FACULTY RESEARCH INTERESTS
2015/2016

DAVID SOMERS (B)
Chairman, Department of Psychological & Brain Sciences
Professor
Ph.D., Boston University
The Perceptual Neuroimaging Laboratory employs functional MRI, psychophysics, and computational modeling to investigate the mechanisms underlying perception, attention & short-term memory. Our studies focus on basic science questions about the functioning of the normal human brain. We are particularly focused on questions of how we perceive, attend to, and remember multiple objects at the same time. Studies focus on visual, auditory, and/or tactile perception and cognition.

DAVID H. BARLOW (C)
Professor
Ph.D., University of Vermont
My clinical research at the Center for Anxiety and Related Disorders at Boston University focuses on understanding the nature of anxiety, depression and related emotional disorders and developing and evaluating new treatments for these disorders in both clinical research settings and clinical settings more relevant to public health needs.

DEBORAH BELLE (DS)
Professor
Ed.D., Harvard University
My research focuses on gender schemas and the ways in which unconscious thoughts about gender influence our understanding of the world and our assessments of women and men. I am also interested in the impacts of poverty and inequality and in the stresses that arise at the intersection of paid employment and family life. I teach courses on social psychology, the psychology of women, and the psychology of poverty, wealth, and economic inequality.

PETER BLAKE (DS)
Assistant Professor
Ed.D., Harvard University
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.

LESLIE BRODY (C)
Professor
Ph.D., Harvard University
I am interested in gender differences in emotional functioning and how cultural and family socialization contributes to such differences. I am also interested in the relationship between emotional expressiveness and mental and physical health. My current research focuses on how psychosocial predictors (such as coping strategies and

gender roles) predict physical and mental health outcomes in women with HIV (such as depression, quality of life, and immune functioning) using both qualitative and quantitative methods, including analyzing autobiographical narratives.

TIMOTHY BROWN (C)
Professor
Psy.D., Virginia Consortium for Professional Psychology
Statistical analysis and research methodology (e.g., clinical research applications of new latent variable analytic methods); classification of anxiety and mood disorders; vulnerability/temperament/personality in the development, course, and treatment outcome of emotional disorders; experimental psychopathology research on anxiety/mood disorders; psychometric evaluation and test/interview development.

DANIEL BULLOCK (B)
Professor
PhD, Stanford University
Interests of the Bullock lab are focused on the use of integrated computational models of local circuits implicated in reinforcement learning, planning of action sequences (including speech), and motivated decision making. Current models focus on forebrain circuits within or linking: laminar frontal cortex, the striatum and other parts of the basal ganglia, and midbrain dopaminergic areas. The long-term goal is construction of quantitative models of sufficient accuracy to predict effects of many pharmacological manipulations on decision-making, voluntary behavior, and skill learning.

S. BARAK CAINE
Full-Time Lecturer
Ph.D., University of California San Diego
My research focuses on two principal areas: (1) pharmacological mechanisms underlying stimulant-induced arousal and stimulant drug abuse (mentor: George F. Koob), and (2) neural mechanisms underlying stimulant-induced psychosis and antipsychotic drug actions (mentors: M.A. Geyer, N.R. Swerdlow). Psychomotor stimulant drugs including cocaine, amphetamine and methamphetamine increase synaptic levels of several monoamine neurotransmitters, and the transporter and receptor proteins involved are highly diverse. For example, the single neurotransmitter dopamine engages five different g-protein coupled receptors. My efforts are directed toward identifying the roles of different transporters and receptors in mediating the abuse-related and psychoses-related effects of stimulant drugs. Ongoing investigations focus on brain dopamine systems. Recent new areas focus on acetylcholine including muscarinic receptors and nicotine. A principal strategy is to push young investigators in my laboratory to introduce and persuade me toward new scientific directions.

CATHERINE CALDWELL-HARRIS (B)
Associate Professor
Ph.D., University of California, San Diego
Students are invited to join me in investigating foreign language acquisition, bilingualism and cross-cultural psychology. Special projects for the current year are understanding

jokes in a foreign language, how deaf children learn to read, differences between reading Chinese vs. English, and how Russian immigrants to the US learn English. Students who speak Mandarin or Russian can use their bilingualism skills in ongoing projects. Independent study involves collaborating with me and other lab members on established projects, and/or helping to design new projects. The ideal research intern is responsible and motivated, can work with minimal supervision but also interacts well with other lab members.

JAMES CHERRY (B)
Professor
Ph.D., North Carolina State University
My research examines the cellular mechanisms underlying cognitive and sensory processes. Our primary interest is to define the functional significance of anatomically distinct chemosensory systems in the mouse, with the overall goal of understanding how odors can influence mammalian reproductive behavior.

ALICE CRONIN-GOLOMB (B,C)
Professor, Director of Graduate Studies
Ph.D., California Institute of Technology
I have two main areas of interest: (1) The relation between sensory function and cognitive function in normal aging and in neurodegenerative disease; in particular, visual cognition in Parkinson's disease (PD); (2) The neural circuitry of visuospatial function in PD. We are examining the interaction of sensory function, spatial abilities and gait. Individual student-led projects include perception, biological motion, and mood.

HOWARD EICHENBAUM (B)
Professor
Ph.D., University of Michigan
The research program of this laboratory is focused on characterizing the brain circuitry that supports our capacity for everyday memory. We pursue this goal in three major related projects: One project is focused on the functional organization of the medial temporal lobe and its interactions with the prefrontal cortex. A second project explores how hippocampal networks represent objects in the spatial and temporal context in which they occur. Our third project explores how the hippocampus participates in the process of memory consolidation by integrating new memories into a network of already existing memory representations. Our approach involves a combination of sophisticated behavioral tests of memory, state-of-the-art recording of the activity of populations of single neurons in the hippocampus and cortical areas, and local control of neural activity using blockers of neural activity and optogenetics to exploring the roles of specific inputs to the hippocampus and other areas.

MARGARET A. HAGEN (B)
Professor
Ph.D., University of Minnesota
My current interest revolves around determining what kind of biases, prejudices and assumptions jurors bring to trials involving "psychological torts" like the Intentional

Infliction of Emotional Distress, Defamation and Invasion of Privacy. I am especially interested in trying to assess the effect of jurors' decision of "extra-legal" assumptions and beliefs about major societal issues of the day. In my lab, we are trying to create a Civil Juror Bias Scale that will help predict whether a potential juror is likely to decide for the plaintiff bringing the suit or for the defendant who has been accused of causing the injury.

MICHAEL E. HASSELMO (B)
Professor
D.Phil., University of Oxford, England
Research in my laboratory concerns the coding of space and time by cortical neurons for episodic memory function, and the regulation of network oscillatory dynamics by neuromodulators such as acetylcholine. Neurophysiological techniques are used to analyze the representation of space and time by cortical neurons including grid cells, head direction cells, and boundary vector cells, and to analyze the local effects of neuromodulation on synaptic and neuronal activity in cortical circuits. Computational modeling at the cellular and network level is used to link the physiological data to behavioral function. Areas of focused research include episodic memory function, memory-guided spatial behavior, and theta rhythm dynamics in hippocampal formation and entorhinal cortex. Research addresses physiological effects relevant to Alzheimer's disease, schizophrenia and depression.

STEFAN G. HOFMANN (C)
Professor
Ph.D. University of Marburg, Germany
My primary research interests are in the treatments and psychophysiology of anxiety and other emotional disorders. Specifically, I am interested in the mechanism of treatment change and the factors that predict treatment success. I am also interested in the biological correlates of different emotional states. For more information, please visit www.bostonanxiety.org.

MARC HOWARD (B)
Associate Professor
Ph.D., Brandeis University
Research investigates topics centered on episodic memory, the ability to remember specific events situated in a particular spatiotemporal context. We develop mathematical models of cognition and evaluate them against both behavioral and neurophysiological data, providing a bridge between cognition and systems-level neuroscience. We use a combination of mathematical, computational and behavioral tools to evaluate our hypotheses. At present, our efforts are focused on developing and evaluating a unified mathematical framework to describe how the brain constructs the spatial and temporal context believed to underlie episodic memory. This model appears to have far-ranging implications, leading to research interests in statistical learning, semantic memory, time perception, and reward systems.

KATHLEEN KANTAK (B)
Professor
Ph.D., Syracuse University
My research uses animal models to conduct translational research related to drug addiction, attention deficit hyperactivity disorder and their co-morbidity. Using intravenous drug self-administration procedures in rats, I investigate how multiple memory systems regulate drug-seeking and drug-taking behavior as well as how drug exposure influences the neurocognitive functioning of multiple memory systems. In addition, I investigate how cognitive-enhancing therapeutics may be useful to facilitate extinction learning for drug-conditioned cues and attenuate drug relapse. Other studies focus on evaluating the frontostriatal and medial temporal lobe neurocognitive deficits in rats with an ADHD phenotype and their response to medications as well as comorbidity between ADHD and vulnerability to drug addiction. In the context of all this research, I collaborate with other investigators to conduct neurochemical analyses to determine molecular correlates of these disorders and their treatment.

DEBORAH KELEMEN (DS)
Associate Professor
Ph.D., University of Arizona
My primary research area is cognitive development. Current interests focus on children's developing conceptions of the living and non-living natural world, understanding of intentional agency and reasoning about artifacts and object function. Other projects are exploring the development of social categories and the role of parental input in children's prescientific theory-formation.

MELISSA M. KIBBE (DS)
Assistant Professor
PhD, Rutgers University
The world is rich with information, but our brains process and store only a small fraction of the information available. How do we decide which information we should keep track of, and how do we store and use this information efficiently? My research focuses on how infants, children, and adults represent objects and people, the kinds of computations they can do with those representations, and how they use that information to guide behavior. I also look at how cognitive systems (such as working memory, attention, social cognition, and decision-making) interact during complex tasks. My research relies on both behavioral methods and computational modeling of cognitive processes.

DAVID A. LANGER (C)
Research Assistant Professor
Ph.D., University of California, Los Angeles
My research explores the efficacy and effectiveness of psychosocial treatments for youth psychopathology, the processes through which psychosocial treatments work, and the applicability of the research literature to non-research clinical settings. I am currently working on developing novel approaches to personalize psychosocial treatments for youth by supporting active collaboration between clinicians and families throughout the treatment planning process (i.e., shared decision-making).

JACQUELINE LIEDERMAN (B)
Professor
Ph.D., University of Rochester
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) The use of transcranial magnetic stimulation (TMS) to make inferences about whether a particular region of cortex is necessary for a specific function. I have several projects planned that have to do with visual attention and reading. This work takes place at the Beth Israel Deaconess Medical Center (2) Examination of the mechanisms underlying reading with adults with reading disability (in cooperation with the Learning Disabilities Center at B.U.) as well as with neurologically intact individuals; 3) The effect of exposure to xenoestrogens during the prenatal period; how it affects brain development in general and the development of sexually dimorphic behaviors, in particular. One population that I am working with are Faroese Islanders that eat whale blubber during pregnancy, thereby exposing their offspring to very high levels of PCBs.; (4) examination of factors underlying male vulnerability to neurodevelopmental disorder which may derive from events during the prenatal period. Teaching Interests: Developmental Neuropsychology, Neuropsychology, Physiological Psychology (with an emphasis on the human brain)

KRISTIN LONG (C)
Assistant Professor
Ph.D., University Pittsburgh
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.

MICHAEL J. LYONS (C)
Professor
Ph.D., University of Louisville
My general interests are in the areas of psychiatric and behavioral genetics and psychiatric epidemiology. My research focuses on how genetic factors (and environmental factors) influence psychopathology and other aspects of behavior. My current research primarily involves twins studies of aging, personality disorders, schizophrenia, and substance abuse, especially nicotine and alcohol.

KATHLEEN MALLEY-MORRISON (DS)
Professor
Ed.D., Boston University
My general interest is in cross-cultural and cross-national perspectives on violence in families and between nations and other groups. My current research projects focus on predictors of tolerance for violence and the role of moral disengagement in allowing

individuals to behave violently or endorse violence and still view themselves as moral individuals.

DAVID I. MOSTOFSKY (B)
Professor
Ph.D., Boston University
My research activities are in the area of Behavioral Medicine, and currently include topics such as: stress and its role in moderating various chronic disorders; applied behavior analysis in non mental health disorders; heart rate variability; parasympathetic dysregulation and neurotherapy applications to chronic disorders.

HEATHER W. MURRAY (C)
Research Assistant Professor, Master's Program Director
Ph.D., Drexel University
My research interests include examining underlining mechanisms of distress tolerance as they relates to anxiety disorders and substance use disorders. I am also interested in the study of dissemination and implementation of empirically supported treatments.

MICHAEL OTTO (C)
Professor
Ph.D., University of Mexico
My research focuses on the investigation of the etiology and treatment of anxiety, mood, and substance-use disorders. Of particular interest to me is the development and testing of new treatments, including the combination of pharmacologic and cognitive-behavioral strategies for treatment-refractory and substance abusing patients. In addition, I am pursuing a number of translational research agendas, examining potential mediators and moderators of the efficacy of exposure-based treatments, as well as novel approaches for the promotion of health behaviors, including the role of exercise in treating mood and anxiety disorders.

TIBOR PALFAI (C)
Professor, Clinical Program Director
Ph.D., Yale University
My primary research interest is the role of cognitive-motivational processes in health risk behavior, including problem drinking ,smoking, and eating. Specific areas of research include, (1) understanding the processes underlying successful and failed self-control attempts and (2) developing approaches to reduce health-risk behaviors among college student and medical populations.

BRENDA CALDWELL PHILLIPS
Full-Time Lecturer
Ph.D., Boston University
My research explores the social-cognitive factors that facilitate children's conceptual development in both formal and informal learning environments. The overarching goal of my research program is to (a) identify the mechanisms that facilitate knowledge acquisition, (b) examine the influence of emergent intuitive causal explanations on

conceptual development and conceptual change, and (c) identify empirically-based intervention strategies for school and community-based programs. Most recently my interests have culminated in an applied research program dedicated to fostering children's understanding of evolution and biological conservation (see http://sdr.seas.harvard.edu/).

DONNA B. PINCUS (C)
Associate Professor
Ph.D., SUNY Binghamton
My primary research interests include the assessment and treatment of children's fears and anxieties; children's coping with everyday stress; risk and resilience factors affecting the development of child psychopathology; and psychological factors affecting children with medical conditions. My current research focuses on developing new treatments for children and adolescents with anxiety disorders and their families. I am also currently developing treatments for children and adolescents with comorbid conditions, such as anxiety and sleep disorders.

MARK RICHARDSON (C)
Clinical Associate Professor
Ph.D., University of California, Los Angeles
My primary clinical and research interest address neurobehavioral sequelae of a variety of acute and chronic conditions among adults, including: HIV disease, depression, traumatic closed head injury and substance abuse. Current interests also include assessment of cognitive abilities and personality functioning, clinical judgment, and ethnicity and culture as risk- and protective factors in psychopathology.

KIMBERLY SAUDINO (DS)
Professor
Ph.D., University of Manitoba
My primary research area is infant and child temperament with a focus on activity level. I am particularly interested in etiology of individual differences in the development of temperament, and much of my research involves the study of twins in an effort to disentangle the contributions of genetic and environmental factors to the development of temperament and related behaviors. A second focus of my research is on the measurement of temperament in childhood; specifically, the factors that influence the validity of parents' ratings of their child's temperament.

SHANNON SAUER-ZAVALA (C)
Research Assistant Professor
Ph.D., University of Kentucky
My research is focused on exploring emotion-focused mechanisms that maintain psychological symptoms and using this information to develop more streamlined, easily-disseminated intervention strategies that target these mechanisms. I am particularly interested in treatment development for borderline personality disorder.

CHANTAL E. STERN (B)
Professor, Brain, Behavior and Cognition Program Director
D. Phil., University of Oxford, England
Research in my laboratory focuses on mapping the human brain using functional magnetic resonance imaging (fMRI). Our primary goal is to study out how the normal brain encodes, stores, and subsequently recognizes visual, spatial, and verbal information. In addition to studies of normal short-term and long-term memory processes, we use behavioral testing and fMRI to study normal aging, Alzheimer's disease, and HIV-related dementia. Graduate students within the Cognitive Neuroimaging Laboratory carry out their research within the psychology department at Boston University and also at the Massachusetts General Hospital NMR center.

HELEN TAGER-FLUSBERG (DS)
Professor
Ph.D., Harvard University
My current research focuses on three broad questions in the area of autism/ASD and related neurodevelopmental disorders: (1) What are the early brain and behavioral risk signs for ASD before the onset of the disorder? (2) How is language organized and processing in the brains of children with ASD, specific language impairment and typical development? and (3) Why do about one-quarter of all children with ASD fail to acquire spoken language? These research programs all involve collaborations with colleagues at BU and at neighboring universities and all involve a range of methods covering brain and behavioral development.

AMANDA TARULLO (DS)
Assistant Professor
Ph.D., University of Minnesota
My research focuses on the effects of early experiences on the neural and behavioral development of infants and young children. In particular, I examine the ways in which early life stress shapes the developing brain as well as the neurodevelopmental mechanisms that link early life stress to child outcomes. Using electroencephalogram (EEG) measures, I identify patterns of infant brain activity that predict socio-emotional and cognitive functioning in early childhood. I study both typically developing and at-risk populations in order to explore both normative and atypical neurodevelopmental processes. One aim of this research is to understand why some children who experience early life stress are resilient and fare quite well, whereas others have enduring developmental problems.

MARTHA TOMPSON (C)
Associate Professor
Ph.D., University of California, Los Angeles
My research focuses on the role of the family in promoting individual mental health. I have examined adults and children with a variety of mental disorders and their families. I am particularly interested in family processes and family treatment among individuals with depression, bipolar disorder and schizophrenia. The goal of this work is to identify strengths and deficits in family systems, which may impact on the course of mental

disorders, and to develop programs for helping families cope with theses disorders. My most recent projects include: 1) designing and implementing family-based treatment for preadolescent children with depressive disorders; 2) examining the role of maternal depression and family relationships in the development of depression vulnerability in youth; and 3) understanding the impact of family psychoeducationally-focused treatment for adults with bipolar affective disorder.