

# Brenda A. Kirchhoff, Ph.D.

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## ACADEMIC POSITIONS

- 2008- **Assistant Professor**  
Psychology Department  
Member, Center for Neurodynamics  
University of Missouri – St. Louis, St. Louis, MO
- 2007- **Honorary Assistant Professor**  
Psychology Department  
Washington University, St. Louis, MO
- 2007-2008 **Visiting Assistant Professor**  
Psychology Department  
Saint Louis University, St. Louis, MO
- 2006-2007 **Research Scientist**  
Washington University, St. Louis, MO
- 2001-2005 **Postdoctoral Research Fellow**  
Washington University, St. Louis, MO
- 1996-2001 **Graduate Research Fellow**  
Boston University, Boston, MA

## EDUCATION

- 2002 **Ph.D., Psychology**  
Brain, Behavior and Cognition Program  
Boston University, Boston, MA
- 2000 **M.A., Psychology**  
Boston University, Boston, MA
- 1996 **B.A., Psychology**  
*magna cum laude*  
Carleton College, Northfield, MN

## HONORS AND AWARDS

- 2009-2014 **Mentored Research Scientist Career Development Award (K01)**  
National Institute on Aging
- 2006 **Summer Institute on Aging Research Participant**  
National Institute on Aging
- 2002-2003 **W.M. Keck Fellow**  
Washington University, St. Louis, MO
- 1997-2000 **National Science Foundation Predoctoral Fellowship**  
Boston University, Boston, MA
- 1997 **Learning & Memory Course Participant**  
Cold Spring Harbor Laboratory, Cold Spring Harbor, NY
- 1996-1997 **Presidential University Graduate Fellowship**  
Boston University, Boston, MA
- 1996 **Bauer Prize for Outstanding Senior Psychology Student**  
Carleton College, Northfield, MN
- 1994 **PEW Undergraduate Research Fellowship**  
Washington University, St. Louis, MO

## TEACHING EXPERIENCE

- 2008- **Instructor**  
Cognitive Psychology and Introduction to Biological Psychology  
Undergraduate Courses  
Psychology Department  
University of Missouri – St. Louis, St. Louis, MO
- 2007-2008 **Instructor**  
Cognitive Psychology, Physiological  
Psychology, and Learning and Memory Undergraduate Courses  
Psychology Department  
Saint Louis University, St. Louis, MO
- 2006 **fMRI Experimental Design and Data Analysis Instructor**  
Center for Clinical Imaging Research  
Washington University, St. Louis, MO
- 1999-2001 **fMRI Experimental Design Instructor**  
Functional MRI Visiting Fellowship Program  
Massachusetts General Hospital NMR Center, Boston, MA

## RESEARCH SUPPORT

College of Arts and Sciences Small Grants Program University of Missouri – St. Louis Functional Vulnerability of the Brain in Diabetes PI: Brenda Kirchhoff	8/1/11-7/31/12
University of Missouri Research Board Functional Vulnerability of the Brain in Diabetes PI: Brenda Kirchhoff	1/1/11-6/30/12
National Institutes of Health (1K01AG031301) Strategic Processes and Age-Related Changes in Prefrontal Activity Patterns PI: Brenda Kirchhoff	9/15/09-8/31/14
Diabetes Research and Training Center Pilot & Feasibility Program Washington University in St. Louis Pilot fMRI Study of Hippocampal Function in Type 1 Diabetes Mellitus PI: Tammy Hershey Role: Co-Investigator	3/1/07-2/28/09
McDonnell Center Small Grants Award McDonnell Center for Higher Brain Function Washington University in St. Louis An Investigation of the Role of Memory Encoding Strategies in Age-Related Changes in Functional Activity in Prefrontal Cortex PI: Deanna Barch Role: Co-Investigator	7/1/06-6/30/08

## PUBLICATIONS

**Kirchhoff, B. A.**, Smith, S. E., & Luntz, J. D. (in press). Prefrontal cortex and self-initiated encoding strategy use in healthy younger and older adults. In D. T. Stuss & R. T. Knight (Eds.), *Principles of frontal lobe function* (2nd ed.). New York, NY: Oxford University Press.

**Kirchhoff, B. A.**, Anderson, B. A., Barch, D. M., Jacoby, L. L. (2011). Cognitive and neural effects of semantic encoding strategy training. *Cerebral Cortex*, doi:10.1093/cercor/bhr129.

**Kirchhoff, B. A.** (2009). Individual differences in episodic memory: the role of self-initiated encoding strategies. *The Neuroscientist*, 15, 166-179.

**Kirchhoff, B. A.**, & Buckner, R. L. (2006). Functional-anatomic correlates of individual differences in memory. *Neuron*, 51, 263-274.

**Kirchhoff, B. A.**, Schapiro, M. L., & Buckner, R. L. (2005). Orthographic distinctiveness and semantic elaboration provide separate contributions to verbal memory. *Journal of Cognitive Neuroscience*, 17, 1841-1854.

Gold, B. T., Balota, D. A., **Kirchhoff, B. A.**, & Buckner, R. L. (2005). Common and dissociable activation patterns associated with controlled semantic and phonological processing: evidence from fMRI adaptation. *Cerebral Cortex*, 15, 1438-1450.

Atri, A., Sherman, S., Norman, K. A., **Kirchhoff, B. A.**, Nicolas, M. M., Greicius, M. D., Cramer, S. C., Breiter, H. C., Hasselmo, M. E., & Stern, C. E. (2004). Blockade of central cholinergic receptors impairs new learning and increases proactive interference in a word paired-associate memory task. *Behavioral Neuroscience*, *118*, 223-236.

Stern, C. E., Sherman, S. J., **Kirchhoff, B. A.**, & Hasselmo, M. E. (2001). Medial temporal and prefrontal contributions to working memory tasks with novel and familiar stimuli. *Hippocampus*, *11*, 337-346.

**Kirchhoff, B. A.**, Wagner, A. D., Maril, A., & Stern, C. E. (2000). Prefrontal-temporal circuitry for episodic encoding and subsequent memory. *The Journal of Neuroscience*, *20*, 6173-6180.

## CONFERENCE PRESENTATIONS

Chambers, R. J., Brooks, W. M., Lierman, J., Martin, L. E., Bruce, A., **Kirchhoff, B. A.**, Kurylo, M., Ladesich, L., Varghese, G., & Savage, C. R. (2010). *Enhanced neural response to cued verbal memory encoding following brief memory training in traumatic brain injury*. Poster presented at the annual meeting of the Society for Neuroscience.

Chambers, R., Brooks, W., Lierman, J., Martin, L., Bruce, A., **Kirchhoff, B.**, Kurylo, M., Ladesich, L., Varghese, G., & Savage, C. (2010). *fMRI study of response to semantic cueing during verbal learning in TBI*. Poster presented at the annual meeting of the International Society for Magnetic Resonance in Medicine.

**Kirchhoff, B. A.**, Lugar, H. M., Koller, J. M., Weaver, P. M., Perantie, D. C., Considine, C., & Hershey, T. (2009). *Brain activity during visuomotor processing and incidental encoding in adolescents with type 1 diabetes*. Poster presented at the annual meeting of the Society for Neuroscience.

Lugar, H. M., Koller, J. M., Weaver, P. M., Perantie, D. C., **Kirchhoff, B. A.**, & Hershey, T. (2009). *Resting BOLD functional connectivity of brain regions at risk in type 1 diabetes: a pilot study*. Poster presented at the annual meeting of the Society for Neuroscience.

**Kirchhoff, B. A.**, Anderson, B. A., Barch, D. M., & Jacoby, L. L. (2008). *The effects of cognitive training on age-related changes in prefrontal activity*. Slide presentation at the biennial Cognitive Aging Conference at the Georgia Institute of Technology.

**Kirchhoff, B. A.**, Anderson, B., Barch, D. M., & Jacoby, L. L. (2007). *The effects of encoding strategy and cognitive training on age-related changes in prefrontal activity*. Poster presented at the annual meeting of the Society for Neuroscience.

**Kirchhoff, B. A.**, & Barch, D. M. (2007). *Individual differences in cognitive abilities, episodic encoding, and functional brain activation*. Poster presented at the annual meeting of the Organization for Human Brain Mapping.

**Kirchhoff, B. A.**, & Buckner, R. L. (2006). *Functional-anatomic correlates of individual differences in memory encoding strategies*. Slide presentation at the annual meeting of the Society for Neuroscience.

**Kirchhoff, B. A.**, Cohen, N. J., & Buckner, R. L. (2004). *Image-based associative encoding strongly activates the parahippocampal gyrus*. Poster presented at the annual meeting of the Society for Neuroscience.

**Kirchhoff, B. A.**, Schapiro, M., & Buckner, R. L. (2003). *A behavioral and fMRI investigation of the orthographic distinctiveness effect*. Poster presented at the annual meeting of the Society for Neuroscience.

**Kirchhoff, B. A.**, Cohen, N. J., & Buckner, R. L. (2002). *A subsequent memory investigation of intentional paired-associate encoding*. Poster presented at the annual meeting of the Society for Neuroscience.

Kahn, I., **Kirchhoff, B. A.**, Stringfellow, A., Marantz, A. P., Stern, C. E., & Wagner, A. D. (2001). *MEG correlates of episodic encoding: effects of novelty, content, and subsequent memory*. Poster presented at the annual meeting of the Society for Neuroscience.

**Kirchhoff, B. A.**, Nicolas, M. M., Eichenbaum, H., & Stern, C. E. (2001). *Fusiform and parahippocampal activation during retrieval of face and house associations*. Poster presented at the annual meeting of the Cognitive Neuroscience Society.

Searl, M. M., Bush, G., Forstein, M., **Kirchhoff, B. A.**, Boer, J., Rosen, B. R., & Stern, C. E. (2001). *Functional MRI study of two modified stroop tasks in HIV-infected individuals*. Poster presented at the annual meeting of the Cognitive Neuroscience Society.

**Kirchhoff, B. A.**, Hasselmo, M. E., Norman, K. A., Nicolas, M. M., Greicius, M. D., Breiter, H. C., & Stern, C. E. (2000). *Effects of cholinergic blockade on paired-associate learning in humans*. Poster presented at the annual meeting of the Society for Neuroscience.

Sherman, S. J., **Kirchhoff, B. A.**, Hasselmo, M. E., & Stern, C. E. (2000). *Prefrontal and medial temporal lobe roles in long-term vs. short-term stimulus matching*. Poster presented at the annual meeting of the Organization for Human Brain Mapping.

**Kirchhoff, B. A.**, Fischl, B., Wagner, A. D., & Stern, C. E. (1999). *Localization of picture and word encoding using fMRI and cortical inflation techniques*. Slide presentation at the annual meeting of the Society for Neuroscience.

Sherman, S. J., **Kirchhoff, B. A.**, Hasselmo, M. E., & Stern, C. E. (1999). *A fMRI study of temporal and prefrontal activation during the performance of a complex picture two-back task*. Poster presented at the annual meeting of the Society for Neuroscience.

Stern, C. E., **Kirchhoff, B. A.**, Wagner, A. D., Maril, A., & Rosen, B. R. (1999). *A fMRI comparison of picture and word encoding in the frontal and medial temporal cortices*. Poster presented at the annual meeting of the Organization for Human Brain Mapping.

**Kirchhoff, B. A.**, Wagner, A. D., Maril, A., & Stern, C. E. (1999). *A fMRI study of frontal and medial temporal activation during picture and word encoding*. Poster presented at the annual meeting of the Cognitive Neuroscience Society.

**Kirchhoff, B. A.**, Stern, C. E., Kwong, K. K., & Gonzalez, R. G. (1998). *A 3 tesla functional MRI study of picture encoding*. Poster presented at the annual meeting of the Society for Neuroscience.

Dusek, J., Sadalge, A., **Kirchhoff, B.**, & Eichenbaum, H. (1997). *Prefrontal cortex damage delays the acquisition of overlapping odor discriminations, but does not affect the expression of transitive inferences*. Poster presented at the annual meeting of the Society for Neuroscience.

## INVITED PRESENTATIONS

- March 2011      *Neural Correlates of Self-initiated Encoding Strategies*  
Neuroscience Lecture Series  
Southern Illinois University – Carbondale, Carbondale, IL
- May 2010      *Self-initiated Encoding Strategies and Individual Differences in Episodic Memory*  
Center for Advanced Imaging Seminar Series  
Georgia Institute of Technology, Atlanta, GA
- March 2010      *Prefrontal Cortex and Age-Related Changes in Strategic Processing*  
The Frontal Lobes: The 20th Annual Rotman Research Institute Conference  
Rotman Research Institute, Toronto, Canada
- June 2009      *The Effects of Strategy Training on Memory and Brain Activity*  
Memory and Aging Project Participants Meeting  
Alzheimer's Disease Research Center  
Washington University, St. Louis, MO
- January 2009      *The Effects of Cognitive Training on Brain Activity in Healthy Older Adults*  
Alzheimer's Disease Research Center  
Washington University, St. Louis, MO
- September 2008      *Joys of Deep Processing: Rehabilitating Older Adults' Memory*  
Memory Disorders Research Society Annual Meeting  
Washington University, St. Louis, MO
- July 2007      *The Neural Correlates of Self-Initiated Learning Strategies*  
Hoglund Brain Imaging Center  
The University of Kansas Medical Center, Kansas City, KS
- April 2007      *Self-Initiated Encoding Strategy Use in Individuals with Schizophrenia*  
The Conte Center  
Washington University, St. Louis, MO
- November 2006      *The Neural Correlates of Memory Encoding*  
Brain and Cognitive Sciences Proseminar Series  
Southern Illinois University, Carbondale, IL
- April 2004      *A Behavioral and fMRI Investigation of the Orthographic  
Distinctiveness Effect*  
Behavior, Brain, and Cognition Seminar Series  
Washington University, St. Louis, MO
- June 2003      *Neuroimaging Studies of the Network of Brain Regions Engaged by  
Episodic Memory Processes*  
MATRICS Neuropharmacology Meeting, Bethesda, MD

## UNIVERSITY/DEPARTMENTAL SERVICE

- 2010-      Psi Chi Honor Society Faculty Advisor

2008-2009 Psychology Department IRB Committee  
2009 University of Missouri – St. Louis Grant Focus Group  
2008- University of Missouri Research Board Grant Reviewer

### **THESIS COMMITTEES**

2012 Sarah L. Bagley, Doctoral Thesis Committee, Saint Louis University  
*An Investigation of Learning Strategies and Stress on Memory Retrieval and Reconsolidation*

2009 Sarah L. Bagley, Masters Thesis Committee, Saint Louis University  
*Individual Differences in Personality Traits as Predictors of the Human Stress Response*

### **QUALIFYING EXAM COMMITTEES**

2010 Jodi Heaps, Psychology Department, University of Missouri – St. Louis

2009 Staci E. Smith, Psychology Department, University of Missouri – St. Louis

2009 Liz Lane, Psychology Department, University of Missouri – St. Louis

### **JOURNAL REFEREE**

American Journal of Geriatric Psychiatry  
Cerebral Cortex  
Cognitive, Affective, & Behavioral Neuroscience  
Hippocampus  
Human Brain Mapping  
Journal of Neuroscience  
Learning and Memory  
Neurobiology of Aging  
Neuron  
NeuroImage  
Neuropsychologia  
Social Cognitive and Affective Neuroscience  
The American Journal of Psychiatry  
Trends in Cognitive Sciences

### **MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS**

Cognitive Neuroscience Society  
Society for Neuroscience