# Katelyn L. Arnemann

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## Education

2012- **University of California, Berkeley**
Ph.D. in Neuroscience (expected May 2018)
Advisor: William Jagust
Dissertation Committee: Mark D'Esposito, Jack Gallant, & Lexin Li

2007-2010 **Case Western Reserve University**
B.A. in Cognitive Science; Philosophy

## Research Experience

2013- **University of California, Berkeley**, CA**,** USA
Helen Wills Neuroscience Institute
Graduate Student Researcher in Neuroscience
Principal Investigator: William Jagust

Project: *Early life predictors of the spatial pattern of amyloid and tau pathology*

Project: *Metabolic brain networks in aging and Alzheimer's disease*

Project: *Spread of amyloid-β through the minimum spanning tree*

Project: *Stabilization of network community detection using iterative sub-sampling*

2012-2013 **University of California, Berkeley**, CA**,** USA
Helen Wills Neuroscience Institute
Rotation Graduate Student

Principal Investigator: Jack Gallant
Project: *Incorporating anatomical distance into cross-subject mapping with CCA*

Principal Investigator: Mark D'Esposito
Project: *Data-driven network subtyping of a large cohort of Norwegian TBI patients*

Principal Investigator: William Jagust
Project: *Metabolic underpinnings of modular brain network function*

2010-2012 **U.S. Department of Veteran's Affairs**, Martinez, CA, USA
Neurology Division
Research Assistant in Rehabilitation Neuroscience
Principal Investigators: Mark D'Esposito & Anthony Chen

Project: *Network modularity predicts rehabilitation from TBI*

Project: *Neural codes for task condition, stimulus, and relevance in TBI and controls*

2008-2010 **Case Western Reserve University**, Cleveland, OH, USA
Department of Cognitive Science
Undergraduate Research Assistant in Cognitive Neuroscience
Principal Investigator: Anthony Jack

Project: *Opposing domains hypothesis of brain function*

## Publications

* Undergraduate student mentee + Graduate student mentee

**Arnemann KL**, *Digma L, Chetelat G, Jagust WJ. Early life metabolic inefficiency predicts the late life amyloid-β topology (in preparation).

*Digma L, **Arnemann KL**, Raj A, Jagust WJ. The distribution of amyloid-β pathology parallels brain connectivity (in review, Brain and Behavior).

**Arnemann KL**, +Stoeber F, *Narayan S, Rabinovici GD, Jagust WJ. Metabolic networks in aging and Alzheimer's disease (in review, NeuroImage: Clinical).

**Arnemann KL**, Chen AJ, Novakovic-Agopian, Gratton C, Nomura EM, D'Esposito. Functional brain network modularity predicts response to cognitive training after brain injury. Neurology (2015): 84 1568-1574.

Jack AI, *Dawson AJ, **Begany KL**, Leckie RL, Barry KP, Ciccia AH, Snyder AZ. fMRI reveals reciprocal inhibition between social and physical cognitive domains. NeuroImage (2013): 66 385-401.

## Presentations

2017 Society for Neuroscience Annual Meeting
Washington, DC, USA
Nanosymposium: *Metabolic efficiency predicts the spatial pattern of Alzheimer's pathology in late life*

2016 Alzheimer's Association International Conference
Toronto, ON, Canada
Poster*: Beta-amyloid spreads from multiple epicenters in preclinical Alzheimer's disease*

Human Amyloid Imaging Conference
Miami, FL, USA
Talk: *Metabolic efficiency predicts the spatial pattern of Alzheimer's pathology in late life*

2012 Henry H. Wheeler Jr. Brain Imaging Center Research Day
University of California, Berkeley, CA, USA
Talk: *Brain modularity predicts responsiveness of brain injury patients to cognitive rehabilitation*

Society for Neuroscience Annual Meeting
New Orleans, LA, USA
Poster: *Individual differences in response of brain injury patients to cognitive rehabilitation: evidence from analyses of functional brain networks*

2012 Cognitive Neuroscience Society Annual Meeting
Chicago, IL, USA
Poster: *Predicting the response of patients with brain injury to cognitive rehabilitation: evidence from analyses of functional brain networks*

2010 Midwestern Undergraduate Cognitive Science Conference
University of Indiana, Bloomington, IN, USA
Talk: *Two domains of human higher cognition: distinct brain networks underlie social and mechanical reasoning*

2009 Society for Neuroscience Annual Meeting
Chicago, IL, USA
Poster: *Two domains of human higher cognition: distinct brain networks underlie social and mechanical reasoning*

## Relevant Skills

**Software** Freesurfer, SPM, FSL, SPM, Caret, AFNI

**Code** Python (sklearn, scipy, matplotlib, nibabel), Matlab, R

**Experiment** MRI (sMRI, fMRI, rs-fMRI), PET (FDG, PIB, AV1451), Neuropsych, Patient Populations

**Statistics** Graph Theory, Linear/Logistic Regression, MVPA, PCA, ICA, CCA, K-Means Clustering, Bootstraping, Permutation Testing, ANOVA

## Teaching Experience

2017 (Summer) **University of California, Berkeley**, CA, USA
Redwood Center for Theoretical Neuroscience
Teaching Assistant
*Berkeley Summer Course in Mining and Modeling of Neuroscience Data* (graduate level)

2015 (Spring) **University of California, Berkeley**, CA, USA
Helen Wills Neuroscience Institute
Graduate Student Instructor
*Applied Statistics for Neuroscience* (graduate level)

2013 (Fall) **University of California, Berkeley**, CA, USA
Department of Public Health
Graduate Student Instructor
*The Aging Brain* (undergraduate level)

2009 (Spring) **Case Western Reserve University**, Cleveland, OH, USA
Department of Cognitive Science
Undergraduate Student Supplemental Instructor

*Introduction to Cognitive Neuroscience* (undergraduate level)

## Community Engagement

2014-2017 **Neuroscience Data Mining Group**
University of California, Berkeley, CA, USA
Founding Member and Leader
https://sites.google.com/site/neurodataminninggroup/

2015-2016 **Graduate Student Assembly**
University of California, Berkeley, CA, USA
Neuroscience Graduate Program Representative

2012-2015 (Summers) **Level Playing Field Institute**, Oakland, CA, USA
Summer Math and Science Honors Academy
Project Leader
*Topics in Current Science Research* (high school level)

2013-2015 **Berkeley Science Review**
University of California, Berkeley, CA, USA
Contributing Author & Editor

## Honors and Awards

2013 **Graduate Research Fellowship Program**
National Science Foundation

2010 **Cognitive Science Award**
Department of Cognitive Science
Case Western Reserve University, Cleveland, OH, USA

**Truman P. Handy Philosophical Prize**
Department of Philosophy
Case Western Reserve University, Cleveland, OH, USA