

Curriculum Vita

Kristy L. Gould, Ph.D.

Professor

Department of Psychology

Luther College

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Phone: (563) 387-1685

Education:

University of Nebraska, Lincoln, NE 1992-1997

Ph.D. Biological Sciences 1997

Concentration: Ecology, Evolution and Behavior

Dakota Wesleyan University, Mitchell, SD 1988-1992

B.A., cum laude, 1992

Biology major, Chemistry and Psychology minors

Courses Taught:

General Psychology, Fall 2001 - present

Learning and Behavior, Fall 2001 - present

Animal Cognition, January Term 2002 -2009, Fall 2009 - present

Brain and Behavior, Spring 2004 – present

Research Interests:

Cognition in birds of the Corvid family

Spatial and episodic-like memory in food storing birds

Avian neurobiology

The role of the hippocampus in spatial memory

Past Professional Employment:

Acting Department Head of Psychology, Luther College, Fall 2015

Professor of Psychology, Luther College, 2013-present

Associate Professor of Psychology, Luther College, 2006-2013

Assistant Professor of Psychology, Luther College, 2001-2006

Post-Doctoral Research Fellow, Cornell University, Ithaca, NY

Individual National Research Service Award/NIMH, 1999-2001

Guest Lecturer, Neurobiology of Learning and Memory,

Cornell University, 2000

Post-Doctoral Research Associate, Cornell University

1997-1999

Published Journal Articles:

Gould, K.L., Gilbertson, K.E. Hrvol, A.J., Nelson, J. C. Brantner, R. M., Seyfer, A.L. and Kamil, A.C. (2013). Differences in relative hippocampus volume and number of hippocampus neurons among five Corvid species. *Brain, Behavior and Evolution*, 81, 56-70.

- Gould, K.L.**, Ort, A.J., and Kamil, A.C. (2012). Do Clark's nutcrackers demonstrate what-where-when memory on a cache-recovery task? *Animal Cognition*, *15*, 37-44.
- Gould, K.L.**, Kelly, D.M., and Kamil, A.C. (2010). What scatter-hoarding animals have taught us about small-scale navigation. *Philosophical Transactions of the Royal Society, B*, *365*, 901-914.
- Smulders, T.V., **Gould, K.L.** and Lever, L.A. (2010). Using ecology to guide the study of cognitive and neural mechanisms of different aspects of spatial memory in food-hoarding animals. *Philosophical Transactions of the Royal Society, B*, *365*, 883-900.
- Rumbaugh, D.M., Washburn, D.A., King, J.E., Beran, M.J., **Gould, K.L.**, and Savage-Rumbaugh, E.S. (2008). Why some apes imitate and/or emulate observed behavior and others do not: Fact, theory, and implications for our kind. *Journal of Cognitive Education and Psychology*, *7(1)*, 100-110.
- Rumbaugh, D.M., King, J.E., Beran, M.J., Washburn, D.A. and **Gould, K.L.** (2007). A salience theory of learning and behavior – with perspectives on neurobiology and cognition. *International Journal of Primatology*, *28*, 973-996.
- Shiflett, M.W., **Gould, K.L.**, Smulders, T.V. & DeVoogd, T.J. (2002). Septum volume and food-storing behavior are related in Parids. *Journal of Neurobiology*, *51*, 215-222.
- Gould, K.L.**, Newman, S.W., Tricomi, E.M., & DeVoogd, T.J. (2001). The distribution of Substance P and Neuropeptide Y in four songbird species: a comparison of food-storing and non-storing birds, *Brain Research*, *918*: 80-95.
- Gould-Beierle, K. L.** (2000). A comparison of four corvid species in a working and reference memory task using a radial maze, *Journal of Comparative Psychology*, *114*, 347-356.
- Gould-Beierle, K.L.** & Kamil, A.C. (1999). The effect of proximity on the use of landmarks in Clark's nutcrackers, *Animal Behaviour*, *58*, 477-488.
- Gould-Beierle, K.L.** & Kamil, A.C. (1998). The use of landmarks in three species of corvids, *Ethology*, *104*, 361-378.
- Gould-Beierle, K.L.** & Kamil, A.C. (1996). The use of local and global cues by Clark's nutcrackers, *Nucifraga columbiana*. *Animal Behaviour*, *52*, 519-528.

Published Book Chapters:

- Rumbaugh, D.M., King, J.E., Beran, M.J., Washburn, D.A. and **Gould, K.** (2012). A Salience Theory of Learning. In N. M. Seed (Ed.) *Encyclopedia of the Sciences of Learning*, Heidelberg, Springer.

Kamil, A.C. and **Gould, K.L.** (2008). Spatial memory in scatter-hoarding animals. In J. H. Byrne (Ed.) *Learning and memory: A comprehensive reference* (pp. 419-440) Oxford, UK:Elsevier.

Published Book Reviews:

Gould, K.L. (2010). *Cognitive Ecology II*, Eds.: R. Dukas and J. Ratcliffe (Book Review), *The Condor*, 112(3), 627-629.

Work Currently in Preparation:

Gould, K.L. (In revision, 2016). Spatial memory in scatter-hoarding animals. In J.H. Byrne (Ed.) *Learning and memory: A comprehensive reference, second edition*

Gould, K.L., Gilbertson, K. E., Hrvol, A.J., Christenson, C.R., Ames, M.M, Seebart, C., Nelson, V., Hasher, E.A., Flick, K.A., Rem, R.M., Bachman, Z.C. and Mangiamele, A. Mirror-induced mark-directed behaviors in the Clark's nutcracker, Western scrub jay, and blue jay. (In revision, *Animal Cognition*).

Gould, K.L., Brantner, R.M., Roberts, K. and DeVoogd, T.J. Seasonal differences in relative hippocampal volume in the blue jay. (In preparation for *Behavioral Brain Processes*).

Gould, K.L., Seyfer, A.L., Hansberry, D., Lynn, E., Meyer, Q. and Brantner, R.M. Performance of blue jays on a two-choice functional means-ends task. (In preparation).

Gould, K.L., Nerdig, J., Lindstrom, K., Kratovil, E., Kurtz, B., Bird, A., Dailey, K., and Rem, R. Use of human gesture and gaze information in a two-choice hidden food task by Blue Jays. (In preparation).

Published Abstracts:

Gould, K.L., Brantner, R.M., Roberts, K. and DeVoogd, T.J. (2012). Seasonal differences in hippocampus volume in a scatter-hoarding Corvid, the blue jay. *Society for Neuroscience Abstracts*, 38, 503.03.

Gould, K.L. & Gilbertson, K.E. (2011). Hippocampus neuron density in four species of birds in the Corvid family. *Society for Neuroscience Abstracts*, 37, 729.07.

Gould, K.L., Hrvol, A.J., Nelson, J.C., Brantner, R.M. and Seyfer, A.L. (2009) No species differences in relative hippocampus and septum volumes among four species of food-storing birds. *Society for Neuroscience Abstracts*, 35, 478.14

Shiflett, M.W., **Gould-Beierle, K.L.**, Smulders, T.V. & DeVoogd, T.J. (2001). Seasonal and species differences in the avian septum. *Society for Neuroscience Abstracts*, 27, 535.2.

Gould-Beierle, K.L., Nguyen, R.T., Newman, S.W. & DeVoogd, T.J. (2000). The distribution of Substance P in the avian parahippocampal region differs between seasons and species. *Society for Neuroscience Abstracts*, 26(1), 265.18.

Gould-Beierle, K.L., Tricoli, E.M., Smulders, T.V., Newman, S.W. & DeVoogd, T.J. (1999). The distribution of Substance P in four songbird species: Food-storing versus non-storing comparisons. *Society for Neuroscience Abstracts*, 25 (2), 862.15.

Gould-Beierle, K.L. & Kamil, A.C. (1995). The use of local and global cues in the Clark's nutcracker, Abstract. In: *Behavioral Brain Research in Naturalistic and Semi-Naturalistic Settings*, E. Alleva et al. (eds.), p. 444. Netherlands: Kluwer Academic Publishers.

Ph.D. Dissertation

Gould-Beierle, K.L. (1997). The use of landmarks by food-storing Corvids (*Gymnorhinus cyanocephala*, *Aphelocoma coerulescens*, *Nucifraga Columbiana*). *Dissertation Abstracts International*, 58, 12B.

Professional Meeting Paper Presentations and Talks:

(* Indicates Luther student co-author)

2016

International Conference on Comparative Cognition, Melbourne, FL 4/16

Persistence and gazing at humans during an unsolvable task depends on the age, sex and experience of pet dogs. Rachel Rem*, Kristy Gould and Jennifer Templeton

International Conference on Comparative Cognition, Melbourne, FL 4/16

The influence of neophobia, human familiarity and human attentional state on eating behavior in blue jays. Katelyn Evenson*, Debra Hansberry*, Senia Sikkink* and Kristy Gould

2015

Drake Undergraduate Science Collaborative Institute Science Colloquium Series, Invited Speaker, Drake University, 9/15

Bird brains: Corvid cognition and the blue jay

International Conference on Comparative Cognition, Melbourne, FL 4/15

The influence of human familiarity and attentional state on eating behavior in blue jays. Debra Hansberry*, Elizabeth Beckham* and Kristy Gould

International Conference on Comparative Cognition, Melbourne, FL 4/15

Mirror-induced, mark-directed behavior in blue jays. Emily Hasher*, Kristen Flick*, Rachel Rem*, Zoe Bachman*, Angelica Mangiamele* and Kristy Gould

International Conference on Comparative Cognition, Melbourne, FL 4/15

Modified two-choice hidden food task with blue jays using human gesture and gaze information. Jonathan Nerdig*, Rachel Rem*, Allison Bird*, Kyrie Dailey* and Kristy Gould.

2013

International Conference on Comparative Cognition, Melbourne, FL, 3/13

Use of human gesture and gaze information in a two-choice hidden food task by Blue Jays. Kristy L. Gould, Katy Lindstrom*, Jonathan Nerdig*, Emily Kratovil*, Marty Mitchell* and Brian Kurtz*.

2012

Fall Comparative Cognition Society Meeting, New Orleans, LA, 10/12

Performance of Blue Jays on a Two-Choice Functional Tool Task. Kristy L. Gould, Abigail Seyfer*, Debra Hansberry*, Emily Lynn*, Quinn Meyer* and Rose Brantner*

Society for Neuroscience, New Orleans, LA 10/12

Seasonal Differences in Hippocampus Volume in a Scatter-hoarding Corvid, the Blue Jay. Kristy Gould, Rose Brantner*, Kate Roberts*, and Tim DeVogd.

2011

Society for Neuroscience, Washington, DC, 11/11

Hippocampus neuron density in four species of birds in the Corvid family. Kristy L. Gould and Karl E. Gilbertson*.

2010

International Conference on Comparative Cognition, Melbourne, FL, 3/10

Mirror-induced mark-directed behaviors in the Clark's nutcracker, but not the Western scrub jay. Kristy L. Gould, Karl E. Gilbertson*, Andrew J. Hrvol*, Corey R. Christensen*, and Morgan M. Ames*

2009

Society for Neuroscience, Chicago, IL, 10/09

No species differences in relative hippocampus and septum volumes among four species of food-storing birds. Kristy L. Gould, Andrew J. Hrvol* Joseph C. Nelson*, Rose M. Brantner*, and Abigail L. Seyfer.*

2008

The Integrative Biology of Scatter Hoarding: Ecology, Psychology and Neuroscience, Cornell University, Ithaca, NY, 9/08

Episodic-like memory in the Clark's Nutcracker?

Apes In Iowa, Invited Symposium, University of Iowa, 4/08

Episodic Memory in Language-Encultured Bonobos

2007

Midwestern Psychological Association, Chicago, IL, 5/07

Neurobiological Correlates of Salience

2006

Pavlovian Society, Philadelphia, PA, 9/06

A Salience Model for Pavlovian Conditioning

2003

Animal Behavior Society, Boise State, ID, 7/03

Proximal Cue Use in Rats: Evidence for the CAM Theory of Sign Tracking Behavior; Stacie M. Castelda* and Kristy L. Gould

2002

Biology Department Colloquium, Luther College, 11/02

Biology Department, Invited Homecoming Speaker, Dakota Wesleyan University, 10/02

Animal Behavior Society, Indiana University, 7/02

Rats Prefer Characteristic Cues Over Proximal Landmarks; Sarah E. Larson* and Kristy L. Gould

2001

Society for Neuroscience, San Diego, CA, 11/01

Seasonal and Species Differences in the Avian Septum

Research with Undergraduates

Spring 2015-Fall 2015

Katelyn Evenson, Senior Project, **Senia Sikkink**, Neophobia and human gaze in blue jays, Spring 2015 and Fall 2015

Grant Goss, Senior Project, **Anika Hansen**, **Animal Cognition class students**, Squirrel assessment of human approach, Fall 2015

Spring 2014 – Fall 2014

Emily Hasher Senior Project, Self-control in blue jays. Fall 2014

Debra Bolle Senior Project, **Elizabeth Beckman** Are blue jays sensitive to human gaze? Fall 2014

Rachel Rem, Summer Student/Faculty Collaboration, Senior Project, **Zoe Bachman**, **Nicole Schmidt**, Differences between owned and foster dogs in seeking human information, Summer 2014

Rachel Rem, **Zoe Bachman**, **Emily Hasher**, **Angelica Mangiamele** Mirror self-recognition in blue jays II. Spring 2014

Summer 2013-Fall 2013

Jon Nerdig, McElroy Foundation Grant and Senior Project, **Kyrie Dailey**, **Allison Bird**, **Rachel Rem** Modification of training procedures to reduce blue jay neophobia in a gesture and gaze experiment. Summer 2013-Fall 2013

Kristen Flick, Summer Student/Faculty Collaboration, Mirror self-recognition in blue Jays. Summer 2013

Summer 2012-Spring 2013

Katy Lindstrom, Summer Student/Faculty Collaboration and Senior Project, **Jon Nerdig**, **Brian Kurtz**, **Emily Kratovil**, Can two species of jays (Blue Jays and Western Scrub Jays) use gestures and gaze information from humans to identify the location of hidden food? Summer – Spring 2013

Katrina Okerstrom, Hippocampal volume in the American Crow. Summer 2012 – Fall 2012.

Summer 2011 – Spring 2012

Marty Mitchell, **Victoria Nelson**, **Cassie Seebart**, **Katrina Okerstrom**, **Brian Kurtz**, **Victoria Mueller-Ewald**, Distribution of Substance-P in the Parahippocampal region of

five species of birds in the Corvid family, Summer 2011- Spring 2012

James Flanary, Summer Student/Faculty Collaboration, **Katrina Okerstrom, Kendra Smallwood, Carolyn Wheeler**, Can Clark's Nutcrackers plan for the future in a cache-recovery task? Summer - Fall 2011

Summer 2010 –Spring 2011

Michelle Boursier, Marty Mitchell, Victoria Nelson, James Flanary, Distribution of Substance-P in the parahippocampal region of five species of birds in the Corvid family, Fall 2010-Spring 2011

Emily Lynn and Quinn Meyer, Tool-use in Blue Jays: Use of a hook tool, Fall 2010-Spring 2011

Debi Hansberry, Tool-use in Blue Jays: The effect of differences in training procedures, Summer –Fall 2010

Cassie Seebart and Victoria Nelson, Mirror Self-recognition in Western Scrub-Jays II, Fall 2010-Spring 2011

Karl Gilbertson, Midstates Consortium Grant, Summer Student/Faculty Collaboration and Senior Project, Number and size of neurons in the hippocampus of five species of birds in the Corvid family. Summer 2010-Spring 2011

Marty Mitchell, Are neophobia and exploratory behavior correlated with mirror-induced, mark-directed behavior in two species of corvids?, Summer-Fall 2010

Katie Roberts, Seasonal Differences in Hippocampal and Septum Volume in the Blue Jay, Summer 2010

Summer 2009-Spring 2010

Rosie Brantner, Senior Project, Seasonal Differences in Hippocampal and Septum Volume in the Blue Jay, Fall 2009-Spring 2010.

Corey Christensen, Senior Project, and **Morgan Ames**, Mirror Self-recognition in Two Species of Corvids: The impact of mirror experience, Fall 2009-Spring 2010

Abby Seyfer, McElroy Foundation Grant and Senior Project, and **Rosie Brantner**, Tool-use in Blue Jays, Summer, 2009 – Fall 2009.

Andrew Hrvol, Summer Student/Faculty Collaboration, and **Karl Gilbertson**, Mirror self-recognition in Two Species of Corvids, Summer 2009

Summer 2008-Spring 2009

Ryan Niles, Temporal olfactory discrimination in rats, Senior Project, Fall 2008

Joe Nelson, Song system nuclei in five species of corvids, Senior Project, Fall 2008-Spring 2009

Andrew Hrvol, Summer Student/Faculty Collaboration, **Rosie Brantner, Joe Nelson and Abby Seyfer**, Hippocampus and Septum volume in five species of corvids, Summer 2008 – Spring 2009

Fall 2005-Spring 2006

Nicole Eagan, Visual transitive inference in rats, Fall 2005-Spring 2006

Fall 2004-Spring 2005

Stephanie Bohmer, Spatial Learning Based on Contextual Cues in Rats, Senior Project,

Fall 2004/Spring 2005

Spring 2003-Fall 2003

Stephanie Bohmer, Spatial Learning Based on Contextual Cues in Chickadees, Summer 2003

Mischa Tursich, The Effect of Acute Stress on the Development of Cell Density in the Amygdala and Hippocampus, Spring/Fall 2003

Kristin Thompson, Senior Project, Differences in Hippocampal Cell Density Between Migratory and Non-migratory Dark-eyed Juncos, Spring 2003

Stacie Castelda, The CAM Theory vs. Overshadowing of Characteristic Cues, Spring 2003

Spring 2002-Fall 2002

Stacie Castelda, Rats Prefer Characteristic Cues Over Proximal Cues, Part II, Fall 2002

Dusty Bennett, Summer Student/Faculty Collaboration, Spatial Learning of the Geometric Relationship Between Hidden Goals in Chickadees, Summer 2002

Sarah Larson, Senior Project, Rats Prefer Characteristic Cues Over Proximal Cues, Spring 2002

Research Support:

- Luther College Summer Student/Faculty Collaborative Research Award, 2014
“Differences between owned and foster dogs in seeking human information”
- McElroy Foundation Student/Faculty Collaborative Grant, 2013
“Modification of training procedures to reduce blue jay neophobia in a gesture and gaze experiment”
- Luther College Summer Student/Faculty Collaborative Research Award, 2013
“Mirror Self-recognition in blue jays”
- Luther College Summer Student/Faculty Collaborative Research Award, 2012
“Can two species of jays (Blue Jays and Western Scrub Jays) use gestures and gaze information from humans to identify the location of hidden food?”
- Luther College Summer Student/Faculty Collaborative Research Award, 2011
“Can Clark’s Nutcrackers plan for the future in a cache-recovery task?”
- Luther College Summer Student/Faculty Collaborative Research Award, 2010
“Neuron density and size in the hippocampus of five species of birds in the Corvid family”
- Midstates Consortium Short Term Consultation Grant, 2010
Training and use of neuroscience facilities at Colorado College
- McElroy Foundation Student/Faculty Summer Collaborative Grant, 2009
“Tool use in Blue Jays”
- Luther College Summer Student/Faculty Collaborative Research Award, 2009
“Mirror Self-recognition in Two Species of Corvids”
- Luther College Summer Student/Faculty Collaborative Research Award, 2008
“Septum Volume in Five Species of Corvids”
- Luther College Summer Student/Faculty Collaborative Research Award, 2002

“Spatial Learning of the Geometric Relationship Between Hidden Goals in Chickadees”

NIH/NIMH Individual National Research Service Award, Aug 1999 – July 2001, "The Role of Avian Septo-Hippocampus in Spatial Memory", Post-doctoral Fellowship, \$103,200

Departmental and Campus-wide Service

Acting Department Head of Psychology Department, Fall 2015

Outside committee member, Vertebrate Zoology position, Department of Biology, Fall 2014

Chair, Institutional Animal Care and Use Committee (IACUC), Spring 2009-Summer 2014

Institutional Animal Care and Use Committee (IACUC) member, Northeast Iowa Community College, Fall 2014-present.

Chair, Committee to Revise Section 500 of the Faculty Handbook, Fall 2010-Fall 2011

Institutional Animal Care and Use Committee (IACUC) member, Summer 2005- present

Valders Planning and Renovation Committee member, Fall 2005 – Fall 2009

Faculty Interest Committee member, Fall 2005 – Spring 2008

Women’s Studies Board member, Fall 2004 – Spring 2007

Community Assembly Faculty representative, Fall 2004 – Spring 2005

Psychology Club Advisor, Fall 2002-Spring 2008

Chi Theta Rho Advisor, Fall 2003-Spring 2009

Professional Service

Member of planning committee for Fall Comparative Cognition Society Meeting, New Orleans, LA 10/12

Chair of session on Learning, Variability & Reward at Fall Comparative Cognition Society Meeting, New Orleans, LA 10/12

Professional Reviewing

Journals

Biology Letters

Behavioral Processes

Cell and Tissue Research

Journal of Comparative Psychology

Philosophical Transactions of the Royal Society B

Behavioral Neuroscience

Animal Behaviour

Ibis (the journal of the British Ornithologists’ Union).

Proceedings of The Royal Society: Biological Sciences

Journal of Ethology

The Condor

Textbooks

Psychology, Myers, 8th edition, 2005

Writing for Psychology, Mitchell, Jolley, and O’Shea, 2nd edition, 2005

Awards and Recognition

George and Jutta Anderson Faculty Sabbatical Award, 2007
Young Alumna of the Year, Dakota Wesleyan University, 2002
Member of Psi Chi, Induction 2002

Professional Promotions and Sabbaticals

2006 – Granted tenure and promoted to Associate Professor
2007/08 – Fall semester and January term sabbatical; received George and Jutta
Anderson Faculty Sabbatical Award
2013 – Promoted to Full Professor
2014/15 – Fall semester and January term sabbatical

Membership in Academic Organizations

Comparative Cognition Society
Animal Behaviour Society
Society for Neuroscience
Midwestern Psychological Association