

## MA DIRECTED STUDY OPPORTUNITIES 16/17

Prof. Peter Blake (64 Cummington Mall – Rm. 137). Our research focuses on how children come to understand the social world. We conduct cognitive and behavioral experiments with children from 2 to 12 years of age. We study things such as cooperation and competition, ownership and private property, fairness and other social norms, and learning through imitation and communication. As a directed study student you would be involved in running studies, recruitment, interacting with participants and parents, study development and entering data.

Prof. Leslie Brody (648 Beacon St. – Rm. 230). My current research investigates how coping strategies and gender roles in women with HIV predict their health outcomes. Students in the lab are trained to collaboratively code autobiographical narratives for coping strategies, gender roles, and interpersonal themes; to enter data, and then to select their own research question for further investigation.

Prof. Catherine Caldwell-Harris (64 Cummington Mall – Rm. 123). My research concerns cognition, language, and the brain. I have projects on bilingualism, psycholinguistics, deaf children's sign acquisition and literacy, and cross-cultural aspects of emotion and language. I encourage students to begin the directed study by working on one of the existing projects in the lab, and then to develop their own study in conjunction with other lab members, if desired.

Prof. James Cherry, (2 Cummington Mall – Rm. 402A). Projects are available for students with some background and interest in neurobiology in studies that investigate brain circuitry in the mouse that processes odors used in social communication. Projects typically require animal handling and may use methods that include behavioral observation, neurosurgery, electrophysiology and/or histology/immunohistochemistry.

Prof. Alice Cronin-Golomb (648 Beacon St. – Rm. 208). Vision and cognition in Parkinson's disease and other neurological disorders. I am also conducting studies in cognition with healthy elderly individuals. Students may participate in literature review, data collection, coding and entry, and analysis.

Prof. Margaret Hagen (64 Cummington Mall – Rm. 125). We have an ongoing research laboratory studying jurors' decision-making in cases involving bullying, inflicting emotional distress, and ruining the reputations of others. Many of our cases center on evolving standards for use of social media and the expectations of privacy people do and do not have on these media.

Prof. Michael Hasselmo (2 Cummington Mall – Rm. 105E). Students with a strong interest in neurophysiological mechanisms of memory function may have the opportunity to perform projects involving training of rats and gathering of physiological data. This requires a strong background in courses related to neuroscience. There are also opportunities for interested students in computer modeling of memory function in cortical networks. This requires some background in mathematics, programming or neural network theory

## MA DIRECTED STUDY OPPORTUNITIES 16/17 (continued)

Prof. Kathleen Kantak (2 Cummington Mall – Rm. 205). My research uses animal models to conduct translational research related to drug addiction. Using intravenous drug self-administration procedures in rats, one project investigates how cognitive-enhancing therapeutic strategies may be useful for attenuating drug relapse. A second project focuses on neurocognitive deficits in rats with an ADHD phenotype and their response to medications as well as on comorbidity between ADHD and drug abuse risk. A third project utilizes transgenic mice for which different subtypes of serotonergic neurons can be silenced and the role of these neurons in addiction-related behavior is examined.

Prof. Deb Kelemen (64 Cummington Mall – Rm. 121). Research in the Child Cognition Lab focuses on children's conceptions of animals, people, and human-made objects. Depending on the specific project, directed study participation may include subject recruitment, data entry, assisting in the design stimuli (drawing and Photoshop skills are always in demand!), some child interviewing with training.

Prof. Melissa Kibbe, (64 Cummington Mall – Rm. 117). (LOA Sem I) I study how we perceive, attend to, and remember objects in both social and non-social contexts. Depending on the project and your interests, you might work on one of the following questions: 1) What counts as a visual object? 2) What are the limitations on working memory for objects? 3) How do we overcome limitations on working memory? 4) How does our memory for objects change when objects are placed in a social context (for example, when some objects are preferred by a person and some are not)? Also depending on the project, studies may be conducted with adults and/or infants and children. Directed study students may assist with participant recruitment, designing stimuli, data entry and coding, and/or running adult participants or (with training) infant/child participants.

Prof. Jacqueline Liederman (64 Cummington Mall – Rm. 118C). (SAB Sem II) I like to refer to myself as a Developmental Neuropsychologist; I am interested in the neural mechanisms underlying behavior and how these change in the context of development and/or disease. My training is primarily in physiological psychology. Research Interests: (1) how the two hemispheres collaborate and compete during information processing and how that is affected by split-brain surgery, learning disability and developmental maturation; (2) why boys are two to five times more likely to have a neurodevelopmental disorder than girls, including autism, dyslexia, learning disabilities, attention deficit disorder, etc. (Our current research examines factors underlying this male vulnerability during the prenatal period.); (3) attentional phenomena such as blindsight and change blindness (i.e., circumstances when awareness and perception are dissociated..) (SAB Sem II)

Prof. Sam Ling (677 Beacon Street – Rm. 311). Sensation is easy –even a camera can sense light. For a camera, light simply falls onto film, creating a photograph of what was seen; the story ends there. For humans, however, the moment light falls on our retina is but the beginning of an exceedingly complex process, culminating in our rich perceptual experiences. It is this remarkable process that sets our visual system far apart from simple devices such as cameras: our brain's ability to perceive and consciously experience the visual world. Our lab's work centers on that pivotal stage of cognitive processing –the stage at which sensation becomes perception. Our research combines a variety of techniques, including psychophysics, computational modeling, and functional magnetic resonance imaging (fMRI) –all aimed towards understanding how the brain mediates between the 'buzzing confusion' of the visual environment and our limited processing power.

## MA DIRECTED STUDY OPPORTUNITIES 16/17 (continued)

Prof. Kristin Long (648 Beacon Street – Rm. 510). (LOA Sem I & II) My research focuses on (1) reciprocal influences between a child's medical illness or disability and his/her family and cultural context, (2) health disparities in autism diagnosis and treatment, and (3) the development and evaluation of psychosocial interventions for children with chronic conditions and their families. The majority of my work is carried out with families facing childhood cancer, intellectual disability, autism, and asthma.

Prof. Kathleen Malley-Morrison (64 Cummington Mall – Rm. 112B). At present, my major research project focuses on cross-cultural and international perspectives on war, other forms of institutional violence, and peace, in relation to variables such as nationality, gender, ethnicity, religion, and other characteristics. I am also doing some work on apology, forgiveness, and reconciliation. My research group, the Group on International Perspectives on Governmental Aggression and Peace (GIPGAP) is doing some work in collaboration with the Peace Abbey in Sherborn, MA, and are exploring the role of art in the promotion of peace. We would love some new members with artistic talents, as well as students interested in the role of the media in promoting tolerance of war or promotion of peace.

Prof. Joseph McGuire (677 Beacon St. – Rm. 212). My group conducts basic research on decision making. Our goal is to understand the information processing operations that enable people to make good decisions in uncertain environments. We study how people decide what future rewards to pursue and how long to persist in the face of setbacks. Our methods include behavioral experiments, computational modeling, psychophysiology, and neuroimaging. See [sites.bu.edu/cdlab](http://sites.bu.edu/cdlab) for more information.

Prof. Susan R. McGurk (Center for Psychiatric Rehabilitation, 940 Commonwealth Avenue). My training is in both clinical and neuropsychology. My research addresses cognitive impairments in psychiatric illness, and their relationship with community functioning. Our research program is focused on the development and evaluation of cognitive enhancement strategies, such as restorative task practice and compensatory strategies, in improving work functioning in persons with serious psychiatric illness.

Prof. David I. Mostofsky (64 Cummington Mall – Rm. 135). My research interests relate to topics in Behavioral Medicine. Currently, my active research is concentrated with (1) heart rate variability (2) eating disorders (3) applications of behavioral medicine developments to treatment protocols in local and worldwide settings.

Prof. Kim T. Mueser (Center for Psychiatric Rehabilitation, 940 Commonwealth Avenue). My research and clinical interests at the Center for Psychiatric Rehabilitation focus on the development and evaluation of psychosocial treatments for persons with a serious mental illnesses such as schizophrenia, bipolar disorder, or treatment refractory depression. My ongoing and past work has involved a variety of different interventions, including teaching illness self-management (Illness Management and Recovery program), cognitive behavioral therapy for PTSD or psychosis, integrated treatment for co-occurring substance use disorders, family psychoeducation, social skills training, supported employment, cognitive remediation, treatment of first episode psychosis, and health promotion/disease management interventions.

## MA DIRECTED STUDY OPPORTUNITIES 16/17 (continued)

Prof. Tibor Palfai (648 Beacon St. – Rm. 410). My primary research interests are:

(1) understanding the cognitive-motivational processes that underlie hazardous drinking, smoking, substance use, and related health risk behaviors (e.g., sexual risk behavior) (2) clarifying the factors that facilitate and interfere with efforts to change these behaviors, and (3) developing interventions to promote health behavior change. I am particularly interested in the study of addictive behaviors among college student and medical populations and the use of technology in intervention delivery.

Prof. Robert Reinhart (677 Beacon St. – Rm. 312). Our research aims to understand how the brains of healthy individuals and neuropsychiatric patients, such as those with schizophrenia, selectively extract, store, and use information from the external world. Typically, we employ visual perceptual and cognitive tasks, and measure the behavior of our participants performing these tasks as well as the electrophysiological responses of their brains which we record non-invasively from the scalp. We also rigorously use a causal neuroscientific tool called transcranial electrical stimulation to safely and reversibly manipulate the behavior and electrophysiological signals of our participants while they perform a task. Active areas of investigation in the lab include: visual attention, visual working memory, feedback learning, and adaptive control. As a directed study student you would be involved in some or all of the following stages of our research: experimental design and programming, participant recruitment, the acquisition and analysis of behavior and electroencephalographic (EEG) data, the delivery of transcranial electrical brain stimulation, and the preparation of abstracts, posters, and manuscripts for publication.

Prof. Mark A Richardson (648 Beacon St. – Rm. 232). Current research priorities include assessment of HIV risk behavior, HIV primary and secondary prevention among adults with serious mental illness, and the contribution of neuropsychological factors on changing knowledge about and engagement in risky behavior. I am also involved in a longitudinal study of cognitive and psychosocial adaptation following prenatal exposure to substances of abuse. Please note that current research activities are based at Boston Medical Center.

Prof. Michele Rucci (64 Cummington Mall – Rm. 248). Is the dress white/gold or black/blue? Research opportunities for students interested in how humans perceive the world are available in Michele Rucci's Active Perception Laboratory. Ongoing studies include the development of models of the visual system, psychophysical experiments with human subjects, and experiments with robots replicating human behaviors. Note that modeling and robotic projects require a background in mathematics and programming. Please contact Prof. Rucci for details.

Prof. Kim Saudino (64 Cummington Mall – Rm. 105A). My research is in the area of early childhood temperament. I am currently working a twin study examining developmental change in temperament across the preschool period. The temperament dimensions of negative emotionality, positive emotionality, activity level, attention, persistence, shyness and inhibitory control is longitudinally assessed via multiple methods (e.g., behavioral tests, observations, actigraphs and parent ratings) in a sample of 300 twin pairs at 3, 4, and 5 years of age. Parent report and observational measures of parenting behavior are also obtained at each age. Developmental outcome measures include externalizing and internalizing behavior problems, prosocial behavior, and academic readiness. The specific aims of the study are to: 1) Explore individual differences in developmental change across the preschool period using observational measures of temperament in addition to parent ratings; 2) Assess links between child temperament and parenting trajectories. 3) Explore relations between temperament trajectories and developmental outcomes at age 5; and 4) Examine genetic and environmental influences on individual differences in temperament trajectories.

## MA DIRECTED STUDY OPPORTUNITIES 16/17 (continued)

Prof. David Somers (2 Cummington Mall – Rm. 209). I am interested in the mechanisms of visual perception, recognition, and attention. How is visual information encoded in the mind and brain? How is it used for recognizing objects? How does attention modulate these representations and processes? Can we achieve a computational understanding of the brain mechanisms that support these functions? My research employs visual psychophysics and functional magnetic resonance imaging (fMRI) of human brain activity. In addition, computational modeling techniques are used. Students interested in any of these methods and topics are welcome to apply.

Prof. Helen Tager-Flusberg (64 Cummington Mall – Rm. 170E). Current projects all focus on autism spectrum disorder with an emphasis on language and communicative impairments. Projects fall into 3 areas: infants at high risk for ASD; the psycholinguistic and neural bases for language processing in children with ASD; children and adolescents who fail to acquire spoken language. Methods include standardized behavioral assessments, observational measures, language transcription and coding, electrophysiology and MRI. Directed Study Students need to make a 2-semester commitment to working in the lab; the Directed Study is taken during the second semester. Projects focus primarily on coding observational data, language transcription and analysis. Students who can only do one semester of research can apply for internships in the lab. Students who have been working in the lab before their senior year and have ideas for projects they would like to pursue can discuss the possibility of completing honors under my direction.

Prof. Martha Tompson (648 Beacon St. – Rm. 407). My current work emphasizes understanding both family processes and designing and testing family-based treatment models for preadolescent-onset depression. My lab is conducting a clinical trial comparing a family-based to an individually-based treatment for preadolescent depression. Directed study students working in my lab learn about diagnosis and evaluation of depressive symptoms and disorder in youth, about family and individual treatment models for depression, and about the implementation of clinical trials of psychotherapeutic interventions. Students work in the lab 7 hours per week and participate in a 1 hour weekly lab meeting.

DIRECTED STUDY/HONORS OPPORTUNITIES 16/17  
AT THE B.U. CENTER FOR ANXIETY AND RELATED DISORDERS (CARD)  
648 BEACON STREET

Numerous ongoing research projects on the nature and treatment of anxiety disorders in both adults and children. Specific areas of study include social phobia and panic disorder research and treatment with both psychological treatments and drugs, classification of anxiety disorders, the development of new transdiagnostic unified treatments for anxiety disorders, the study and treatment of eating disorders, and the study and treatment of addictive behavior and depression. Faculty includes David Barlow, Todd Farchione, Tim Brown, Stefan Hofmann, Donna Pincus, Heather Murray-Latin, and Lisa Smith among others.

Prof. David H. Barlow (648 Beacon St. – 6<sup>th</sup> Floor). My clinical research at the Center for Anxiety and Related Disorders (CARD) focuses on understanding the nature of anxiety and depression and developing new treatments for emotional disorders.

Prof. Stefan G. Hofmann (648 Beacon St. – Rm. 404). I am conducting a number of research projects investigating the psychopathology and treatment of anxiety disorders (social phobia, specific phobia, and panic disorder). Furthermore, I am interested in the psychophysiology of emotions. Students will become familiar with various stages of a research project and may assist in conducting psychological experiments, coding video and audio tapes, data entry, data organization, and data reduction.

Prof. Michael W. Otto (648 Beacon St – 5<sup>th</sup> Floor). Much of my current research focuses on strategies to increase the retention of therapeutic learning - strategies that are designed to provide more efficient treatment of anxiety, mood, and substance use disorders. In addition to pharmacologic strategies (use of d-cycloserine or yohimbine in conjunction with cognitive-behavior therapy) our newest projects will examine the role of exercise in creating brain conditions for faster learning. This work complements (1) our ongoing focus on (1) identifying core factors in psychopathology and its treatment (with an emphasis on the role of distress intolerance across a wide variety of disorders), (2) issues in the acquisition or maintenance of health behaviors (smoking, exercise, and medication adherence), and (3) predictors of extinction learning.

Prof. Shannon Sauer-Zavala (648 Beacon St. – 4<sup>th</sup> Floor). My research is focused on developing efficient, cost-effective treatment strategies for emotional disorders, particularly borderline personality disorder, by addressing core mechanisms maintaining symptoms.