

LUCIA F. JACOBS

Curriculum Vitae

ADDRESS

Department of Psychology
University of California
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EDUCATION

- 1978 - B.S. in Neurobiology and Behavior, Biological Sciences, Cornell University, Ithaca, NY.
(1976) Ethology, Zoological Institute, University of Vienna, Austria.
1983 - M.A. in Ecology and Evolution, Department of Biology, Princeton University, Princeton, NJ.
1987 - Ph.D. in Ecology and Evolution, Department of Biology, Princeton University, Princeton, NJ.

PROFESSIONAL POSITIONS

- 1987-89 Postdoctoral Fellow, Department of Psychology, University of Toronto
1989-90 Postdoctoral Fellow, Department of Anthropology, University of Pittsburgh
1990-93 Research Assistant Professor, Depts. Biology and Psychology, University of Utah
1993-00 Assistant Professor, Department of Psychology, University of California, Berkeley
2000-12 Associate Professor, Department of Psychology, UC Berkeley
2007- Associate Professor, Helen Wills Neuroscience Institute, UC Berkeley
2012- Professor, Department of Psychology and Helen Wills Neuroscience Institute, UCB

HONORS & AWARDS

- 1982 University Fellowship, Princeton University
1987 NATO Postdoctoral Fellowship, Department of Psychology, University of Toronto
1988 NIH NRSA Postdoctoral Fellowship, Department of Psychology, University of Toronto
1989 NSF Postdoctoral Fellowship, Department of Anthropology, University of Pittsburgh
1993 NSF CAREER Award
1995 Herbert Spencer Lecture, University of Oxford
1995 Hellman Junior Faculty Research Award
1996 Junior Faculty Career Development Award, University of California, Berkeley

1999 Prytanean Faculty Award, University of California
 2003 Santa Fe Public Lecture, Santa Fe Institute
 2006 Mary Rennie Epilepsy Award, University of California, Berkeley
 2013 Distinguished Lecturer in Cognitive Science, Michigan State University

PROFESSIONAL ACTIVITIES

Editorial and reviewing

Member, Working Group in Phylogenetic Psychology (2008-2011), National Evolutionary Synthesis Center, Duke University.
 Member, Scientific Advisory Board, Stanford Behavioral and Functional Neuroscience Lab
 Editorial board member, *Zoology* (2000-2003); Associate Editor, *Frontiers in Behavioral Neurosciences* (2010-present), Associate Editor, *Movement Ecology* (2012-present)
Ad hoc Journal reviews: *Animal Behaviour*, *Animal Cognition*, *Behavioral Brain Sciences*, *Behavioral Brain Research*, *Brain Behavior and Evolution*, *Cerebral Cortex*, *Journal of Experimental Biology*, *Hippocampus*, *Nature Neuroscience*, *PNAS* et alia.
Ad hoc Grant reviewing: National Science Foundation, European Research Council, Biotechnology and Biological Sciences Research Council
 Book proposal reviewing: Oxford University Press, Palgrave, MIT Press, Psychology Press.

Organizing symposia, workshops and conferences

Invited chair of symposium, "Neural Representation of Spatial Information", 4th International Congress, Society for Neuroethology, 3-7 September, 1995, Cambridge, UK.
 Organizer, faculty retreat, "The evolution of cognition" (May 2006) Institute for Cognitive and Brain Sciences, UC Berkeley
 Organizer, faculty retreat, "The evolution of communication" (January 2010), Institute for Cognitive and Brain Sciences, UC Berkeley
 Co-founder and director, *The Philosophical Club of San Francisco* (1999-present)

Professional societies

Animal Behavior Society (since 1981)
 International Society for Behavioral Ecology (since 1990)
 Society for Neuroscience (since 1991)
 Society for Neuroethology (since 1995)
 Cognitive Neuroscience Society (since 1996)
 Society for Comparative Cognition (since 2003)
 Association for Chemoreceptive Science (since 2013)

GRANTS AND FUNDING**External**

- 2014-15 Peder Sather Center Grant. *Evolution and Emotion: How Adaptive Patterns of Emotion Lead to Emergent Properties of Cognition and Behavior*. Co-PI: Jarl Giske (University of Bergen). (\$15,000).
- 2010-15 NSF Cyber-enabled Discovery and Innovation. "Cyber-Amplified Bioinspiration in Robotics". Co-PI's: Daniel E. Koditschek, Robert J. Full, C.J. Taylor. (\$1,425,000).
- 2003-07 Larry L. Hillblom Foundation Network Grant, Consortium for "Synaptic plasticity and function in Down Syndrome", Stanford University; PI: William Mobley. (\$240,000).
- 2000-03 JD French Alzheimer's Foundation, "The longitudinal analysis of progressive cognitive impairment in animal models of neurodegenerative disease ." (\$281,397).
- 2000-01 JD French Alzheimer's Foundation, "Spatial cognition in dementia." (\$18,000)
- 1999-01 Northern California Alzheimer Center, "Experimental neuropsychology of spatial cognition," (\$44,000)
- 1995-96 National Institute of Mental Health, PI, B/START Award: "The seasonal modulation of cognitive sex differences." (\$25,000)
- 1994-98 Training Grant (National Science Foundation), Stephen Palmer, PI: "Cognitive science: an integrated approach to spatial cognition."
- 1995-99 Training Grant (National Institutes of Health), Carla Shatz, PI: "Training program in neurobiology."
- 1993-95 National Science Foundation Career Advancement Award, "Comparative studies of spatial and nonspatial memory in mammals." (\$50,000)
- 1990-93 National Institute of Mental Health, PI, R03 Grant: "Spatial memory and hippocampal anatomy: natural patterns." (\$53,267)
- 1989-91 Environmental Sciences Postdoctoral Fellowship (National Science Foundation), University of Pittsburgh.
- 1988-89 Individual National Research Service Award (National Institute of Mental Health), University of Toronto.
- 1987-88 NATO Postdoctoral Fellowship (National Science Foundation), University of Toronto.
- 1985 Bache Fund, National Academy of Sciences
- 1983-84 Grants-in-Aid from Sigma Xi Society

Internal

- 2014-15 Abigail Hodgen Publication Grant, *Publication Costs: "Locating an odorant in time and space: the evolution of the accessory olfactory system"*. (\$3,500).
- 2014 URAP Summer Fellowship (Laura Agee**). Undergraduate Research Apprentice Program. (\$3,000).
- 2012-14 Institute for Cognitive and Brain Sciences Grant: "*Risk-taking and discounting behavior in a food-storing task for humans*". M. Delgado*, J. Arter* and P.J. Slattery**. (\$1,400) *Graduate student; **Undergraduate student
- 2014-17 Berkeley Excellence Accounts for Research (\$4,000 per annum).
- 2000-2010 Committee on Research (\$10,000)
- 2000-01 Multi-campus Research Incentive Fund (\$7,500)
- 1999-00 Prytanean Faculty Award (\$15,000)

1998-99	Faculty Research Grant (\$6,150).
1995-96	Hellman Junior Faculty Research Award, University of California (\$5,000).
1994-95	Faculty Research Grant (\$3,000).
1994-95	Mentor Grant (\$1,000).
1994-95	Junior Faculty Research Grant (\$3,000).
1994	Regents Junior Faculty Fellowship (\$4,000).
1993-2010	Committee on Research (\$1000 per annum)
1992-93	University of Utah, Research Grant (\$2,000).

PUBLICATION LIST (2339 citations, h index of 24 via Google Scholar)

Journal Articles

1. Sengelaub, D.R., Jacobs, L.F., and Finlay, B.L. (1985). Regional differences in normally occurring cell death in the developing hamster lateral geniculate nuclei. *Neuroscience Letters* 55, 103-108.
2. Daly, M., Wilson, M., Behrends, P.R., and Jacobs, L.F. (1990). Characteristics of kangaroo rats, *Dipodomys merriami*, associated with differential predation risk. *Animal Behaviour* 40, 380-389.
3. Jacobs, L.F., Gaulin, S.J.C., Sherry, D.F., and Hoffman, G.E. (1990). Evolution of spatial cognition: Sex-specific patterns of spatial behavior predict hippocampal size. *Proceedings of the National Academy of Sciences, USA* 87, 6349-6352.
4. Jacobs, L.F., and Liman, E.R. (1991). Grey squirrels remember the locations of buried nuts. *Animal Behaviour* 41, 103-110.
5. Jacobs, L. F. (1992). Memory for cache locations in Merriam's kangaroo rats. *Animal Behaviour*, 43(4), 585-593.
6. Daly, M., Jacobs, L.F., and Wilson, M.I. (1992). Scatter-hoarding by kangaroo rats (*Dipodomys merriami*) and pilferage from their caches. *Behavioral Ecology* 3, 102-111.
7. Daly, M., Behrends, P., Wilson, M., & Jacobs, L. F. (1992). Behavioural modulation of predation risk: moonlight avoidance and crepuscular compensation in a nocturnal desert rodent, *Dipodomys merriami*. *Animal Behaviour*, 44(1), 1-9.
8. Daly, M., Wilson, M.I., Behrends, P.R., and Jacobs, L.F. (1992). Sexually differentiated effects of radiotransmitters on predation risk and behaviour in kangaroo rats, *Dipodomys merriami*. *Canadian Journal of Zoology* 70, 1851-1855.
9. Jacobs, L.F. (1992). The effect of handling time on the decision to cache by grey squirrels. *Animal Behaviour* 43, 522-524.
10. Sherry, D.F., Jacobs, L.F., and Gaulin, S.J.C. (1992). Adaptive specialization of the hippocampus. *Trends in Neurosciences* 15, 298-303.
11. Jacobs, L.F., and Spencer, W.D. (1994). Natural space-use patterns and hippocampal size in kangaroo rats. *Brain Behavior and Evolution* 44, 125-132.
12. Feener, D.H., Jacobs, L.F., and Schmidt, J.O. (1996). Specialized parasitoid attracted to a pheromone of ants. *Animal Behaviour* 51, 61-66.
13. Jacobs, L.F. (1996a). The economy of winter: Phenotypic plasticity in behavior and brain structure. *Biological Bulletin* 191, 92-100.
14. Jacobs, L.F. (1996b). Sexual selection and the brain. *Trends in Ecology and Evolution* 11, 82-86.

15. Barkley, C.L., and Jacobs, L.F. (1998). Visual environment and delay affect cache retrieval accuracy in a food-storing rodent. *Animal Learning & Behavior* 26, 439-447.
16. Lavenex, P., Shiflett, M., Lee, R., & Jacobs, L. F. (1998). Spatial versus nonspatial relational learning in free-ranging fox squirrels (*Sciurus niger*). *Journal of Comparative Psychology*, 112(2), 127-136.
17. Jacobs, L.F., and Shiflett, M.W. (1999). Spatial orientation on a vertical maze in free-ranging fox squirrels (*Sciurus niger*). *Journal of Comparative Psychology* 113, 116-127.
18. Lavenex, P., Steele, M.A., and Jacobs, L.F. (2000). Sex differences, but no seasonal variations in the hippocampus of food-caching squirrels: A stereological study. *Journal of Comparative Neurology* 425, 152-166.
19. Lavenex, P., Steele, M.A., and Jacobs, L.F. (2000). The seasonal pattern of cell proliferation and neuron number in the dentate gyrus of wild adult eastern grey squirrels. *European Journal of Neuroscience* 12, 643-648.
20. Preston, S.D., and Jacobs, L.F. (2001). Conspecific pilferage but not presence affects Merriam's kangaroo rat cache strategy. *Behavioral Ecology* 12, 517-523.
21. Jacobs, L.F. (2003). The evolution of the cognitive map. *Brain, Behavior & Evolution* 62, 128-139.
22. Jacobs, L.F., and Schenk, F. (2003). Unpacking the cognitive map: the parallel map theory of hippocampal function. *Psychological Review* 110, 285-315.
23. Hermes, G.L., Jacobs, L.F., and McClintock, M.K. (2005). The sectorized foraging field: a novel design to quantify spatial strategies, learning, memory, and emotion. *Neurobiology of Learning & Memory* 84, 69-73.
24. Preston, S.D., and Jacobs, L.F. (2005). Cache decision making: the effects of competition on cache decisions in Merriam's kangaroo rat (*Dipodomys merriami*). *Journal of Comparative Psychology* 119, 187-196.
25. Jacobs, L.F. (2006). From movement to transitivity: the role of hippocampal parallel maps in configural learning. *Reviews in Neuroscience* 17, 99-109.
26. Barkley, C.L., and Jacobs, L.F. (2007). Sex and species differences in spatial memory in food-storing kangaroo rats. *Animal Behaviour* 73, 321-329.
27. Gibbs, S.E.B., Lea, S.E.A., and Jacobs, L.F. (2007). Flexible use of spatial cues in the southern flying squirrel (*Glaucomys volans*). *Animal Cognition* 10, 203-209.
28. Waisman, A.S., and Jacobs, L.F. (2008). Flexibility of cue use in the fox squirrel (*Sciurus niger*). *Animal Cognition* 11, 625-636.
29. Bettis, T.J., and Jacobs, L.F. (2009). Sex-specific strategies in spatial orientation in C57BL/6J mice. *Behavioural Processes* 82, 249-255.
30. Chai, X.J., and Jacobs, L.F. (2009). Sex differences in directional cue use in a virtual landscape. *Behavioral Neuroscience* 123, 276-283.
31. Preston, S.D., and Jacobs, L.F. (2009). Mechanisms of cache decision making in fox squirrels (*Sciurus niger*). *Journal of Mammalogy* 90, 787-795.
32. Chai, X.J., and Jacobs, L.F. (2010). Effects of cue types on sex differences in human spatial memory. *Behavioural Brain Research* 208, 336-342.

33. Chai, X.J., Ofen, N., Jacobs, L.F., and Gabrieli, J.D. (2010). Scene complexity: influence on perception, memory, and development in the medial temporal lobe. *Frontiers in Human Neuroscience* 4, 21 (21-10).
34. Bettis, T., & Jacobs, L. F. (2012). Sex differences in object recognition are modulated by object similarity. *Behavioural brain research*, 233(2), 288–292.
35. MacLean, E.L., Matthews, L.J., Hare, B.A., Nunn, C.L., Anderson, R.C., Aureli, F., Brannon, E.M., Call, J., Drea, C.M., Emery, N.J., Haun, D.B., Herrmann, E., Jacobs, L.F., Platt, M.L., Rosati, A.G., Sandel, A.A., Schroepfer, K.K., Seed, A.M., Tan, J., van Schaik, C.P., and Wobber, V. (2012). How does cognition evolve? Phylogenetic comparative psychology. *Animal Cognition* 15, 223–238.
36. Chai, X., and Jacobs, L.F. 2012. Digit ratio predicts sense of direction in women. *PLoS ONE* 7, 2 (e32816).
37. Jacobs, L. F. (2012). From chemotaxis to the cognitive map: the function of olfaction. *Proceedings of the National Academy of Sciences*, 109, 10693–10700.
38. Waismeyer, A. S., & Jacobs, L. F. (2013). The emergence of flexible spatial strategies in young children. *Developmental Psychology*, 49(2), 232–242.
39. Bettis, T. J., & Jacobs, L. F. (2013). Sex differences in memory for landmark arrays in C57BL/6 mice. *Animal Cognition*, 16(6), 873–882
40. Cook, A., Arter, J., & Jacobs, L. F. (2013). My owner, right or wrong: the effect of familiarity on the domestic dog's behavior in a food-choice task. *Animal Cognition*. doi:10.1007/s10071-013-0677-0.
41. Jacobs, L. F., & Menzel, R. (2014) Navigation outside the box: what the lab can learn from the field and what the field can learn from the lab. *Movement Ecology* 2, 3. doi 10.1186/10.1186/2051-3933-2-3.
42. Delgado, M. M., Nicholas, M., Petrie, D. J., & Jacobs, L. F. (2014). Fox Squirrels Match Food Assessment and Cache Effort to Value and Scarcity. *PLoS ONE*, 9(3), e92892. doi:10.1371/journal.pone.0092892.s003
43. Evan L. MacLean, Brian A. Hare, Charles L. Nunn, Elsa Addessi, Federica Amici, Rindy C. Anderson, Filippo Aureli, Joseph M. Baker, Amanda E. Bania, Allison M. Barnard, Neeltje J. Boogert, Elizabeth M. Brannon, Emily E. Bray, Joel Bray, Lauren J. N. Brent, Judith M. Burkart, Josep Call, Jessica F. Cantlon, Lucy G. Cheke, Nicola S. Clayton, Mikel M. Delgado, Louis J. DiVincenti, Kazuo Fujita, Chihiro Hiramatsu, **Lucia F. Jacobs**, Kerry E. Jordan, Jennifer R. Laude, Kristin L. Leimgruber, Emily J. E. Messer, Antonio C. de A. Moura, Ljerka Ostojić, Alejandra Picard, Michael L. Platt, Joshua M. Plotnik, Friederike Range, Simon M. Reader, Rachna B. Reddy, Aaron A. Sandel, Laurie R. Santos, Katrin Schumann, Amanda M. Seed, Kendra B. Sewall, Rachael C. Shaw, Katie E. Slocombe, Yanjie Su, Ayaka Takimoto, Jingzhi Tan, Ruoting Tao, Carel P. van Schaik, Zsófia Virányi, Elisabetta Visalberghi, Jordan C. Wade, Arii Watanabe, Jane Widness, Thomas R. Zentall, Yini Zhao. (2014) The evolution of self-control. *Proceedings of the National Academy of Sciences*, 111(20), E2140–8. doi:10.1073/pnas.1323533111

Other Peer-reviewed Publications

44. Jacobs, L.F. (1989). The cache economy of the gray squirrel. *Natural History* 10, 40–47.

45. Jacobs, L.F. (1995). The ecology of spatial cognition: adaptive patterns of hippocampal size and space use in wild rodents. In: *Behavioural Brain Research in Naturalistic and Semi-Naturalistic Settings*, E. Alleva, A. Fasolo, H.-P. Lipp, L. Nadel and L. Ricceri, eds. (Dordrecht, Kluwer Academic Publishers), pp. 301-322.
46. Jacobs, L.F. (2000). Sexual differentiation and cognitive function. In: *Gender and Society: the 1995 Herbert Spencer Lectures*, S. Iversen, ed. (Oxford, UK, Oxford University Press).
47. Adams-Hunt, M.M., and Jacobs, L.F. (2007). Learning to forage. In: *Foraging: Behavior and Ecology*, D.W. Stephens, J.S. Brown, and R.C. Ydenberg, eds. (Chicago, IL, University of Chicago), p. 576.
48. Jacobs, L.F. (2009). The role of social selection in the evolution of hippocampal specialization. In: *Cognitive Biology: Evolutionary and Developmental Perspectives on Mind, Brain and Behavior*, L. Tomassi, L. Nadel, and M. Peterson, eds. (Cambridge, MA, MIT Press).
49. Wiener, J., Shettleworth, S., Bingman, V.P., Cheng, K., Healy, S., Jacobs, L.F., Jeffery, K.J., Mallot, H.A., Menzel, R., and Newcombe, N.S. (2011). Animal Navigation – A Synthesis. In *Animal Thinking: Contemporary Issues in Comparative Cognition*, R. Menzel, and J. Fischer, eds. (Cambridge, MA, MIT Press).
50. Waisman, A.S., Lucas, C.G., Griffiths, T., and Jacobs, L.F. (2011). A Bayesian model of navigation in squirrels. *Proceedings of the 33rd Annual Conference of the Cognitive Science Society*.

Other Publications

- Jacobs, L.F. (1991). Review of "*Food Hoarding in Animals*" by S.B. Vander Wall (Univ. Chicago Press). *Animal Behaviour* 41, 920-921.
- Sherry, D.F., Jacobs, L.F., and Gaulin, S.J.C. (1993). The hippocampus and spatial memory (Reply). *Trends in Neurosciences* 16, 56-57.
- Hrdy, S.B., Rodman, P., Charnov, E.L., Seger, J., Hawkes, K., Emlen, S.T., Foster, S.A., Gowaty, P.A., Haig, D., Hauser, M., Jacobs, L.F., and Smuts, B.B. (1996). Sociobiology's successes. *Science* 274, 162-163.
- Jacobs, L.F. (2003). Spatial Memory In: *Encyclopedia of the Neurological Sciences*, M. Aminoff, and R. Daroff, eds. (San Diego, CA, Academic Press), pp. 86-90.
- Jacobs, L. F. (2012). Do Squirrels Remember Where They Bury Their Nuts? In M. Lamothe, J. Rothman, & J. Volvovski, *The Where, the Why and the How: 75 Artists Illustrate the Wondrous Mysteries of Science*. San Francisco: Chronicle Books.
- Jacobs, L. F. (2012). What do Honeybees Say When they Dance? In M. Lamothe, J. Rothman, & J. Volvovski, *The Where, the Why and the How: 75 Artists Illustrate Wondrous Mysteries of Science*. San Francisco: Chronicle Books.

Jacobs, L. F. (2012). What Does “Chickadee” Mean to a Chickadee? In M. Lamothe, J. Rothman, & J. Volvovski, *The Where, The Why and the How: 75 Artists Illustrate Wondrous Mysteries of Science*. San Francisco: Chronicle Books.

PRESENTATIONS

Invited Talks

1. Department of Psychology, Johns Hopkins University, 1992
2. Group in Neuroscience, Rockefeller University, 1993
3. Department of Organismal Biology, Harvard University, 1993
4. Department of Psychology, UC Berkeley, 1993
5. NSF Workshop in Animal Behavior, UC Davis, 1993
6. McDonnell Summer Institute for Cognitive Neuroscience, UC Davis, 1994
7. Institute for Cognitive Science, UC Berkeley, 1994
8. NATO Advanced Studies Institute, Maratea, Italy (H.-P. Lipp & Lynn Nadel, organizers), 1994
9. Department of Psychology, UCLA, 1994
10. Herbert Spencer Lecture, Oxford University, November 1995
11. Vincent Dethier Symposium, Department of Biology, Univ. Massachusetts at Amherst, 1995
12. Society for Neuroethology, Cambridge University, Symposium Chair; 1995
13. Center for Neuroscience, UC Davis, 1995
14. Department of Psychology, UC Santa Cruz, 1995
15. Department of Biology, University of Northern Arizona, Flagstaff, AZ, 1996
16. Cold Spring Harbor Laboratory, NY 1996
17. Bodega Marine Laboratory, 1997
18. Centre for Neuroscience, University of Edinburgh, 1999
19. Santa Fe Institute, “Integrated Themes” workshop, 1999
20. Neyman Seminar, Department of Statistics, UC Berkeley 2000
21. Wonderfest 2000: “Darwin and Psychology”, 2000
22. Seminar in Computational Sciences, University of Chicago, 2001
23. Department of Psychology, University of Chicago, 2001
24. Santa Fe Institute, “Robustness” workshop, 2001
25. Karger Symposium, “Evolutionary Perspectives in Cognition”, Orlando, FL, 2002
26. Department of Integrative Biology, UC Berkeley, 2002
27. Department of Psychiatry, UC San Francisco, 2002
28. Memory Disorders Research Society, San Francisco, 2002
29. Santa Fe Public Lecture, Santa Fe, New Mexico, 2003
30. Max Planck Institute for Ornithology, Seewiesen, Germany, 2003
31. International Graduate School for Neuroscience, Bochum, Germany, 2003
32. Headland Center for the Arts, Sausalito, California, 2003
33. Keio University, Tokyo, Japan, September 2004
34. Department of Neurology, Stanford University, 2004
35. Plenary, Annual meeting of Computational Neuroscience. Madison, WI, 2005
36. Konrad Lorenz Institute, Altenberg, Austria, 2006
37. Institute for Cognitive and Brain Sciences, UC Berkeley, 2006
38. Townsend Center for Philosophy of Mind, UC Berkeley, 2007
39. Department of Cognitive Science, UC San Diego, 2008
40. Department of Neurology, Stanford University, 2008
41. University of Konstanz, Germany, 2008

42. Santa Fe Institute, Santa Fe, New Mexico, 2008
43. Department of Psychology, University of Michigan, Ann Arbor, 2009
44. Department of Brain and Cognitive Sciences, MIT, Cambridge, 2009
45. Graduate Group in Animal Behavior, UC Davis, 2010
46. Jacobs, L. F. (2012). The evolution of a cognitive trait: from chemotaxis to associative learning. Presented at: *In the Light of Evolution VI: Brain and Behavior*, National Academy of Sciences, Irvine, CA.
47. Jacobs, L. F. (2012). The evolution of spatial navigation. In L. Marino. Presented at the NASA Conference “What Don't We Understand About Intelligence?,” Berkeley, CA.
48. Jacobs, L. F. (2012). How cognitive functions converge: the case of the cognitive map. Presented at *CogEvo 2012*, organized by E. S. Spelke & G. Vallortigara. Rovereto, Italy.
49. Jacobs, L. F. (2012). How cognitive functions converge: the case of the cognitive map. Presented at the Institute for Neurobiology, Freie University, Berlin.
50. Jacobs, L. F. (2012). Chemosensory cognition and the evolution of spatial navigation. Presented as a BBS Distinguished Lecture, Dept Psychology, Cornell University.
51. Jacobs, L. F. (2012). Chemosensory cognition and the evolution of olfaction. Presented at the Department of Neurophysiology, Ruhr University Bochum, Bochum, Germany.
52. Jacobs, L. F. (2012). Chemosensory cognition and the evolution of spatial navigation. Presented at the Institute for Research on Cognitive Systems, Univ Pennsylvania, Philadelphia, PA.
53. Jacobs, L. F. (2012). Panel Discussant: “How the Mind Works: Complexity and Pattern Recognition”. Organized by V. Gray, *Adventures of the Mind*, New York, NY.
54. Jacobs, L. F. (2013). Chemosensory cognition and the evolution of spatial navigation. Presented at the Center for Behavior, Evolution and Culture, UCLA.
55. Jacobs, L. F. (2013). Locating an odor in time and space: the evolution of navigation and chemosensory cognition. Series: *Distinguished Lectures in Cognitive Science*, Michigan State University.
56. Jacobs, L. F. (2013). Locating an odor in time and space: the evolution of navigation and chemosensory cognition. Presented at Dept. Electrical & Systems Engineering, Univ Penn, Philadelphia, PA.
57. Jacobs, L. F. (2013). The evolution of navigation. Presented at Dept Cognitive Science, UCSD.
58. Jacobs, L. F. (2014). Navigating to odors (or how the brain evolved from a nose). Presented at UCSF, Department of Neurology, Grand Rounds, Memory and Aging Center.

Conference Presentations

*Undergraduate student **Graduate student †Postdoc

1. **Jacobs, L.F.** and Spencer, W. (1991). Patterns of natural spatial behavior predict hippocampal size in kangaroo rats. *Soc Neurosci Abstr* 21, 134.
2. **Jacobs, L.F.**, Schenk, F., and Nadel, L. (1995). The evolution of hippocampal function. *Nervous Systems and Behaviour: Proceedings of the Fourth International Congress of Neuroethology* (Cambridge University, England, Georg Thieme Verlag).
3. **Jacobs, L.F.**, K.M. Grady*, K. Onstott*, F. Marouf*, K. Allen* and T.M. Lee. 1996. A hippocampus for all seasons: photoperiodic modulation of hippocampal volume in

- meadow voles. Society for Neuroscience, Washington, DC (Soc. Neurosci. Abstr. 22: 1133).
4. P. Lavenex†, V.M. Bajo-Lorenzana*, and L.F. Jacobs. 1996. Vestibular information defines a directional reference necessary to elaborate a spatial representation. Society for Neuroscience, Washington, DC (Soc. Neurosci. Abstr. 22: 446).
 5. **Jacobs, L.F.**, C. Barkley**, K. Chen*, M. Earle*, S. Chin* and E. Bejik*. 1996. Testing cache mnemonic theories with fox squirrels. Animal Behavior Society, Northern Arizona State University, Flagstaff, AZ.
 6. Barkley, C.** ,J. Gasway* and **L.F. Jacobs**. 1996. Effects of environmental complexity and delay on spatial memory for caches in a food-storing rodent. Animal Behavior Society, Northern Arizona State University, Flagstaff, AZ.
 7. **L.F. Jacobs** and M. Shiflett*. 1998. Spatial orientation on a vertical maze in free-ranging fox squirrels. Society for Neuroscience, Los Angeles, CA (Soc. Neurosci. Abstr. 24).
 8. Lavenex, P.†, M. A. Steele and **L. F. Jacobs**. 1998. Seasonal variation in the size of the CA1 field of the hippocampus in the gray squirrel. 5th International Congress of Neuroethology, San Diego, CA.
 9. **L.F. Jacobs** and M. Shiflett*. 1998. Memory in an arboreal environment: spatial orientation on a vertical maze. 7th International Behavioural Ecology Conference, Asilomar, CA.
 10. C. Barkley** and **L.F. Jacobs**. Visual environment affects spatial memory of kangaroo rats in a cache memory and a one-trial associative memory task. 1998. 7th International Behavioural Ecology Congress, Asilomar, CA
 11. S. Preston** and **L.F. Jacobs**. 1998. Social selection and caching behavior in Merriam's kangaroo rat. 7th International Behavioural Ecology Congress, Asilomar, CA.
 12. C. Barkley** and **L.F. Jacobs**. 1998. Caching and spatial categorization in the kangaroo rat. Foraging 98, Univ. Calif., Santa Cruz, CA.
 13. S. Preston** and **L.F. Jacobs**. 1998. Experimental analysis of the cache decision in the fox squirrel. Foraging 98, Univ. Calif. Santa Cruz, CA.
 14. **L.F. Jacobs** and F. Schenk. 2000. The hippocampus as a dual cognitive map. Society for Neuroscience, New Orleans, LA (Soc. Neurosci. Abstr. 26).
 15. M.M. Adams** and **L.F. Jacobs**. 2001. Human cognitive sex differences predicted by the dual map model of hippocampal function. Society for Neuroscience, San Diego, CA (Soc. Neurosci. Abstr. 27).
 16. F. Schenk, **L.F. Jacobs**, J. Rossier, and M. Kiraly . 2001. Steps in the development of spatial cognition in rats : evidence for a dual mapping system. Society for Neuroscience, San Diego, CA (Soc. Neurosci. Abstr. 27).
 17. Schenk, F., and **Jacobs, L.F.** (2001). The evolution of spatial navigation as a dual process. *Advances in Ethology*, 58.
 18. Preston, S.D.** , Raber, J., and **Jacobs, L.F.** (2001). A stress-based mechanism for food-storing decisions in Merriam's kangaroo rats. *Society for Behavioral Neuroendocrinology Annual Meeting Abstracts* (Hormones and Behavior).
 19. **Jacobs, L. F.** 2005. The evolution of spatial orientation and hippocampal function. 10th Annual Meeting of the Cognitive Science Association for Interdisciplinary Learning. Hood River, OR.
 20. Bettis, T.** and **L.F. Jacobs**. 2006. Sex differences in spatial cognition in mice. Annual Conference on Comparative Cognition. Melbourne, FL.
 21. Chai, X.J.** and **L.F. Jacobs**. 2006. Sex differences in the construction of the cognitive map: A spatial navigation study in virtual environments. Annual Conference on Comparative Cognition. Melbourne, FL.

22. Waisman, A.** and **L.F. Jacobs**. 2006. Flexible spatial cue use in a food-storing mammal. Annual Conference on Comparative Cognition. Melbourne, FL.
23. Cook, A.,** Waisman, A. S.**, Gopnik, A. & **Jacobs, L. F.** 2007. Causal Inference in the domestic dog (*Canis lupus familiaris*). American Psychological Association Annual Convention. San Francisco, CA.
24. Waisman, A. S.** & **Jacobs, L. F.** 2007. Plasticity of cue use strategy in the fox squirrel (*Sciurus niger*). American Psychological Association Annual Convention. San Francisco, CA.
25. Chai, X. J.** , **Jacobs, L. F.** & Gabrieli, J. D. E. 2008. Neural correlates of spatial navigation under directional and positional cue conditions. Annual Meeting, Cognitive Neuroscience Society. San Francisco
26. Chai, X. J.** , Ofen, N., **Jacobs, L. F.** & Gabrieli, J. D. E. 2008. Developmental changes of the encoding of indoor versus outdoor scenes. Society for Neurosciences. Washington, DC.
27. **Jacobs, L. F.** & Chai, X. J.** 2008. Sex differences in the encoding of environmental cues. Society for Neurosciences. Washington, DC.
28. Waisman, A. S.** & **Jacobs, L. F.** 2008. Flexibility of cue use in the fox squirrel (*Sciurus niger*). In: *Integrative Biology of Scatter Hoarding: Ecology, Psychology and Neuroscience*. Cornell University, Ithaca, NY.
29. **Jacobs, L. F.** 2008. The evolution of hippocampal specialization in scatter hoarding birds and mammals. *Integrative Biology of Scatter Hoarding: Ecology, Psychology and Neuroscience*. Cornell University, Ithaca, NY.
30. **Jacobs, L.F.** 2008. Why Squirrels Don't Believe in God. *Santa Fe Institute Soapbox series* (Santa Fe, NM).
31. **Jacobs, L.F.** 2008. Cache Economics. *Santa Fe Institute Finance Week* (Santa Fe, NM).
32. Waisman, A.S.** , Cook, A.** , Gopnik, A., and **Jacobs, L.F.** 2010. Causal Inference in the domestic dog (*Canis familiaris*) and in preschool-age children. Annual Meeting of the Cognitive Development Society (San Antonio, TX).
33. A. Waisman** , A. Gopnik, & **L.F. Jacobs** (2011). Causal inference in dogs and toddlers. Paper presented at the Cognitive Development Society Meeting, Philadelphia, Pennsylvania, October.
34. Waisman, A.S.** , Lucas, C.G., Griffiths, T., and **Jacobs, L.F.** 2011. A Bayesian model of navigation in squirrels. Paper presented at: 33rd Annual Conference of the Cognitive Science Society (Boston).
35. Delgado, M.M.** , and **Jacobs, L.F.** 2011. The behavioral correlates of frustration in the fox squirrel, *Sciurus niger*. Behavior 2011 (Bloomington, IN, Animal Behavior Society).
36. **Jacobs, L.F.** , Waisman, A.S.** , Nicholas, M.* , and Delgado, M.M.** 2011. How to encode the world: integrating multiple frames of reference. Behavior 2011 (Bloomington, IN, Animal Behavior Society).
37. Delgado, M. M.** , Nicholas, M.* , Petrie, D.* , & **Jacobs, L. F.** (2012). The hyper-rational squirrel: investing in assessment and cache protection behaviors. Presented at the Animal Behavior Society, Albuquerque.
38. **Jacobs, L. F.** (2012). How cognitive functions converge: the case of the cognitive map. Presented at the Comparative Cognition Society, New Orleans, LA.
39. **Jacobs, L. F.** (2012). How the cognitive map evolved from chemotaxis: the evolution and function of olfaction. Presented at the Society for Neuroscience, New Orleans, LA.
40. Slattery, P. J.* , Delgado, M. M.** , & **Jacobs, L. F.** (2012). Scatter-hoarding strategies in free-ranging humans. Presented at the Animal Behavior Society, Albuquerque, NM.

41. Delgado, M. M.** & **Jacobs, L. F.** (2013). The systematic squirrel: cache organization and implications for memory. Presented at the Animal Behavior Society, Boulder, CO.
42. **Jacobs, L. F.**, Arter, J.†, & Cook, A.† (2014). Olfactory navigation in humans: Spatial orientation within an odor landscape. Presented at the Association for Chemoreception Sciences.
43. Delgado, M. M.** & **Jacobs, L. F.** (2014). Where to bury a nut: do squirrels have hierarchical rules for cache organization? Presented at the International Society for Behavioral Ecology, New York, NY.
44. Jinn, J.**, Nirody, J., Libby, T., **Jacobs, L. F.**, & Full, R. J. (2014). How to walk on water: novel locomotion in a general forager, the house gecko. Presented at the Animal Behavior Society, Princeton, NJ.
45. **Jacobs, L. F.**, Arter, J.†, & Cook, A.† (2014). Olfactory navigation in humans: implications for the homology of navigation in birds and mammals. Presented at the Animal Behavior Society, Princeton, NJ.
46. Jinn, J.**, Nirody, J., Jusufi, A., **Jacobs, L. F.**, & Full, R. J. (2015). Quadrupedal locomotion on the water's surface by geckos. Society for Integrative and Comparative Biology.
47. Hunt, N., Jinn, J.**, Libby, T., **Jacobs, L. F.**, & Full, R. J. (2015). Learning to launch: targeted leaping from a dynamic obstacle in squirrels. Society for Integrative and Comparative Biology.

TEACHING (University of California, Berkeley)

Undergraduate

Lecture classes

Animal Behavior (Psych 115B, co-taught with Integrative Biology, 4 units)

Animal Cognition (Psych 121, 3 units)

Brain Evolution (Psych 192, 3 units)

Seminars

Cognition and Foraging (co-taught with Environmental Sciences, 2 units)

Behavior at Berkeley (co-taught with Integrative Biology, 2 units)

Squirrels at Berkeley: Cognition in the Wild (Freshman Seminar, 2 units)

Graduate

Proseminar in Behavioral Neuroscience (lecturer in Psych 210B, 3 units)

Proseminar in Memory (lecturer in Psych 210E, 3 units)

Proseminar in Learning (lecturer in Psych 210D, 3 units)

Colloquium in Evolution and Development (Psych 292, 2 units)

Current Topics in Animal Behavior (co-taught with Integrative Biology, ESPM and Anthropology; IDS 204, 1 unit)

Current Topics in Cognitive Evolution (Psych 290B, 2 units)