Judith Sylvia Ama Asem, Ph.D.

Costa Mesa, CA 92626 - jasem@uci.edu
www.judithasem.com - www.linkedin.com/in/judithasem

PRIMARY APPOINTMENT

Postdoctoral Scholar, Adjunct (Summer) Teaching Faculty
Department of Neurobiology and Behavior
Center for Neurobiology of Learning and Memory (CNLM)
Francisco J. Ayala School of Biological Sciences
University of California, Irvine

EDUCATION

May 2012 – Aug 2015	Johns Hopkins University Baltimore, Maryland Ph.D., Psychological and Brain Sciences Advisor: Peter C. Holland
Aug 2010 – May 2012	Johns Hopkins University Baltimore, Maryland M.A., Psychological and Brain Sciences Advisor: Peter C. Holland
Jan 2008 – May 2010	Purdue University West Lafayette, Indiana Honors B.A., Behavioral Neuroscience *Summa Cum Laude*, Phi Beta Kappa
Aug 2006 – Dec 2007	Miami University Oxford, Ohio worked toward B.A., Psychology worked toward B.A., Business Management

RESEARCH INTERESTS

Human and nonhuman animals are dynamic creatures, constantly striving to behave adaptively in an ever-changing environment. I study some of the mechanisms by which an animal might learn and remember complex information, especially that which is organized spatially or temporally.

Additionally, my earlier research investigated the effect of (high-fat) diet on hippocampal-dependent learning and memory. This issue still interests me, although is no longer manifested in my empirical work.

My experimental design and general empirical approach benefit from training in learning theory—using classical, operant, and instrumental conditioning paradigms to investigate complex processes.

Keywords: time, sequences, learning, memory, context, reward, motivation, diet, feeding, ingestive behaviors

SCIENTIFIC SKILLS

stereotaxic survival brain craniotomy and surgery in rats (cannula implantation, excitotoxic lesions), systemic (intra-peritoneal and sub-cutaneous) injections and intra-cranial infusions (without anesthesia), behavioral tracking, data acquisition, statistical analysis, intra-cardial perfusions, histological (microtome) sectioning, microscopy (light and confocal), Nissl staining, immunohistochemistry (Fos in coronal sections)

RESEARCH EXPERIENCE

University of California, Irvine

Aug 2015 – present — Post-Doctoral Scholar, "Temporal Organization of Memories"
Principal Investigator: Norbert J. Fortin

Johns Hopkins University

Aug 2010 – Aug 2015 — Graduate Research Fellow, "Learning, Memory, and Motivation"
Advisor: Peter C. Holland
Doctoral Dissertation: Spatial Learning Strategy Selection in the Submerged T-Maze
Master's Thesis: The Effect of High-Fat Diet on the Renewal of Memory in Extinction

Purdue University

Jan 2009 – May 2010 — Undergraduate Research Assistant, "Diet, Obesity, and Memory"
Advisors: Terry L. Davidson, James S. Nairne

Aug 2008 – May 2009 — Undergraduate Research Assistant, "Vision and Perception"
Advisor: Gregory Francis

AWARDS AND HONORS

University of California, Irvine

2017 — Chancellor's Award for Excellence in Mentorship of Undergraduate Research, School of Biological Sciences

Johns Hopkins University

2014 — Mary D. Ainsworth Outstanding Female Graduate Student Award
2013 — Walter L. Clark Service Award

Purdue University

2010 — Hadley Research Award
2010 — Colloquium Best Poster Award
2010 — Outstanding Senior in Psychology Award
2008 - 2010 — Black Caucus Faculty and Staff Award
2009 — Phi Beta Kappa
2008 — Literary Awards Honorable Mention

Tippecanoe County, Indiana

2006 — YWCA Woman of Promise Award

FUNDING

University of California, Irvine

2015 - 2017 — National Institutes of Health (NIH) and Institute for Memory Impairments and Neurological Disorders (MIND)'s Alzheimer's Disease Research Center (ADRC) T32 Training Grant Fellowship

Johns Hopkins University

2013 - 2014 — Dean's Teaching Fellowship
2010 - 2013 — National Science Foundation (NSF) Graduate Research Fellowship (GRF)
2010 - 2013 — Owen Scholars Fellowship

PUBLICATIONS

Book Chapter

Asem, J.S.A., and Fortin, N.J. (2017). Memory for Space, Time, and Episodes in Mammals. Chapter in Learning and Memory: A Comprehensive Reference. 2nd edition.

Journal Articles

Ng, C-W., Elias, G.A., **Asem, J.S.A.**, Allen, T.A., and Fortin, N.J. (under review). Nonspatial sequence coding varies along the CA1 transverse axis. *Behavioural Brain Research*.

Elias, G.A., **Asem, J.S.A.**, Ng, C-W., Quirk, C.R., Allen, T.A., and Fortin, N.J. (in prep). Distinct contributions of hippocampal, prefrontal, perirhinal, and nucleus reuniens regions to the memory for sequences of events.

Figley, C.R., **Asem, J.S.A.**, Levenbaum, E.L., and Courtney, S.M. (2016). Effects of body mass index and body fat percent on default mode, executive control, and salience network structure and function. *Frontiers in Neuroscience, 10,* 234.
[Featured in several news reports, summarized and listed here, as well as discussed here.]

Asem, J.S.A.*, Schiffino, F.L.*, and Holland, P.C. (2015). Dorsolateral striatum is critical for the expression of surprise-induced enhancements in cue associability. *European Journal of Neuroscience, 42,* 2203-2213.

Asem, J.S.A., and Holland, P.C. (2015). Dorsolateral striatum implicated in the acquisition, but not expression, of immediate response learning in rodent submerged T-maze. *Neurobiology of Learning and Memory, 123,* 205-216.

Holland, P.C., **Asem, J.S.A.**, Galvin, C., Hepps Keeney, C., Hsu, M., Miller, A., and Zhou, V. (2014). Blocking in autoshaped lever-pressing procedures with rats. *Learning and Behavior, 42,* 1-21.

Asem, J.S.A., and Holland, P.C. (2013). Immediate response strategy and shift to place strategy in submerged T-maze. *Behavioral Neuroscience, 127*(6), 854-859.

Asem, J.S.A., and Holland, P. C. (2012). The effect of high-fat diet on renewal of memory in extinction. *Behavioral Neuroscience, 126*(3), 493-498.

POSTERS AND ABSTRACTS

University of California, Irvine

Asem, J.S.A., Aldoghmi*, M.F., Kassir*, M.H., Mirza*, N.F.B., Chmielewski, N.N., Elias, G.A., Ng, C-W., Long, J.M., Rapp, P.R., and Fortin, N.J. (2017). Age-Associated Changes in Sequence Memory Performance and Multiregional Local Field Potential Synchrony in Rats. Society for Neuroscience Abstracts (Washington DC).

Asem, J.S.A., Kassir*, M.H., Mirza*, N.F.B., Chmielewski, N.N., Elias, G.A., Ng, C-W., Allen, T.A., and Fortin, N.J. (2016). Using DREADDs to Compare the Effects of Inactivating CA3 versus the CA3-CA1 Projection on the Memory for Sequences of Events. Society for Neuroscience Abstracts (San Diego, CA).

Chmielewski, N.N., Ng, C-W., **Asem, J.S.A.**, Elias, G.A., Gao, X., Vandenberg-Rodes, A., Shahbaba, B., Ombao, H., Limoli, C.L., and Fortin, N.J. (2016). Characterizing the time course of radiation-induced brain changes in memory performance and network activity in rats. Society for Neuroscience Abstracts (San Diego, CA).

Elias, G.A., Ng, C-W., **Asem, J.S.A.**, Allen, T.A., and Fortin, N.J. (2016). Prefrontal neurons track ordinal position within a sequence of events. Society for Neuroscience Abstracts (San Diego, CA).

Fortin, N.J., **Asem, J.S.A.**, Ng, C-W., Quirk, C.R., Allen, T.A., and Elias, G.A. (2016). Distinct contributions of hippocampal, prefrontal, perirhinal, and nucleus reuniens regions to the memory for sequences of events. Society for Neuroscience Abstracts (San Diego, CA).

Ng, C-W., Elias, G.A., **Asem, J.S.A.**, Allen, T.A., and Fortin, N.J. (2016). Nonspatial sequence coding varies along the CA1 transverse axis. Society for Neuroscience Abstracts (San Diego, CA).

Johns Hopkins University

Asem, J.S.A., and Holland, P.C. (2015). Dorsal Hippocampus is Unnecessary for the Expression of Either a Place or Response Spatial Strategy in the Rodent Submerged T-Maze. Poster presented at Society for Neuroscience Conference, Chicago, IL.

Asem, J.S.A., and Holland, P.C. (2014). Role of the Dorsolateral Striatum in the Acquisition and Expression of a Response Strategy in the Rodent Submerged T-Maze. Poster presented at Society for Neuroscience Conference, Washington, D.C.

Figley, C.R., **Asem, J.S.A.**, Levenbaum, E.L., and Courtney, S.M. (2013). Individual Differences in Brain Structure and Function Associated with Body Mass Index and Body Fat Percentage Differences. Poster presented at Society for Neuroscience Conference, San Diego, CA.

Asem, J.S.A., Hepps Keeney, C.M., and Holland, P.C. (2012). Type of Motivation Modulates Spatial Learning Strategy Selection. Poster presented at Society for Neuroscience (SfN) Conference, New Orleans, LA.

Purdue University

Asem, J.S.A., McCrory, M.A., Nairne, J.S., and Davidson, T.L. (2010). Adiposity as a Predictor of Memory Retrieval Inhibition in Female Undergraduates. Poster presented at Purdue University Undergraduate Research Conference in Psychology, West Lafayette, IN.

Asem, J.S.A., McCrory, M.A., Nairne, J.S., and Davidson, T.L. (2010). Adiposity as a Predictor of Memory Retrieval Inhibition in Female Undergraduates. Poster presented at Midwestern Psychological Association (MPA) Conference, Chicago, IL.

Asem, J.S.A., McCrory, M.A., Nairne, J.S., and Davidson, T.L. (2010). Adiposity as a Predictor of Memory Retrieval Inhibition in Female Undergraduates. Poster presented at Purdue University Honors Colloquia, West Lafayette, IN.

Asem, J.S.A., and Francis, G. (2009). Afterimages from Invisible Colors. Poster presented at Purdue University Undergraduate Research Conference in Psychology, West Lafayette, IN.

INVITED TALKS

University of California, Irvine

Asem, J.S.A. (2016). Neural Mechanisms underlying Age-Associated Memory Impairments in the Memory for Sequences of Events. Invited speaker to the Training Retreat for T32 Training Grant on Neurobiology of Aging. University of California – Irvine, Irvine, CA.

Asem, J.S.A. (2015). The Neurobiology of the Memory for Sequences of Events: A Synergistic Approach in Rats and Humans. Invited speaker to the Mini-Symposium for T32 Training Grant on Neurobiology of Aging. University of California – Irvine, Irvine, CA.

Johns Hopkins University

Asem, J.S.A. (2015). A Taste of Research. Talk given to Advanced Placement Biology students, Baltimore Polytechnic Institute, Baltimore, MD.

Asem, J.S.A. (2014). A Taste of Research. Talk given to Advanced Placement Biology students, Baltimore Polytechnic Institute, Baltimore, MD.

Asem, J.S.A. (2013). Motivational Modulation of Spatial Learning Strategy Selection. Invited speaker to graduate student and faculty symposia. Invited speaker to the Center for Behavioral Neuroscience, American University, Washington, D.C.

Asem, J.S.A. (2013). Effects of High-Fat Diet on the Brain. Talk given to Advanced Placement Biology students, Baltimore Polytechnic Institute, Baltimore, MD.

Asem, J.S.A. (2013). Motivational Modulation of Spatial Learning Strategy Selection. Invited speaker to the Chesapeake Area Memory and Learning study group, National Institute on Drug Abuse, Baltimore, MD.

Asem, J.S.A. (2012). Effects of High-Fat Diet on the Brain. Talk given to Advanced Placement Biology students, Baltimore Polytechnic Institute, Baltimore, MD.

Asem, J.S.A. (2011). Exploring the Brain. Talk given to freshman Biology students, Baltimore Polytechnic Institute, Baltimore, MD.

Purdue University

Asem, J.S.A., and Zaleski, N.J. (2010). The Effect of High-Fat Diet on the Body and Brain. Invited speaker to University Place Senior Living Community, West Lafayette, Indiana.

Asem, J.S.A. (2010). Dietary Factors, Adiposity, and Memory Retrieval Inhibition. Talk given at Butler Undergraduate Research Conference, Indianapolis, IN.

Asem, J.S.A. (2009). Afterimages from Invisible Colors. Talk given at Butler Undergraduate Research Conference, Indianapolis, IN.

TEACHING EXPERIENCE (with approximate undergraduate class size)

University of California, Irvine (Irvine, CA)

Summer 2017	Brain and Behavior (40 students)

Coastline Community College (Newport Beach, CA)

Spring 2017	Psychobiology (10 students)

Johns Hopkins University (Baltimore, MD)

Jan 2015	Your Lifestyle, Your Memory (20 students)
Fall 2014	Episodic Memory in Human and Nonhuman Animals (25 students)
Jan 2014	Your Lifestyle, Your Memory (20 students)
Jan 2013	Your Lifestyle, Your Memory (25 students)
Fall 2013	Research Methods in Experimental Psychology (100 students total, 20 per section)
Fall 2012	Research Methods in Experimental Psychology (100 students total, 20 per section)
Spring 2013	Teaching Assistant: Introduction to Psychology (200 students)
Spring 2012	Teaching Assistant: Animal Behavior (200 students)
Fall 2011	Teaching Assistant: Introduction to Physiological Psychology (100 students) (now titled Foundations of Brain, Behavior, and Cognition)
Spring 2011	Teaching Assistant: Introduction to Social Psychology (300 students)

UNDERGRADUATE RESEARCH SUPERVISION (selected students)

University of California, Irvine

Mawaheb Kassir B.S., Neurobiology, 2017

Honors: Excellence in Research, 2016-2017 (empirical thesis paper, private oral defense, public poster presentation of research findings)
Chancellor's Award for Excellence in Undergraduate Academic Research, May 2017
Best Paper for Excellent Academic Writing in Science and Technology (an Upper-Division Writing Award), April 2017
Carol Becker McGaugh Award (for outstanding research as a junior), Summer 2016

Currently: pursuing Doctor of Philosophy (Ph.D.), University of California – Riverside, expected 2022

Nur Mirza B.S., Neurobiology, 2017

Honors: Excellence in Research, 2016-2017 (empirical thesis paper, private oral defense, public poster presentation of research findings)
Best Poster Award (for research in neurobiology), West Coast Biological Sciences Undergraduate Research Conference (WCBSURC), April 2017
Summer Undergraduate Research Program (SURP) Fellowship, Summer 2016

Johns Hopkins University

Caitlin Hepps Keeney B.A., Behavioral Biology, 2014

Honors: General (university-wide) Honors degree (cumulative GPA > 3.50)
Departmental Honors degree (cumulative GPA > 3.50, public presentation of research findings)

Currently: pursuing Doctor of Veterinary Medicine (D.V.M.), Cornell University, expected 2018

ACADEMIC AND COMMUNITY SERVICE

University of California, Irvine

2015 – present	Mentor to undergraduate research assistants Neurobiology and Behavior

Orange County, California

2017 – present	Tutor in life sciences, mathematics, English, writing, and Spanish Ball Tutoring LLC
2016 – present	Organizing Chair / Volunteer: Annual Brain Awareness Week Isaac Sowers Middle School
2016	Volunteer: Annual Brain Awareness Week Isaac Sowers Middle School
2015	35th Annual District Science Fair Judge
2015	35th Annual Local Science Fair Judge

Johns Hopkins University

2014	Preparing Future Faculty Teaching Academy, Summer Teaching Institute
2013	Invited Panelist: "Applying to Graduate School" Omega Psi Cognitive Science Society
2012 – 2013	Co-Chair: Colloquium Committee Psychological and Brain Sciences
2011 – 2015	Mentor to undergraduate research assistants Psychological and Brain Sciences
2010 – 2015	Class Representative: Department Steering Committee Psychological and Brain Sciences

Baltimore County, Maryland

2015	Grand Inquisitor: 17th Annual International Brain Bee
2011 – 2015	Organizing Chair / Lecturer: Annual Brain Awareness Week Baltimore Polytechnic High School