

**Preliminary Syllabus (Subject to Revision)****Professor: Sarah Shuwairi, Ph.D.**

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Office Hours: Wed 1-2pm, 4-5pm, and by appointment

Office: 356 Schermerhorn Ext.

**Course Description**

Analysis of human development during the first year of life, with an emphasis on infant perceptual and cognitive development.

**Prerequisite:** a course in perception, cognition or developmental psychology, and the instructor's permission.

**Course Goals**

In this class you will learn about research that is conducted to study infant development, and more broadly how infants and young children are able to learn and make sense of the world. You will learn about various developmental phenomena and milestones as well as the techniques that psychologists use to study infants' and young children's behavior at various points in early development. Many research methods overlap with other areas of psychology but certain techniques were devised specifically to address developmental issues or to obtain data from preverbal infants. Perhaps most important, you will be able to relate the facts, theories, and methods of developmental psychology to everyday life and real world concerns. This course should give you a scientific basis for understanding and caring for infants, and for considering social policy and norms affecting young children.

**Weekly Readings**

The weekly reading assignments will typically include a selection of 4 - 5 papers, which may include book chapters, primary research articles and/or review articles. These items will be available as PDF's for download on New CourseWorks (see preliminary reading list below).

**Reaction Papers**

Each week students will prepare a 1-page report summarizing the readings and propose at least three integrative questions and/or thought provoking questions for class discussion.

**Grading**

10% Participation in Weekly Discussion

10% Homework (Weekly "Reaction Papers")

5% Critique of Infant Toy/Product

25% Oral Presentations (2-3 powerpoint presentations and lead discussion of a research article)

25% Term Paper (10-page literature review and research proposal on choice of topic from class)

25% Final Exam

**Requirements and Expectations**

To do well in this course, you will need to engage in approximately 6 to 9 hours of study time outside of class each week. It is highly recommended that students attend class on a regular basis, complete all assignments, and keep up with weekly readings.

Wed 2:10 – 4 pm

200C Schermerhorn Hall

Department of Psychology at Columbia University

**Attendance Policy**

Students are expected to attend all class sessions and to be on time. Your participation in the class is an integral part of a successful seminar format. If you are unable to attend a class session due to an unforeseen emergency, you must notify the instructor as soon as possible. If such an emergency prevents you from attending a class or completing assigned work, then you must provide the instructor with written documentation from either a doctor or your dean to verify the circumstances.

**Classroom Courtesy Statement**

Please note that we would like to have a classroom environment that is conducive to learning. As a courtesy to the instructor and fellow students, please remember to turn off cell phones and social networking devices during class period as these can cause distractions for you and other students sitting nearby. All text messaging, chatting and cell phone use should take place outside of class.

**Schedule of Course Topics**

Week	Date	Seminar Discussion Topics
1	23-Jan	Course Overview: Topics, Methodologies and Ethical Issues
2	30-Jan	Theories of Development
3	6-Feb	Prenatal Learning and Early Perceptual Skills
4	13-Feb	Object Permanence
5	20-Feb	Social Cognition: Interpreting Action, Gestures and Goals
6	27-Feb	Social Cognition: Imitation and Helping
7	6-Mar	Categorization
8	13-Mar	Sensitivity to Pictorial Depth Cues and Perceiving Objects in 3D
--	20-Mar	<i>*No Class -- Spring Recess</i>
9	27-Mar	Reaching and Object Exploration
10	3-Apr	Learning to Move: Crawling and Walking
11	10-Apr	Memory and Retrieval
12	17-Apr	Preverbal Communication and Language Acquisition Mechanisms
13	24-Apr	Enrichment and Cortical Maturation
14	1-May	Autism and Atypical Development

**Weekly Lecture Topics and Reading Assignments**

(Note: This is a Preliminary Reading List and is Subject to Revision)

**Week 1. Course Overview, Methodologies and Ethical Issues**

Aslin, R. N. (2012). Infant eyes: A window on cognitive development. *Infancy*, 17, 126-140.

Fantz, R. L. (1964). Visual experience in infants: Decreased attention to familiar patterns relative to novel ones. *Science*, 146, 668-670.

**Week 2. Theories of Development**

Carey, S. (2000). The origin of concepts. *Journal of Cognition and Development*, 1, 37-41.

Cohen, L.B., & Strauss, M.S. (1979). Concept acquisition in the human infant. *Child Development*, 50, 419-424.

Johnson, S. P. (2003). The nature of cognitive development. *Trends in Cognitive Sciences*, 7, 102-104.

Spelke, E. (1998). Nativism, empiricism, and the origins of knowledge. *Infant Behavior and Development*, 21, 181-200.

**Week 3. Prenatal Learning and Early Perceptual Skills**

DeCasper, A.J., & Spence, M.J. (1986). Prenatal maternal speech influences newborns' perception of speech sounds. *Infant Behavior and Development*, 9, 133-150.

Meltzoff, A.N., & Moore, M.K. (1977). Imitation of facial and manual gestures by human neonates. *Science*, 198, 75-78.

Mennella, J. A., Kennedy, J., & Beauchamp, G. K. (2006). The type of formula fed to infants modifies vegetable acceptance. *Early Human Development*, 82, 263-268.

Mennella, J. A. (2006). Development of food preferences: lessons learned from longitudinal and experimental studies. *Food Quality and Preference*, 17, 635-636.

Bornstein, M. H., Kessen, W., & Weiskopf, S. (1976). The Categories of Hue in Infancy. *Science*, 191(4223), 201-202.

**Week 4. Object Permanence**

Baillargeon, R. (1987). Object permanence in 3 1/2- and 4 1/2-month old infants. *Developmental Psychology*, 23, 655-664.

Kellman, P. J., & Spelke, E. S. (1983). Perception of partly occluded objects in infancy. *Cognitive Psychology*, 15, 483-524.

Johnson, S. P., Amso, D., & Slemmer, J. A. (2003). Development of object concepts in infancy: Evidence for early learning in an eye-tracking paradigm. *Proceedings of the National Academy of Sciences*, 100, 10568-10573.

Johnson, S. P. & Shuwairi, S. M. (2009). Learning and memory facilitate predictive tracking in 4-month-olds. *Journal of Experimental Child Psychology*, 102, 122-130.

Clifton, R. K., Rochat, P., Litovsky, R., & Perris, E. (1991) Object representation guides infants' reaching in the dark. *Journal of Experimental Psychology: Human Perception and Performance*, 17, 323-329.

**Week 5. Social Cognition: Interpreting Action, Gestures and Goals**

Liszkowski, U., Carpenter, M., Henning, A., Striano, T., & Tomasello, M. (2004). Twelve-month-olds point to share attention and interest. *Developmental Science*, 7(3), 297-307.

Franco, F., & Butterworth, G. (1996). Pointing and social awareness: Declaring and requesting in the second year. *Journal of Child Language*, 23(2), 307–336.

Henderson, A.M.E., & Woodward, A. L. (2011). Let's work together: What do infants understand about collaborative goals? *Cognition*, 121, 12-21.

Woodward, A. L. (2009). Infants' grasp of others' intentions. *Current Directions in Psychological Science*, 18, 53-57.

**Week 6. Social Cognition: Imitation and Helping**

Barr, R., Dowden, A., & Hayne, H. (1996). Developmental changes in deferred imitation by 6- to 24-month-old infants. *Infant Behavior and Development*, 19, 159-170.

Warneken, F. & Tomasello, M. (2006). Altruistic helping in human infants and young chimpanzees. *Science*, 311, 1301-1303.

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Warneken, F., Gräfenhain, M., & Tomasello, M. (2012). Collaborative partner or social tool? New evidence for young children's understanding of joint intentions in collaborative activities. *Developmental Science*, 15(1), 54-61.

Warneken, F., Lohse, K., Melis, A.P., & Tomasello, M. (2011). Young children share the spoils after collaboration. *Psychological Science*, 22(2), 267-273.

### Week 7. Categorization

Bomba, P. C., & Siqueland, E. R. (1983). The nature and structure of infant form categories. *Journal of Experimental Child Psychology*, 35, 294-328.

Quinn, P. C., Eimas, P. D., & Rosenkrantz, S. L. (1993). Evidence for representations of perceptually similar natural categories by 3- and 4-month-old infants. *Perception*, 22, 463-475.

Liu, S., Quinn, P. C., Wheeler, A., Xiao, N., Ge, L., & Lee, K. (2011). Similarity and difference in the processing of same- and other-race faces as revealed by eye-tracking in 4- to 9-month-old infants. *Journal of Experimental Child Psychology*, 108, 180-189.

Wheeler, A., Anzures, G., Quinn, P. C., Pascalis, O., Omrin, D. S., & Lee, K. (2011). Caucasian infants scan own- and other-race faces differently. *PLoS ONE*, 6(4): e18621.

Mandler, J. M. (2000). Perceptual and Conceptual Processes in Infancy. *Journal of Cognition and Development*, 1, 3-36.

### Week 8. Sensitivity to Pictorial Depth Cues and Perceiving Objects in 3D

Bhatt, R. S., & Bertin, E. (2001). Pictorial cues and three-dimensional information processing in early infancy. *Journal of Experimental Child Psychology*, 80, 315-332.

Granrud, C.E., & Yonas, A. (1984). Infant's perception of pictorially specified interposition. *Journal of Experimental Child Psychology*, 37, 500-511.

Shuwairi, S. M., Albert, M. K., & Johnson, S. P. (2007). Discrimination of possible and impossible objects in infancy. *Psychological Science*, 18, 303-307.

Yonas, A., & Arterberry, M.E. (1995). Infants perceive spatial structure specified by line junctions. *Perception*, 23, 1427-1435.

Yonas, A., Elieff, C. A., & Arterberry, M. E. (2002). Emergence of sensitivity to pictorial depth cues: Charting development in individual infants. *Infant Behavior and Development*, 25, 495-514.

**Week 9. Reaching and Object Exploration**

Bourgeois, K. S., Khawar, A. W., Neal, S. A., & Lockman, J. J. (2005). Infant manual exploration of objects, surfaces, and their interrelations. *Infancy, 8*(3), 233-252.

Clifton, R. K., Rochat, P., Litovsky, R., & Perris, E. (1991). Object representation guides infants' reaching in the dark. *Journal of Experimental Psychology: Human Perception and Performance, 17*, 323-329.

Needham, A. (2000). Improvements in Object Exploration Skills May Facilitate the Development of Object Segregation in Early Infancy. *Journal of Cognition and Development, 1*, 131-156.

Needham, A., Barrett, T., & Peterman, K. (2002). A Pick-Me-Up for Infants' Exploratory Skills: Early Stimulated Experiences Reaching for Objects Using 'Sticky Mittens' Enhances Young Infants' Object Exploration Skills. *Infant Behavior and Development, 25*, 279-295.

Ruff, H. A. (1984). Infants' manipulative exploration of objects: Effects of age and object characteristics. *Developmental Psychology, 20*(1), 9-20.

**Week 10. Learning to Move: Crawling and Walking**

Adolph, K. E. (2008). Learning to move. *Current Directions in Psychological Science, 17*, 213-218.

Adolph, K. E. (2000). Specificity of learning: Why infants fall over a veritable cliff. *Psychological Science, 11*, 290-295.

Fagard, J., & Lockman, J. J. (2005). The effect of task constraints on infants' (bi)manual strategy for grasping and exploring objects. *Infant Behavior and Development, 28*(3), 305-315.

Fagard, J., Spelke, E., & von Hofsten, C. (2009). Reaching and grasping a moving object in 6-, 8-, and 10-month-old infants: Laterality and performance. *Infant Behavior and Development, 32*(2), 137-146.

**Week 11. Memory and Retrieval**

Fagan, J.F. (1970). Memory in the infant. *Journal of Experimental Child Psychology, 9*, 217-226.

Greco, C., Hayne, H., & Rovee-Collier, C. (1990). The roles of function, reminding, and variability in categorization by 3-month-old infants. *Journal of Experimental Psychology: Learning, Memory & Cognition*, *16*, 617-633.

Rovee-Collier, C. (1999). The development of infant memory. *Current Directions in Psychological Science*, *8*(3), 80-85.

Rovee-Collier, C., Hartshorn, K., & DiRubbo, M. (1999). Long-term maintenance of infant memory. *Developmental Psychobiology*, *35*, 91-102.

Sweeney, B., & Rovee-Collier, C. (2001). The minimum duration of reactivation at 6 months: latency of retrieval and reforgetting. *Infant Behavior and Development*, *24*, 259-280.

### **Week 12. Preverbal Communication and Language Acquisition Mechanisms**

Goldstein, M. H., Schwade, J. A., Briesch, J., & Syal, S. (2010). Learning while babbling: Prelinguistic object-directed vocalizations signal a readiness to learn. *Infancy*, *15*(4), 362-391.

Goldstein, M. H., & Schwade, J. A. (2008). Social feedback to infants' babbling facilitates rapid phonological learning. *Psychological Science*, *19*, 515-522.

Marcus, G. (1999). Rule learning by seven-month-old infants. *Science*, *283*, 77-79.

Rowe, M. L., & Goldin-Meadow, S. (2009). Early gesture selectively predicts later language learning. *Developmental Science*, *12*(1), 182-187.

Saffran, J. (1998). Statistical learning by 8-month-old infants. *Science*, *274*, 1926-1928.

### **Week 13. Enrichment and Cortical Maturation**

Bell, MA. & Fox, N.A. (1996), Crawling experience is related to changes in cortical organization during infancy: Evidence from EEG coherence. *Developmental Psychobiology*, *29*, 551-561.

Csibra G, Davis G., Spratling, M.W, & Johnson, M.H. (2000). Gamma oscillations and object processing in the infant brain. *Science*, *290*, 1582-1585.

Field, T., Pickens, J., Fox, N.A., Gonzalez, J., & Nawrocki, T. (1998). Facial expression and EEG responses to happy and sad faces/voices by 3-month-old infants of depressed mothers. *British Journal of Developmental Psychology*, *16*, 485-494.

Greenough, W. T., Black, J. E., & Wallace, C. S. (1987/1993). Experience and brain development. In M. Johnson (Ed.) *Brain development and cognition: A reader*. Oxford: Blackwell Publishers, pp. 290-322.

Johnson, M.H. (2000). State of the Art: How babies' brains work. *The Psychologist*, 13, 298-301.

#### **Week 14. Autism and Atypical Development**

Bedford, R., Elsabbagh, M., Gliga, T., Pickles, A., Senju, A., Charman, T., Johnson, M.H. and the BASIS team. (2012). Precursors to social and communication difficulties in infants at-risk for autism: Gaze following and attentional engagement. *Journal of Autism and Developmental Disorders*, 42(10), 2208-2218.

Klin, A., Lin, D. J., Gorrindo, P., Ramsay, G., & Jones, W. (2009). Two-year-olds with autism orient to non-social contingencies rather than biological motion. *Nature*, 459(7244), 257-61.

Liebal, K. Colombi, C., Rogers, S., Warneken, F., & Tomasello, M. (2008). Helping and cooperation in children with autism. *Journal of Autism and Developmental Disorders*, 38(2), 224–238.

Mundy, P., Sigman, M., Ungerer, J., & Sherman, T. (1986). Defining the social deficits of autism: The contribution of non-verbal communication measures. *Journal of Child Psychology and Psychiatry*, 27, 657–669.