HDFS 597A Developmental Cognitive Neuroscience of Adolescence (Fall 2013)

Instructor: Charles Geier **Office: 309B HHD East**
Time: M W 11:00 AM – 12:30 PM **Location: S211 Conference Room HHD East**
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Overview:

Adolescence is a unique, transitional period of development that begins with the onset of puberty and ends with the acquisition of adult social roles. The study of adolescence necessitates cross-disciplinary inquiry (biological, psychological, etc.) using multiple methodologies as change occurs across numerous domains. Notably, considerable change occurs in an individual's brain (neural) function, their behavior, and their social environments. Importantly, adolescence is also a time of heightened vulnerability to psychosocial disorders (e.g., depression, substance abuse, etc.). In this course, students will evaluate a mix of foundational and cutting-edge research investigating various changes of adolescence, principally from a developmental cognitive neuroscience perspective. Particular emphasis will be placed on understanding non-invasive neuroimaging techniques (e.g., functional magnetic resonance imaging) and the critical role these tools have played in our understanding of adolescent development. Topics to be discussed include (but will likely not be limited to) structural brain development, maturation in cognitive control functions (e.g., working memory, inhibitory control), as well as affective (e.g., emotion and reward processing), and social information processing. We will also examine factors contributing to adolescent decision-making and risk taking behaviors.

Objectives:

1. Describe theories of neurobiological development through adolescence and how these theories may be applied to generate hypotheses in their own areas of research
2. Describe the essential elements and timeline of brain structural and functional development and how these changes relate to observable behavior
3. Describe "executive" or cognitive control processes and how these processes develop through adolescence
4. Recognize the relative strengths and weaknesses of major methodologies used in developmental cognitive neuroscience research
5. Extract and describe core concepts from papers even when methodological details are unfamiliar
6. Be familiar with the formats of NIH small grant (R03, R21) proposal

Course requirements:

1. Participation (40%)
    - Discussion leadership and slide presentations
    - General participation
2. Reaction papers (20%)
3. Final paper (40%)
    - Final paper on a topic of the student's choice
    - Slide presentation of final paper