E (please email to set a time)

**Course description**

This advanced undergraduate seminar explores the development of cognition, focusing primarily on developments from birth through the first few years of life. In this course, we will first review infants' core cognitive faculties in several domains of knowledge: objects, quantity, and agents. We will then pursue an extended study of language development, arriving not just at an understanding of how language works and is acquired, but how language influences conceptual thought. Continuing, we will consider how knowledge is organized, remembered, enriched, and changed. Although our emphasis is cognitive development, we will incorporate insights from comparative psychology, adult psychology, neuroscience, and cross-cultural psychology in order to fully characterize the foundations of these cognitive processes and the mechanisms for their ensuing development. Equally, we will return repeatedly to the notion that only a study of development can provide a full portrait of cognition in adults.

Success in this class is simple. Engage the readings, fully. Come to class. Participate in discussions. Participate in discussions (really). Submit your assignments on time; make them thoughtful. And ask for help if you need it.

**Grading**

Percentage of grade	Activity	When?
20	Class participation	Every class day
20	Discussion posts	5 pm on the night before class, starting 2/1
15	Discussion leading	One class day
	<i>Reflection on cognitive development</i>	
2	Part 1	11:59 pm on 1/31
3	Part 2	5:00 pm on 5/8
5	QALMRI #1: Reading for class	Start of class on 3/7
5	QALMRI #2: Media critique	Start of class on 4/20
30	Final paper	12:30 pm on 5/17

### **Policy on late assignments**

If they are late, written assignments will rapidly lose their value to you.

If an assignment arrives within 24 hours of when it is due, the grade will be reduced by 10%; deductions of 20% and 30% will occur if it arrives on the second or third day, respectively. After that, late assignments will not be accepted.

If your online discussion post does not appear before **5 pm** the night before class, you will not receive credit for it.

### **More on assignments**

#### **Class participation (20%):**

- Be prepared and be engaged!
- I will take notes each day on each student's attendance and participation in the discussion. You should contribute something each day, but keep in mind that quality is more important than quantity.

#### **Online discussion posts (20%):**

- Before each class session you will post a short response to that day's readings on the ELMS discussion board for the class.
- Your posts are due by **5 pm** the night before class. This is important because the discussion leader(s) for that day and I must have time to review your posts and think about how to include the issues you have raised.
- Read through other students' posts! You'll learn a lot from each other's reactions. In your post, you are welcome to refer to posts made by your peers, but be advised that if the discussion has gone far afield you might not want to follow it there.
- Posts should be about a paragraph long at *minimum* (~200 words). Although only one is required, you should feel free to make multiple posts; but if you do, make sure that at least one of them meets this length.
- Don't summarize the readings beyond providing enough detail for us to know what you're referring to. We've all read the papers, so add something new.
- In order to receive full credit, you will have to go beyond statements such as "I thought X was interesting" or "I didn't understand Y." Of course, these are reasonable starting points for your comments, but you shouldn't stop here! For instance, "I thought X's finding was interesting because it contradicted Y's theory that..."; or, "I didn't understand Y's conclusion because the data really seemed to suggest that..."; or, "I think X experiment is related to an article I read in a previous class because Y..."; or, "In future work, it would be important to know X because otherwise Y..."

**Discussion leading (15%):**

- You will be responsible for leading the day's discussion once during the semester. There are several parts to this role:
  - You will present a SHORT summary of one of the empirical research articles assigned for that day.
  - Prior to class, you will compile a list of the thoughtful comments made by your peers online, to be used as starting points for discussion during class. Look for both themes across multiple students' posts and particularly insightful comments by individual students.
  - During class, I will give the discussion leaders an opportunity to comment on the day's readings as a whole. In addition to offering their own thoughts, they will help guide the discussion by asking other students to restate their points made online.

**Reflection on cognitive development (5%):**

- To encourage you to think about the big picture framing of the class, you will write two short reflection pieces: once at the beginning of the semester and once at its end.
- Part 1 is an opportunity for you to reflect on your initial appreciation for what cognitive development involves and how the study of cognitive development relates to the broader fields of psychology and cognitive science. You will not be graded for what you don't know (naturally!), but I will be looking for thoughtful reflections from whatever point of understanding at which you've already arrived.
  - It should be two double-spaced pages, submitted via ELMS.
  - It is due before **midnight** on Tuesday 1/31 – i.e., after our class discussion on the same topic.
- Part 2 is an opportunity for you to review what you have learned over the course of the semester. For this portion of the assignment, you should expand on, revise, and/or rewrite what you submitted for Part 1, now including whatever insights you have gained during the semester.
  - It should be three double-spaced pages, submitted via ELMS.
  - It is due by **5 pm** on Monday 5/8, in lieu of the usual discussion post.
  - We will discuss your reflections during our final class meeting on 5/11.

**Written QALMRI analysis (5%):**

- Each student will write one QALMRI analysis of an empirical paper we read for class.
- I will offer a small selection of papers, from which you can choose. More details on this assignment will be provided on ELMS.
- QALMRI papers are due at the start of class, in hardcopy, on Tuesday, 3/7.
- You should also submit a copy via ELMS.

**Popular media critique (5%):**

- Cognitive development is a hot topic in the media. Sometimes journalists do an excellent job of portraying the scientific process and findings; other times, they fail miserably.
- Each student will find a newspaper- or magazine-length article on some aspect of cognitive development and provide a critical evaluation of what the author does or does not do well.
- The aspect of development covered may be one we have touched upon in class, but it does not have to be. However, it must be related to the broad course theme. To make sure the topic is acceptable, please email me via ELMS once you choose your article.
- The critique will have two parts:
  1. A one-page, double-spaced summary of the article and the student's evaluation of it.
  2. A QALMRI summary of the original research article on which the popular article is based. If the popular article is based on multiple scientific articles, then you should select one that is of central importance to the popular article's discussion.
- This assignment is due at the start of class, in hardcopy, on Thursday, 4/20.
- You should also submit a copy via ELMS.

**Final paper (30%):**

- At the end of the semester, you will turn in a proposal for a new study in the domain of social cognitive development. It must be 12 - 13 pages, double spaced, APA format, and without tortured margins.
- The study you propose should make contact with at least one of the topics that we discussed in class
  - I **STRONGLY** recommend you take notes each week on paper topic ideas that relate to the readings, as they occur to you. If you are doing the readings properly, you will have dozens of good ideas to select from by the time it comes to choose a topic.
- The paper will be roughly in the format of a journal article, though of course without data: you'll have an introduction, methods section, planned analyses, and a thorough discussion of possible results and their implications. More details will be provided as the deadline approaches.
- Final papers are due at 12:30 pm on Wednesday, 5/20.

Date	Unit	Topic
1/26		Intro and organization
1/31		A view on Cognitive Psychology
2/2	<i>Core cognition of the physical world</i>	Depth perception
2/7		<b>NO CLASS</b>
2/9		Objects 1
2/14		Objects 2
2/16		Magnitude
2/21	<i>Core cognition of the social world</i>	Faces
2/23		Agents and goals
2/28		Agents and beliefs
3/2		Nonverbal communication
3/7	<i>Language</i>	How language sounds
3/9		How language works
3/14		Words, categories, concepts
3/16	<i>Learning and doing more</i>	Memory
3/21		<b>NO CLASS - Spring break</b>
3/23		<b>NO CLASS - Spring break</b>
3/28		Essentialism
3/30		Implicit attitudes
4/4		Probability and statistics
4/6		<b>NO CLASS</b>
4/11		Causal understanding
4/13		Action!
4/18		Symbols
4/20		Natural number
4/25	<i>Pushing children forward; holding them back</i>	Teachers
4/27		Mindset
5/2		Gender
5/4		Schooling and SES
5/9		In-class activity
5/11		Wrap-up discussion

## **Academic Integrity**

Academic integrity is a serious matter, and the Department of Psychology has a zero-tolerance policy towards academic dishonesty. Please review our statement on the ethics of scholarship, appended to this syllabus.

## **Excused absences**

University of Maryland policy dictates that a single absence during the semester due to illness or injury will be excused with a signed letter attesting to the date of the illness and acknowledging that the information is true and correct. You are required to contact me by email prior to the class meeting if you expect to be absent for any reason, especially due to illness or injury, and to provide this form by the next class meeting that you are present for:

<http://www.health.umd.edu/sites/default/files/ClassExcuse1011.pdf>

Multiple absences, and those occurring on a major scheduled grading event (<http://president.umd.edu/policies/docs/V-100G.pdf>), require written documentation of the illness or injury from the Health Center or an outside health care provider. The letter must verify the dates of treatment and the time period during which you were unable to meet academic responsibilities. Accommodations will be arranged on a case-by-case basis.

A grade of zero will be assigned for any assessment missed with an unexcused or undocumented absence.

## **Electronic devices**

Laptops and tablets may be used for note-taking or to view digital copies of the assigned reading during times when the instructor is leading the class. If I suspect that some of you are using your electronic devices for other purposes, such as email, messaging, web browsing, or Facebook, I may decide to ban these devices. During presentations by student discussion leaders, no electronic devices are permitted (except when required for DSS accommodations).

## **Further information:**

Please visit the University's Course Related Policies website:

<http://www.ugst.umd.edu/courserelatedpolicies.html>

## Class Outline

*Note: I recommend that you engage the readings in the order that they are listed here. Also, readings are subject to revision as the course proceeds!*

### **January 26: Introduction and organization**

### **January 31: Cognitive Psychology in perspective**

- Pinker, S. (1997). Standard equipment. In *How the mind works*. WW Norton & Company.
- Fantz, R. L. (1963). Pattern vision in newborn infants. *Science*, 140(3564), 296-297.
- Kosslyn, S.M. & Rosenberg, R.S. (2001). QALMRI Instructions.

### **February 2: Depth perception**

- Spelke, E. S. (1990). Origins of visual knowledge. In *An Invitation to Cognitive Science: Visual cognition and action* (Vol. 2, pp. 99-127).
- Slater, A., Mattock, A., & Brown, E. (1990). Size constancy at birth: Newborn infants' responses to retinal and real size. *Journal of Experimental Child Psychology*, 49(2), 314-322.

### **February 7: NO CLASS**

### **February 9: Objects 1**

- Haith, M. M. (1998). Who put the cog in infant cognition? Is rich interpretation too costly? *Infant Behavior and Development*, 21(2), 167-179.
- Spelke, E. S. (1998). Nativism, empiricism, and the origins of knowledge. *Infant Behavior and Development*, 21(2), 181-200.
- Valenza, E., Leo, I., Gava, L., & Simion, F. (2006). Perceptual completion in newborn human infants. *Child Development*, 77(6), 1810-1821.

### **February 14: Objects 2**

- Feigenson, L., & Carey, S. (2005). On the limits of infants' quantification of small object arrays. *Cognition*, 97(3), 295-313.
- Stahl, A. E., & Feigenson, L. (2015, April). Observing the unexpected enhances infants' learning and exploration. *Science (New York, N.Y.)*, 348(6230), 91-94.

### **February 16: Magnitude**

- Dehaene, S. (2011). Talented and gifted animals. In *The number sense: How the mind creates mathematics* (pp. 13-40). Oxford University Press.

- Izard, V., Sann, C., Spelke, E. S., & Streri, A. (2009). Newborn infants perceive abstract numbers. *Proceedings of the National Academy of Sciences*, 106(25), 10382.

### **February 21: Faces**

- Johnson, M. H. (2005). Subcortical face processing. *Nat Rev Neurosci*, 6(10), 766-74.
- Bar-Haim, Y., Ziv, T., Lamy, D., & Hodes, R. M. (2006). Nature and nurture in own-race face processing. *Psychological Science*, 17(2), 159.

### **February 23: Agents and goals**

- Woodward, A. L. (2009). Infants learning about intentional action. In A. L. Woodward & A. Needham (Eds.), *Learning and the infant mind* (Vol. 1, pp. 227-249). Oxford: Oxford University Press.
- Sommerville, J. A., Woodward, A. L., & Needham, A. (2005). Action experience alters 3-month-old infants' perception of others' actions. *Cognition*, 96(1), B1-11.

### **February 28: Agents and beliefs**

- Flavell, J. H. (2004). Theory-of-mind development: Retrospect and prospect. *Merrill-Palmer Quarterly*, 50(3), 274-290.
- Onishi, K. H., & Baillargeon, R. (2005). Do 15-month-old infants understand false beliefs? *Science*, 308(5719), 255-8.
- Saxe, R. (2013). The new puzzle of theory of mind development. In M. R. Banaji & S. Gelman (Eds.), *Navigating the social world: What infants, children, and other species can teach us* (pp. 107-112). New York: Oxford University Press.

### **March 2: Nonverbal communication**

- Carpenter, M., & Liebal, K. (2011). Joint attention, communication, and knowing together in infancy. In A. Seemann (Ed.), *Joint attention: New developments in psychology, philosophy of mind, and social neuroscience* (pp. 159-182). Cambridge, MA: MIT Press
- Begus, K., Gliga, T., & Southgate, V. (2014). Infants learn what they want to learn: Responding to infant pointing leads to superior learning. *PloS One*, 9(10), e108817.

### **March 7: How language sounds**

- Werker, J. F., & Tees, R. C. (1984). Cross-language speech perception: Evidence for perceptual reorganization during the first year of life. *Infant Behavior and Development*, 7(1), 49-63.
- Maurer, D., & Werker, J. F. (2014). Perceptual narrowing during infancy: A comparison of language and faces. *Dev Psychobiol*, 56(2), 154-78.



### **March 9: How language works**

- Pinker, S. (1994). How language works. In *The language instinct: The new science of language and mind* (pp. 83-125). Penguin.
- Senghas, A., Kita, S., & Özyürek, A. (2004). Children creating core properties of language: Evidence from an emerging sign language in nicaragua. *Science*, 305(5691), 1779-1782.

### **March 14: Words and concepts**

- Arunachalam, S., & Waxman, S. R. (2010). Language and conceptual development. *Wiley Interdisciplinary Reviews: Cognitive Science*, 1, 548-558.
- Hespos, S. J., & Spelke, E. S. (2004). Conceptual precursors to language. *Nature*, 430(6998), 453-6.

### **March 16: Memory**

- Bauer, P. J., Larkina, M., & Deocampo, J. (2011). Early memory development. In Goswami (Ed.), *The wiley-blackwell handbook of childhood cognitive development* (Vol. 2, pp. 153-179).
- Simcock, G., & Hayne, H. (2002). Breaking the barrier? Children fail to translate their preverbal memories into language. *Psychological Science*, 13(3), 225-231

### **March 21: NO CLASS – Spring break**

### **March 23: NO CLASS – Spring break**

### **March 28: Essentialism**

- Gelman, S. A. (2004). Psychological essentialism in children. *Trends in Cognitive Sciences*, 8(9), 404-9.
- Rhodes, M., Leslie, S. J., & Tworek, C. M. (2012). Cultural transmission of social essentialism. *Proc Natl Acad Sci U S A*, 109(34), 13526-31.
- Waxman, S. R. (2012). Social categories are shaped by social experience. *Trends in Cognitive Sciences*, 16(11), 531-532.

### **March 30 : Implicit attitudes**

- Dunham, Y., Baron, A. S., & Banaji, M. R. (2008). The development of implicit intergroup cognition. *Trends in Cognitive Sciences*, 12(7), 248-53.
- Dunham, Y., Srinivasan, M., Dotsch, R., & Barner, D. (2014). Religion insulates ingroup evaluations: The development of intergroup attitudes in india. *Developmental Science*, 17(2), 311-9.

### **April 4: Probability and statistics**

- Xu, F., & Kushnir, T. (2013). Infants are rational constructivist learners. *Current Directions in Psychological Science*, 22(1), 28-32.
- Xu, F., & Denison, S. (2009). Statistical inference and sensitivity to sampling in 11-month-old infants. *Cognition*, 112(1), 97-104.

#### **April 6: Causal understanding**

- Saxe, R., Tenenbaum, J. B., & Carey, S. (2005). Secret agents: Inferences about hidden causes by 10-and 12-month-old infants. *Psychological Science*, 995-1001.
- Bonawitz, E. B., Ferranti, D., Saxe, R., Gopnik, A., Meltzoff, A. N., Woodward, J., & Schulz, L. E. (2010). Just do it? Investigating the gap between prediction and action in toddlers' causal inferences. *Cognition*, 115(1), 104-17.

#### **April 11: NO CLASS**

#### **April 13: Action!**

- Adolph, K. E. (2000). Specificity of learning: Why infants fall over a veritable cliff. *Psychological Science*, 11(4), 290-295.
- Keen, R. (2003). Representation of objects and events why do infants look so smart and toddlers look so dumb? *Current Directions in Psychological Science*, 12(3), 79-83.

#### **April 18: Symbols**

- DeLoache, J. S. (2004). Becoming symbol-minded. *Trends in Cognitive Sciences*, 8(2), 66-70.
- DeLoache, J. S., Miller, K. F., & Rosengren, K. S. (1997). The credible shrinking room: Very young children's performance with symbolic and nonsymbolic relations. *Psychological Science*, 8(4), 308-313.

#### **April 20: Natural number**

- Sarnecka, B. W. (2016). How numbers are like the earth (and unlike faces, loitering, or knitting). In D. Barner & A. Baron (Eds.), *Core knowledge and conceptual change* (pp. 151-170). New York: Oxford University Press
- Gordon, P. (2004). Numerical cognition without words: Evidence from amazonia. *Science*, 306(5695), 496-9.

#### **April 25: Teachers**

- Harris, P. L., & Corriveau, K. H. (2011). Young children's selective trust in informants. *Philosophical Transactions of the Royal Society of London. Series B, Biological Sciences*, 366(1567), 1179-87.

- Bonawitz, E., Shafto, P., Gweon, H., Goodman, N. D., Spelke, E., & Schulz, L. (2011). The double-edged sword of pedagogy: Instruction limits spontaneous exploration and discovery. *Cognition*, 120(3), 322-30.

### **April 27: Mindset**

- Dweck, C. S. (2007, October). The perils and promises of praise. *Educational Leadership*, 65(2), 34-39.
- Gunderson, E. A., Gripshover, S. J., Romero, C., Dweck, C. S., Goldin-Meadow, S., & Levine, S. C. (2013). Parent praise to 1- to 3-year-olds predicts children's motivational frameworks 5 years later. *Child Development*, 84(5), 1526-41.
- Blog post by Carol Dweck:
  - <http://mindsetscholarsnetwork.org/growth-mindset-firm-foundation-still-building-house/>

### **May 2: Gender**

- **WATCH:** Spelke versus Pinker debate on “The Science of Gender and Science”
  - [http://edge.org/3rd\\_culture/debate05/debate05\\_index.html](http://edge.org/3rd_culture/debate05/debate05_index.html)
- Ambady, N., Shih, M., Kim, A., & Pittinsky, T. L. (2001). Stereotype susceptibility in children: Effects of identity activation on quantitative performance. *Psychological Science*, 12(5), 385-390.

### **May 4: Schooling and SES**

- Ceci, S. J. (1991). How much does schooling influence general intelligence and its cognitive components? A reassessment of the evidence. *Developmental Psychology*, 27(5), 703.
- Turkheimer, E., Haley, A., Waldron, M., d'Onofrio, B., & Gottesman, I. I. (2003). Socioeconomic status modifies heritability of IQ in young children. *Psychological Science*, 14(6), 623-628.

### **May 9: In-class activity**

### **May 11: Wrap-up discussion**