

Derek A. Hamilton

VITA

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Educational History

- B.A. 1996. The University of North Carolina at Charlotte. Psychology.
- M.S. 1998. The University of New Mexico. Psychology.
Thesis title: Categorical picture-word interference for vocal and manual production
Tasks: Evidence against the dual-coding and name retrieval hypotheses
Thesis advisor: Paul C. Amrhein, Ph.D.
- Ph.D. 2003. The University of New Mexico. Psychology.
Dissertation title: A behavioral and comparative analysis of human place learning in a virtual Morris water task.
Dissertation advisors: Robert J. Sutherland, Ph.D. and Michael J. Dougher, Ph.D.
- Postdoctoral fellow. 2003-4. Canadian Centre for Behavioural Neuroscience.
Advisor: Bryan Kolb, Ph.D.

Employment History

- 2004-5 Visiting Assistant Professor of Psychology and Neurosciences
The University of New Mexico, Albuquerque, NM 87131
- 2005-Present
Professor, Department of Psychology
secondary appointment Department of Neurosciences (UNM School of Medicine)
The University of New Mexico, Albuquerque, NM 87131

2016-Present	<i>Professor</i>
2010-2016	<i>Associate Professor</i>
2005-2010	<i>Assistant Professor</i>

2011-2017 Chair: *Cognition, Brain and Behavior Area.*

Membership in Professional Societies and Organizations

- Research Society on Alcoholism (RSA)
- Fetal Alcohol Spectrum Disorder Study Group (FASDSG)
- Society for Neuroscience

Professional Recognition, Honors, and Awards

- Arts and Sciences Award for Teaching Excellence, 2009-2010. The University of New Mexico
- 15th annual Benjamin Franklin Haught Memorial Lecture Award, 2003.
Department of Psychology, The University of New Mexico
- Postdoctoral fellowship, 2003-4. Alberta Heritage Foundation for Medical Research
\$35,000 annual stipend and \$3,000 research allowance for 2 years.
- Outstanding New Investigator, 2003. Fetal Alcohol Syndrome Study Group
- Outstanding Senior in Psychology, University of North Carolina at Charlotte, 1996.

RESEARCH, TEACHING, AND SERVICE INTERESTS

My research interests include two major topics: 1) the behavioral and neurobiological consequences of moderate prenatal alcohol exposure (PAE), and 2) the basic behavioral and neurobiological processes involved in mammalian spatial navigation. I utilize a range of structural, electrophysiological, and immediate early gene expression techniques to address basic questions regarding the effects of PAE on neural plasticity, brain function, and behavior. Current work is focused on the consequences of moderate PAE on synaptic plasticity and glutamatergic signaling with an emphasis on frontal cortex circuitry underlying important behavioral consequences of PAE, including behavioral flexibility, spatial learning and memory, and social interaction. A second ongoing line of research in my laboratory is aimed at better understanding the basic behavioral and cognitive processes involved in common laboratory tests of spatial learning and memory, including the Morris water task for rodents and the virtual Morris water task for humans, with the goal of advancing understanding of brain-behavior relationships in these and related tasks that are commonly used to study relationships between neural and behavioral/cognitive processes.

My teaching interests include courses at the undergraduate and graduate levels on the neurobiology of behavior and fundamental processes involved in learning/memory, and the effects of drugs on brain plasticity and behavior. I am also closely involved in teaching and mentoring of students enrolled in the Psychology Honors program. Helping undergraduate students, graduate students, and postdoctoral fellows to become effective, independent researchers and advance to the next stage of their training or career is major goal of my mentoring efforts.

My service interests include contributing to the University's research mission through Chairing the Institutional Animal Care and Use committee, which ensures compliance with federal law and regulations for research at UNM involving non-human animal species. I served as Chair for the Cognition, Brain, and Behavior (CBB) Area in the Department of Psychology from 2011-2017, which includes 13 faculty and 20-25 doctoral students. I also contribute broadly to the field by serving as a member on a National Institutes of Health grant review panel at the National Institute on Alcohol Abuse and Alcoholism, and serving as an officer for the Fetal Alcohol Spectrum Disorders Study Group, an international organization of scientists, providers, and students focused on better understanding the damaging effects of alcohol on the developing nervous system and pursuing treatment strategies.

CITATION METRICS AND PUBLICATION LISTS

Retrieved on the revision date of this c.v.

h = 28, Total Citations 2,498 (Source, ISI web of knowledge; <http://www.researcherid.com/rid/H-4447-2013>)

h = 31, Total Citations 3,842 (Source, Google Scholar)

Google Scholar : <https://scholar.google.com/citations?user=j-VpHzYAAAAJ&hl=en>

ResearchGate : http://www.researchgate.net/profile/Derek_Hamilton

NCBI : <http://www.ncbi.nlm.nih.gov/sites/myncbi/derek.hamilton.1/bibliography/40329263/public/>

JOURNAL ARTICLES [*graduate or undergraduate student first-authored paper]

73. Wozniak, J., Klintsova, A., Hamilton, D., & Mooney, S. (in press). Proceedings of the 2017 Annual Meeting of the Fetal Alcohol Spectrum Disorders Study Group. *Alcohol*.

72. Miller, M. G., Hamilton, D. A., Joseph, J. A., & Shukitt-Hale, B. (2017). Dietary blueberry improves cognition among older adults in a randomized, double-blind, placebo-controlled trial. *European Journal of Nutrition*, in press.

71. Medina, A., Wozniak, J., Klintsova, A., & Hamilton, D. (2017). Proceedings of the 2016 Annual Meeting of the Fetal Alcohol Spectrum Disorders Study Group. *Alcohol*, 65, 19-24.

***70.** Donaldson, T. N., Barto, D., Bird, C. W., Magcalas, C. M., Rodriguez, C. I., Fink, B. C., & Hamilton, D. A. (2017). Social order: Using the sequential structure of social interaction to discriminate abnormal social behavior in the rat. *Learning and Motivation*, in press.

69. Ceccanti, M., Coriale, G., Hamilton, D., Carito, V., Coccurello, R., Scalese, B., Ciafre, S., Codazzo, C., Messina, M. P., Chaldakov, G., Fiore, M. (2017). Virtual Morris Task Responses in Individuals in an Abstinence Phase from Alcohol. *Canadian Journal of Physiology and Pharmacology*, in press.

***68.** Barto, D., Bird, C.W., Hamilton, D.A., & Fink, B.C. (2017). The Simple Video Coder: A free tool for efficiently coding social video data. *Behavior Research Methods*, 49, 1563-1568. PMID: 27503301, PMCID: PMC5298951.

67. Bird, C. W., Barto, D., Magcalas, C. M., Rodriguez, C. I., Donaldson, T., Davies, S., . . . Hamilton, D. A. (2017). Ifenprodil infusion in agranular insular cortex alters social behavior and vocalizations in rats exposed to moderate levels of ethanol during prenatal development. *Behavioural Brain Research*, 320, 1-11. PMID: 27888019, PMCID: PMC5239726.

***66.** Rodriguez, C. I., Davies, S., Calhoun, V., Savage, D.D., & Hamilton, D. A. (2016). Moderate prenatal ethanol exposure alters functional connectivity in the adult rat brain. *Alcoholism: Clinical and Experimental Research*, 40, 2134-2146. PMID: 27570053, PMCID: PMC5048527.

***65.** Rodriguez, C. I., Magcalas, C. M., Barto, D., Fink, B. C., Rice, J. P., Bird, C. W., Davies, S., Pentkowski, N.S., Savage, D.D., & Hamilton, D. A. (2016). Effects of sex and housing on social, spatial, and motor behavior in adult rats exposed to moderate levels of alcohol during prenatal development. *Behavioural Brain Research*, 313, 233-243. PMID: 27424779, PMCID: PMC4987176

64. Kremmyda, O., Huefner, K., Flanagan, V. L., Hamilton, D. A., Linn, J., Strupp, M., . . . Brandt, T. (2016). Beyond Dizziness: Virtual Navigation, Spatial Anxiety and Hippocampal Volume in Bilateral Vestibulopathy. *Frontiers in Human Neuroscience*, 10. doi:10.3389/fnhum.2016.00139. PMID: 27065838, PMCID: PMC4814552

63. Ceccanti, M., Hamilton, D., Coriale, G., Carito, V., Aloe, L., Chaldakov, G., . . . Fiore, M. (2015). Spatial learning in men undergoing alcohol detoxification. *Physiology & Behavior*, 149, 324-330. doi:10.1016/j.physbeh.2015.06.034. PMID: 26143187.

***62.** Rice, J.P., Wallace, D.G., & **Hamilton, D.A.** (2015). Lesions of the hippocampus or dorsolateral striatum disrupt distinct aspects of spatial navigation strategies based on proximal and distal information in a cued variant of the Morris water task. *Behavioural Brain Research*, 289, 105-117. PMID: 25907746, PMCID: PMC4441542.

61. Bird, C.W., Candelaria-Cook, F.T., Magcalas, C.M., Davies, S., Valenzuela, C.F., Savage, D.D., & **Hamilton, D.A.** (2015). Moderate prenatal alcohol exposure enhances GluN2B containing NMDA receptor binding and ifenprodil sensitivity in rat ventrolateral frontal cortex. *PLoS ONE*, 10(3):e0118721. PMID: 25747876, PMCID: PMC4351952.

60. Hamilton, D.A., & Brigman, J.L. (2015). Behavioral flexibility in rats and mice: Contributions of distinct frontocortical regions. *Genes, Brain, and Behavior*, 14, 4-20. PMID: 25561028, PMCID: PMC4482359.

59. Tropp-Sneider, J., **Hamilton, D.A.**, Cohen-Gilbert, J.E., Crowley, D.J., Rosso, I.M., & Silveri, M.M. (2015). Sex differences in spatial navigation and perception in human adolescents and emerging adults. *Behavioural Processes*, *111*, 42-50. PMID: 25464337, PMCID: PMC4304985.
- *58. Peterson, V.L., McCool, B.A., & **Hamilton, D.A.** (2015). Effects of ethanol exposure and withdrawal on dendritic morphology and spine density in the nucleus accumbens core and shell. *Brain Research*, *1594*, 125-135. PMID: 25452024, PMCID: PMC4267557.
57. **Hamilton, D.A.**, Magcalas, C.M., Barto, D., Bird, C.W., Rodriguez, C.I., Fink, B.C., Pellis, S.M., Davies, S., & Savage, D.D. (2014). Moderate prenatal alcohol exposure and quantification of social behavior in adult rats. *Journal of Visualized Experiments*, *94*, e52407, doi:10.3791/52407. PMID: 25549080, PMCID: PMC4396951.
56. Miller, M.G., **Hamilton, D.A.**, Joseph, J.A., Shukitt-Hale, B. (2014). Mobility and cognition: End-points for dietary interventions in aging. *Nutrition and Aging*, *2*, 213-222.
55. Varaschin, R.K., Rosenberg, M.J., **Hamilton, D.A.**, & Savage, D.D. (2014). Differential effects of the histamine H₃ receptor agonist methimepip on dentate granule cell excitability, paired-pulse plasticity and long-term potentiation in prenatal alcohol-exposed rats. *Alcoholism: Clinical and Experimental Research*, *38*, 1902-1911. PMID: 24818819, PMCID: PMC5094461.
- *54. Akers, K.G., & **Hamilton, D.A.** (2014). Effect of high-frequency stimulation of the perforant path on a previously acquired spatial memory: Influence of memory strength and reactivation. *PLoS ONE*, *9*, e100766. PMID: 24971994, PMCID: PMC4074056.
53. **Hamilton, D.A.**, Barto, D., Rodriguez, C.I., Magcalas, C., Fink, B.C., Rice, J.P., Bird, C.W., Davies, S., & Savage, D.D. (2014). Effects of moderate prenatal ethanol exposure and age on social behavior, spatial response perseveration errors and motor behavior. *Behavioural Brain Research*, *269*, 44-54. PMID: 24769174, PMCID: PMC4134935.
52. **Hamilton, D.A.** (2014). The Importance of Measurement Precision and Behavioral Homologies in Evaluating the Behavioral Consequences of Fetal Ethanol Exposure : Commentary on Williams et al. ("Sensory-Motor Deficits in Children with Fetal Alcohol Spectrum Disorder Assessed Using a Robotic Virtual Reality Platform"). *Alcoholism: Clinical and Experimental Research*, *38*, 40-43. PMID: 24299062, PMCID: PMC3997062.
- *51. Candelaria-Cook, F.T., & **Hamilton, D.A.** (2014). Chronic cannabinoid agonist (WIN 55,212-2) exposure alters hippocampal dentate gyrus spine density in adult rats, *Brain Research*, *1542*, 104-110. PMCID: PMC3883362.
50. Wiener-Vacher, S.R., **Hamilton, D.A.**, & Wiener, S.I. (2013). Vestibular activity and cognitive development in children: Perspectives. *Frontiers in Integrative Neuroscience*, *7*, 1-13. doi: 10.3389/fnint.2013.00092. PMID: 24376403, PMCID: PMC3858645.
49. Clark, B.J., Rice, J.P., Akers, K.G., Candelaria-Cook, F.T., Taube, J.S., & **Hamilton, D.A.** (2013). Lesions of the dorsal tegmental nuclei impair performance in cued, place, and directional variants of the Morris water task. *Behavioral Neuroscience*, *127*, 566-581. PMID: 23731069, PMCID: PMC3997071.
48. Köppen, J.R., Winter, S.S., Loda, E.L., Apger, B.P., Grimelli, D., **Hamilton, D.A.**, & Wallace, D.G. (2012). Analysis of movement kinematics on analogous spatial learning tasks demonstrates conservation of direction and distance estimation across humans (*Homo sapiens*) and rats (*Rattus norvegicus*). *Journal of Comparative Psychology*, *127*, 179-193. PMID: 2308864.
47. Redhead, E.S., **Hamilton, D.A.**, Parker, M.O., Chan, W., & Allison, C. (2013) Evidence that modifying salience of geometric and landmark cues influences which controls navigation. *Learning and Behavior*, *41*, 179-191. PMID: 23180188.
46. Abbott, C.C., Jaramillo, A., Wilcox, C.E., & **Hamilton, D.A.** (2013). Antipsychotic drug effects in schizophrenia: a review of longitudinal fMRI investigations and neural interpretations. *Current Medicinal Chemistry*, *20*, 428-437. PMID: 23157635, PMCID: PMC3632416.

45. Hanlon, F.M., Houck, J.M., Kilmaj, S.D., Caprihan, A., Mayer, A., Weisend, M.P., Bustillo, J., **Hamilton, D.A.**, & Tesche, C.D. (2012). Fronto-temporal Anatomical Connectivity and Working-Relational Memory Performance Predict Everyday Functioning in Schizophrenia. *Psychophysiology*, *49*, 1340-1352. PMID: 22882287, PMCID: PMC4077350.
44. Wray, A.M., Dougher, M.J., **Hamilton, D.A.**, & Guinther, P. (2012). Examining the Reinforcing Properties of Making Sense: A Preliminary Study. *Psychological Record*, *62*, 599-622.
43. Barkas, L.J., Redhead, E.S., Taylor, M., Shtaya, A., **Hamilton, D.A.**, & Gray, W.P. (2012). Fluoxetine restores spatial learning but not accelerated forgetting in mesial temporal lobe epilepsy. *Brain*, *135*, 2358-2374. PMID: 22843410.
- *42. Rice, J.P., Suggs, L.E., Candelaria-Cook, F.T., Akers, K.G., Lusk, A.V., Parker, M., Savage, D.D., & **Hamilton, D.A.** (2012). Effects of exposure to moderate levels of ethanol during prenatal brain development on dendritic length, branching, and spine density in the nucleus accumbens and dorsal striatum of adult rats. *Alcohol*, *46*, 577-584. PMID: 22749340, PMCID: PMC3615033.
41. Murty, V.P., LaBar, K.S., **Hamilton, D.A.**, & Adcock, R.A. (2011). Is all motivation good for learning? Dissociable influences of approach and avoidance motivation in declarative memory. *Learning and Memory*, *18*, 712-717.
40. Knierim, J.J., & **Hamilton, D.A.** (2011). Framing spatial cognition: Neural representations of proximal and distal reference frames and their role in navigation. *Physiological Reviews*, *91*, 1245-1279.
39. Hübner, K., Binetti, C., **Hamilton, D.A.**, Stephan, T., Flanagin, V.L., Linn, J., Labudda, K., Markowitsch, H., Glasauer, S., Jahn, K., Strupp, M., & Brandt, T. (2011) Structural and functional plasticity of the hippocampal formation in professional dancers and slackliners. *Hippocampus*, *8*, 855-865.
- *38. Akers, K.G., Candelaria-Cook, F.T., Rice, J.P., Johnson, T.E. & **Hamilton, D.A.** (2011). Cued platform training reveals early development of directional responding among preweanling rats in the Morris water task. *Developmental Psychobiology*, *53*, 1-12.
37. Savage, D.D., Rosenberg, M.J., Wolff, C.R., Akers, K.G., El-Emawy, A., Staples, M.C., Varaschin, R.K., Wright, C.A., Seidel, J.L., Caldwell, K.K., & **Hamilton, D.A.** (2010). Effects of a Novel Cognition-Enhancing Agent On Fetal Ethanol-Induced Learning Deficits. *Alcoholism: Clinical and Experimental Research*, *34*, 1793-1802.
36. **Hamilton, D.A.**, Candelaria-Cook, F.T., Akers, K.G., Rice, J.P., Maes, L.I., Rosenberg, M., Valenzuela, C.F., & Savage, D.D. (2010). Patterns of social-experience-related *c-fos* and *Arc* expression in the frontal cortices of rats exposed to saccharin or moderate levels of ethanol during prenatal brain development. *Behavioural Brain Research*, *214*, 66-74.
35. Varaschin, R. K., Rosenberg, M.J., Akers, K.G., **Hamilton, D.A.**, & Savage, D.D. (2010). Effects of the Cognition-Enhancing Agent ABT-239 on Fetal Ethanol-induced Deficits in Dentate Gyrus Synaptic Plasticity. *Journal of Pharmacology and Experimental Therapeutics*, *334*, 191-198.
34. Barkas, L.J., Henderson, J.L., **Hamilton, D.A.**, Redhead, E.S., & Gray, W.P. (2010). Selective temporal resections and spatial memory impairments: Cue dependent lateralization effects. *Behavioural Brain Research*, *208*, 535-544.
33. **Hamilton, D.A.**, Akers, K.G., Rice, J.P., Johnson, T.E., Candelaria-Cook, F.T., Maes, L.I., Rosenberg, M., Valenzuela, C.F., & Savage, D.D. (2010). Prenatal exposure to moderate levels of ethanol alters social behavior in adult rats: Relationship to structural plasticity and immediate early gene expression in frontal cortex. *Behavioural Brain Research*, *207*, 290-304.
32. Hübner, K., Stephan, T., **Hamilton, D.A.**, Kalla, R., Glasauer, S., Strupp, M., & Brandt, T. (2009). Gray matter atrophy after chronic complete unilateral vestibular deafferentation. *Annals of the New York Academy of Sciences*, *1164*, 383-385.
31. **Hamilton, D.A.**, Johnson, T.E., Redhead, E.S., & Verney, S.P. (2009). Control of human and rodent navigation by room and apparatus cues. *Behavioural Processes*, *81*, 154-169.

- 30. Hamilton, D.A.,** Akers, K.G., Johnson, T.E., Rice, J.P., Candelaria, F.T., & Redhead, E.S. (2009). Evidence for a shift from place navigation to directional responding in one variant of the Morris water task. *Journal of Experimental Psychology: Animal Behavior Processes*, *35*, 271-278.
- ***29.** Akers, K.G., Candelaria, F.T., Rice, J.P., Johnson, T.E., & **Hamilton, D.A.** (2009). Delayed development of place navigation compared to directional responding in preweanling rats. *Behavioral Neuroscience*, *123*, 267-275.
- 28.** Redhead, E.S., & **Hamilton, D.A.** (2009). Evidence of blocking with geometric cues in a virtual watermaze. *Learning and Motivation*, *40*, 15-34.
- 27.** Silasi, G., **Hamilton, D.A.**, & Kolb, B. (2008). Social instability blocks functional restitution following motor cortex stroke in rats. *Behavioural Brain Research*, *188*, 219-226.
- 26. Hamilton, D.A.,** Akers, K.G., Johnson, T.E., Rice, J.P., Candelaria, F.T., Sutherland, R.J., Weisend, M.P., & Redhead, E.S. (2008). The relative influence of place and direction in the Morris water task. *Journal of Experimental Psychology: Animal Behavior Processes*, *34*, 31-53.
- ***25.** Akers, K.G., Candelaria, F.T., & **Hamilton, D.A.** (2007). Prewanling rats solve the Morris water task via directional navigation. *Behavioral Neuroscience*, *121*, 1426-1430.
- ***24.** Akers, K.G., & **Hamilton, D.A.** (2007). Comparison of the developmental trajectories of place and cued navigation in the Morris water task. *Developmental Psychobiology*, *49*, 553-564.
- 23.** Dougher, M.J., **Hamilton, D.A.**, Fink, B.C., & Harrington, J. (2007). Transformation of the discriminative and eliciting functions of generalized relational stimuli. *Journal of the Experimental Analysis of Behavior*, *88*, 179-197.
- 22.** Redhead, E.S., & **Hamilton, D.A.** (2007). Interaction between locale and taxon strategies in human spatial learning. *Learning and Motivation*, *38*, 262-283.
- 21.** Hübner, K., **Hamilton, D.A.**, Kalla, R., Stephan, T., Brüning, R., Ma, J., Markowitsch, H.J., Labudda, K., Schichor, C., Strupp, M., & Brandt, T. (2007). Spatial memory and hippocampal volume in humans with unilateral vestibular deafferentation. *Hippocampus*, *17*, 471-485.
- 20. Hamilton, D.A.,** Akers, K.G., Weisend, M.P., & Sutherland, R.J. (2007). How do room and apparatus cues control navigation in the Morris water task?: Evidence for distinct contributions to a movement vector. *Journal of Experimental Psychology: Animal Behavior Processes*, *33*, 100-114.
- 19.** Hanlon, F.M., Weisend, M.P., **Hamilton, D.A.**, Jones, A., Thoma, R.J., Huang, M-X., Martin, K., Yeo, R.A., Miller, G.A., & Cañive, J.M. (2006). Impairment on the hippocampal-dependent virtual Morris water task in schizophrenia. *Schizophrenia Research*, *87*, 67-80.
- 18.** Wallace, D.G., **Hamilton, D.A.**, & Whishaw, I.Q. (2006). Topographic and kinematic characteristics of movement support a role for dead reckoning in organizing exploratory behavior. *Animal Cognition*, *9*, 219-228.
- 17.** Clark, B.J., **Hamilton, D.A.**, & Whishaw, I.Q. (2006). Motor Activity (exploration) and formation of home bases in mice (C57BL/6) influenced by visual and tactile cues: modification of movement geometry, distance, location, and speed. *Physiology & Behavior*, *87*, 805-816.
- 16.** Brandt, T. Schautzer, F., **Hamilton, D.A.**, Brüning, R., Markowitsch, H.J., Kalla, R., Darlington, C., Smith, P., & Strupp, M. (2005). Vestibular loss causes hippocampal atrophy and impaired spatial memory in humans. *Brain*, *128*, 2732-2741.
- 15.** Clark, B.J., Hines, D.J., **Hamilton, D.A.**, & Whishaw, I.Q. (2005). Organized exploratory movements are intact in rats with hippocampal lesions. *Behavioural Brain Research*, *163*, 91-99.
- 14.** Driscoll, I., **Hamilton, D.A.**, Yeo, R.A., Brooks, W.M., & Sutherland, R.J. (2005). Virtual navigation in humans: The impact of age, sex, and hormones on place learning. *Hormones and Behavior*, *47*, 326-335.
- 13. Hamilton, D.A.,** & Kolb, B. (2005). Differential effects of nicotine and complex housing on subsequent experience-dependent structural plasticity in the nucleus accumbens. *Behavioral Neuroscience*, *119*, 355-365.

12. Sutherland, R.J., & **Hamilton, D.A.** (2004). Rodent spatial navigation: At the crossroads of cognition and movement. *Neuroscience & Biobehavioral Reviews*, 28, 687-697.
11. Villarreal, G. **Hamilton, D.A.**, Graham, D.P., Driscoll, I., Qualls, C., Petropoulos, H., & Brooks, W.M. (2004). Reduced area of the corpus callosum in PTSD. *Psychiatry Research*, 131, 227-235.
10. **Hamilton, D.A.**, Rosenfelt, C.S., & Whishaw, I.Q. (2004). Sequential control of navigation by locale and taxon cues in the Morris water task. *Behavioural Brain Research*, 154, 385-397.
9. Schautzer, F., **Hamilton, D.**, Kalla, R., Strupp, M., & Brandt, T. (2003). Spatial learning deficits in patients with chronic bilateral vestibular failure. *Annals of the New York Academy of Sciences*, 1004, 316-324.
8. Driscoll, I., **Hamilton, D.A.**, Petropoulos, H., Yeo, R.A., Brooks, W.M., Baumgartner, R.N., & Sutherland, R.J. (2003). The aging hippocampus: Cognitive, structural, and biochemical findings. *Cerebral Cortex*, 13, 1344-1351.
7. **Hamilton, D.A.**, Kodituwakku, P.W., Sutherland, R.J., & Savage, D.D. (2003). Children with Fetal Alcohol Syndrome are impaired at place learning but not cued-navigation in a virtual Morris water task. *Behavioural Brain Research*, 143, 85-94.
6. Villarreal, G., Petropoulos, H., **Hamilton, D.A.**, Rowland, L.M., Horan, W.P., Griego, J.A., Moreshead, M., Hart, B.L., & Brooks, W.M. (2002). Proton-MRS of the medial temporal lobes and occipital white matter in PTSD: Preliminary results. *Canadian Journal of Psychiatry*, 47, 666-670.
5. Villarreal, G., **Hamilton, D.A.**, Petropoulos, H., Driscoll, I., Rowland, L.M., Griego, J.A., Kodituwakku, P.W., Hart, B.L., Escalona, R., & Brooks, W.M. (2002). Reduced hippocampal volume and total white matter volume in PTSD. *Biological Psychiatry*, 52, 119-125.
4. **Hamilton, D.A.**, Driscoll, I., & Sutherland, R.J. (2002). Human place learning in a virtual Morris water task: Some important constraints on the flexibility of place navigation. *Behavioural Brain Research*, 129, 159-170.
3. Sutherland, R.J., Weisend, M.P., Mumby, D., Astur, R.S., Hanlon, F.M., Koerner, A., Thomas, M.J., Wu, Y., Moses, S., Cole, C., **Hamilton, D.A.**, & Hoelsing, J.M. (2001). Retrograde amnesia after hippocampal damage: Recent vs. remote memories in two tasks. *Hippocampus*, 11, 27-42.
2. Amrhein, P.C., Bond, J.K., & **Hamilton, D.A.** (1999). Locus of control and the age difference in free recall from episodic memory. *Journal of General Psychology*, 126, 146-161.
1. **Hamilton, D.A.**, & Sutherland, R.J. (1999). Blocking in human place learning: Evidence from virtual navigation. *Psychobiology*, 27, 453-461.

BOOK CHAPTERS AND ENCYCLOPEDIA ENTRIES

2. **Hamilton, D.A.**, & Barto, D. (2015). Navigation in Virtual Space: Psychological and Neural Aspects. International Encyclopedia of Social and Behavioral Sciences. Ed. James Wright. Elsevier Ltd.: Oxford, UK.
1. **Hamilton, D.A.**, Prusky, G.T., & Sutherland, R.J. (2006). The Morris water task and related methods. In Tasks and Techniques: A sampling of methodologies for the investigation of animal learning, behavior, and cognition, Ed. Matthew J. Anderson. Nova Science Publishers, Inc. ISBN 1-60021-126-7.

INVITED TALKS/LECTURES AND REFEREED PRESENTATIONS/ABSTRACTS

14. The consequences of moderate prenatal ethanol exposure on spatial learning, memory, and cognition. Northern Illinois University. March 30, 2015.
13. The prefrontal consequences of moderate prenatal alcohol exposure. University of Nevada, Las Vegas (UNLV). September 7, 2014.
12. Fragmentation of local view spaces. Vespucci Workshop on Brain and Space. Champalimaud Centre for the Unknown, Lisbon, Portugal. Sept, 2014.

11. Framing the behavioral constituents of spatial navigation in rats and humans. Behaviour (joint meeting of the International ethological Congress and the Association for the Study of Animal Behaviour). Newcastle, UK. August 7, 2013.
10. Control of rat and human spatial navigation by room and apparatus reference frames. Hippocampal Spring Conference, Taormina, Sicily, Italy. June 9, 2013.
- 9.. Framing the behavioral constituents of spatial navigation in rats and humans. College de France, Paris. June 6, 2013.
8. Framing spatial navigation in rats and humans. American Psychological Association, Orlando. FL. August 4, 2012.
7. Framing the behavioral and neurobiological constituents of spatial navigation. Arizona State University Tempe, AZ, Oct 12, 2011.
6. Framing the behavioral and neurobiological constituents of spatial navigation. Invited talk, 4th annual meeting of the Four Corner Association for Behavior Analysis, Santa Fe. NM, April 1, 2011.
5. The relative and relational features of stimulus control in human and rodent spatial navigation. Invited address at the annual meeting of the American Psychological Association, Divisions 25, 3, and 6, Boston, MA, August, 2008.
4. The relative influence of place and direction in human and rodent spatial navigation. Invited address at the Meeting of the Society for the Quantitative Analysis of Behavior (SQAB), Chicago, IL. May, 2008.
3. Jain, E., Healy, M. J., Saland, L., **Hamilton, D.**, Allan, A., Caldwell, K., & Caudell, T. P.. (2005-6). Hypergraphs: Organizing complex natural neural networks. IEEE Proceedings of the Third International Conference on Intelligent Sensing and Information Processing.
2. A combined structural and functional neuroimaging study in children with Fetal Alcohol Syndrome. Annual meeting of the Research Society on Alcoholism, Vancouver, BC, Canada. June, 2004
1. A multimodal neuroimaging study in children with Fetal Alcohol Syndrome. Annual meeting of the Fetal Alcohol Syndrome Study Group, Fort Lauderdale, FL. June, 2003.

CONTRIBUTED (UN-REFEREED) ABSTRACTS AND/OR ORAL PRESENTATIONS AT PROFESSIONAL MEETINGS

None

RESEARCH FUNDING

Active Funding:

Title: Impact of SAR152954 on prenatal alcohol exposure-induced neurobehavioral deficits. (PI : DD Savage)

Agency: NCATS

Proposal # : UH2 TR002082

Funding Period : 8/2017 - 7/2019 1.2 Calendar

Role: Co-I

Title: Prenatal Alcohol Exposure and Neural Representations of Space

Agency: NIH/NIAAA

Proposal # : R21 AA02498

Funding Period : 7/2016-6/2018

Total Direct Costs : \$275,000

Role: PI, co-PI Benjamin Clark

Title: Fetal ethanol-induced behavioral deficits: Mechanisms, diagnosis and Intervention

Agency: NIH/NIAAA
Proposal # ; 1P50AA022534-01
Funding Period : 08/2014 – 06/2019
PI : D.D. Savage
Role : Co-Investigator (Admin core)

Title : Alcohol research training in neurosciences

Agency : NIH/NIAAA
Proposal # : 2T32 AA014127
Funding Period : Aug 1, 2013 – July 31,2018
PI : C. Fernando Valenzuela, Ph.D.
Annual costs : \$118,504
Description : The main goal of the project is to train pre-doctoral students in neuroscience-related alcohol research.
Role: Mentor

Past Funding:

Title: Over-arousal as a mechanism between alcohol and intimate partner violence (PI: BC Fink)

Agency: NIH/NIAAA
Proposal # : 1R21 AA22367-01A1
Funding Period : 09/2015-08/2017 (NCE)
Direct costs : \$275,000
Role : Co-I

Title: Fetal-ethanol-induced deficits in agranular insular cortex function

Agency: NIH/NIAAA
Proposal #: AA019462
Funding Period: Mar 1, 2011 – February 28, 2016
Total costs: \$1.17M
Role: PI

Title: Fetal Ethanol Effects on Histaminergic Regulation of Neurotransmission

Agency: NIH/NIAAA
Proposal #: 1R01AA19884-01A1
Funding Period : 7/2011-6/2016
PI: D.D. Savage, Ph.D.
Total Costs : \$1.04M
Role: Co-I

Title: Prenatal ethanol exposure and neural representations of space

Agency: NIH/NIAAA
Proposal # ; 1P50AA022534-01
Funding Period : 12/2014 – 05/2015
Total Costs : \$27,500
Role : Pilot project co-PI with B.J. Clark

Title : Effects of chronic exposure to the atypical antipsychotic olanzapine on functional networks in the anesthetized rat brain

Agency : NIH/NCRR
Proposal #: P20RR021938
Total Costs: \$25,000
Funding Period : 4/2011-3/2012
Role : PI on 2011-12 pilot project
This is a pilot project for the Mind Research Network Schizophrenia COBRE (*Neural Mechanism of Schizophrenia*, PI : Bustillo)

Title : Fetal alcohol induced behavioral deficits: Mechanisms, diagnosis and intervention (P20 Center Grant)

Agency: NIH/NIAAA

Proposal #: 1 P2 AA017068-01

PI : Daniel Savage, Ph.D.

Funding Period: July 1, 2008 – June 30, 2013.

Role: Co-investigator on project #4, "Effects of novel cognition enhancing agents on fetal alcohol induced behavioral deficits."

Title : Screening putative therapeutic agents for fetal-alcohol-induced learning deficits

Agency : NIH/NIAAA

Proposal #: 1 R21 AA016619

Funding Period : Mar 31, 2007 – Mar 30, 2010

Direct costs: \$275,000

PI : Daniel Savage, Ph.D.

Role: Co-PI

Title : Prenatal ethanol, social behavior, and prefrontal cortex

Agency : NIH/NIAAA

Proposal #: 1 R21 AA015356-01A2

Funding Period : Mar 31, 2006 – Mar 30, 2009

Direct costs: \$262,500

Total costs: \$381,500

Role: PI

Alberta Heritage Foundation for Medical Research (AHFMR) Postdoctoral Research Grant

Dates: 1/2003-8/2004

Project Title: "Effects of stimulant drugs on experience-dependent synaptic plasticity"

The goal of this research project is to characterize the effects of stimulant-induced changes in dendritic structure and spine density on subsequent experience-dependent structural plasticity.

Role: Postdoctoral-fellow; Tissue-preparation (Golgi-Cox staining) and quantification of dendritic length, branching, and spine density: Behavioral analysis (e.g., learning and motor behavior).

TEACHING

Postdoctoral Advisement:

Clark Bird, Ph.D. Major projects : Glutamatergic signaling in frontal cortex following fetal ethanol exposure; Molecular bases of fetal ethanol exposure-related deficits in memory and synaptic plasticity.

Doctoral Advisement:

Katherine G. Akers, Ph.D. with distinction. Completed June, 2008. Title : "Retrograde Effect of Hippocampal LTP Induction on Spatial Memory: Influence of Memory Strength and State of Memory Activation"

Felicha T. Candelaria-Cook, Ph.D. November 2013. Title : "Functional interactions between the cannabinoid system and memory consolidation in the hippocampus: A synthesis of findings from behavior, morphology, physiology and synaptic signaling in the rat".

James P. Rice. Ph.D., May 2014. Effects of moderate fetal ethanol syndrome on ethanol consumption and reward sensitivity.

Daniel Barto. B.S., M.Ed., M.S., Ph.D. July, 2017. Neural bases of virtual navigation.

Carlos Rodriguez, B.S., M.S. In progress. Prenatal alcohol exposure and brain connectivity.

Christy Magcalas, B.S., M.S. In progress. Prenatal alcohol exposure and neural representations of space.

Breannan Howell, M.A. In progress. Individual differences in memory and cognition.

Masters Advisement:

Travis E. Johnson, M.S. Completed July, 2008. The role of orbital and medial frontal cortex in flexible behavioral adaptations to a change in reward magnitude.

Felicha T. Candelaria-Cook, M.S. Completed with distinction, April 2009. Effects of cannabinoid agonists on learning, consolidation, and reconsolidation of spatial memory.

James P. Rice. M.S., Completed with distinction, May 2010. Effects of striatal or hippocampal lesions on sequential stimulus control by proximal and distal cues in the Morris water task.

Daniel Barto. B.S., M.Ed., M.S. Completed 2014. Major project ; Spatial discrimination learning

Carlos Rodriguez, B.S., M.S. Completed 2015. Major Project : Fetal ethanol exposure and functional network connectivity.

Christy Magcalas, B.S., M.S. Completed 2015. Major Project : Effects of chronic PCP exposure on functional network connectivity.

Undergraduate Advisement:

Honors Students

McDonald Smith. May 2006. Hippocampal processing is necessary for simple approach/avoidance behavior in place-navigation. *Recipient of the Rachael Dowler Outstanding Psychology Honors Thesis Award.*

Ana Arechiga. May 2013.

Tia Donaldson, May 2015. Current position : Doctoral Student, Northern Illinois University Department of Psychology. Laboratory of Dr. Douglas Wallace.

Undergraduate Research Assistants

Veronica Peterson, May 2014. Current position : Graduate Student, University College Cork, Ireland. Laboratory of Dr. John Cryan.

Madi Frost, 2014-2016. Current Position : Research Assistant UNM School of Medicine.

CURRICULUM DEVELOPMENT OR TEACHING ADMINISTRATION

None

Classroom Teaching:

2004; Fall;	Biological Bases of Memory (graduate); Psych 563	6 students
2004; Fall;	Brain and Behavior; Psych 240	89 students
2005; Spring;	Psych Programming Methods; Psych 450/650	13 students
2005; Spring;	Drugs and Behavior (graduate); Psych 547	12 students
2005; Summer;	Brain and Behavior (online); Psych 240	22 students
2005; Fall;	Brain and Behavior; Psych 240	91 students
2005; Fall;	Psychology of Learning and Memory; Psych 260	93 students
2006; Spring;	Brain and Behavior; Psych 240	68 students
2006; Fall;	Psychology of Learning and Memory; Psych 260	106 students
2006; Fall;	Brain and Behavior; Psych 240	56 students
2007; Spring;	Brain and Behavior; Psych 240	83 students
2007; Spring;	Drugs and Behavior (graduate); Psych 547	22 students
2007; Fall;	Principles of Learning, Motivation, and Behavior; Psych 450/650	12 students
2007; Fall;	Drugs and Behavior (undergraduate); Psych 347	50 students
2008; Spring;	Brain and Behavior; Psych 240	107 students
2008; Spring;	Drugs and Behavior (graduate); Psych 547	8 students
2008; Fall;	Brain and Behavior; Psych 240	55 students
2008; Fall;	Drugs and Behavior (undergraduate); Psych 347	115 students
2008; Fall;	Drugs and Behavior (undergraduate); Psych 347	32 students
2009; Summer;	Brain and Behavior (undergraduate); Psych 240	35 students
2009; Fall;	Brain and Behavior (undergraduate); Psych 240	100 students
2009; Fall;	Junior Honors Seminar (undergraduate); Psych 391	16 students
2009; Fall;	Drugs and Behavior (undergraduate); Psych 347	24 students
2010; Spring;	Brain and Behavior (undergraduate); Psych 240	327 students
2010; Spring;	Psychology of Learning and Memory; Psych 260	174 students
2010; Fall;	Brain and Behavior (undergraduate); Psych 240	101 students
2010; Fall;	Psych Programming Methods; Psych 450/650	13 students
2010; Fall;	Brain and Behavior (undergraduate); Psych 240	49 students
2011; Spring;	Drugs and Behavior (undergraduate); Psych 347	131 students
2011; Spring;	Drugs and Behavior (undergraduate); Psych 347 Online	50 students
2011; Spring;	Drugs and Behavior (graduate); Psych 547	10 students
2011; Summer	Drugs and Behavior (undergraduate); Psych 347 Online	59 students
2012; Spring;	Drugs and Behavior (undergraduate); Psych 347 Online	102 students
2012; Spring;	Biological Bases of Behavior; Psych 540	16 students
2012; Fall;	Junior Honors Seminar (undergraduate); Psych 391	14 students
2012; Fall;	Drugs and Behavior (undergraduate); Psych 347 Online	68 students
2013; Spring;	Brain and Behavior (undergraduate); Psych 240	101 students
2013; Fall;	Biological Bases of Behavior; Psych 540	19 students
2013; Fall;	Junior Honors Seminar (undergraduate); Psych 391	17 students
2014; Fall;	Biological Bases of Behavior; Psych 540	20 students
2014; Fall;	Psychology of Learning and Memory; Psych 260	120 students
2015; Spring;	CBB Seminar; Psych 561	12 students
2015; Fall;	Junior Honors Seminar (undergraduate); Psych 391	13 students
2016; Spring;	Principles of Learning; Psych 450/650	28 students
2016; Spring;	Psychology of Learning and Memory; Psych 260	110 students
2016; Fall;	Junior Honors Seminar (undergraduate); Psych 391	15 students
2017; Spring;	Psychology of Learning and Memory; Psych 260	94 students
2017; Fall;	Junior Honors Seminar (undergraduate); Psych 391	13 students

SERVICE

Professional Organizations (* indicates elected position)

*Officer, Fetal Alcohol Spectrum Disorders Study Group (www.fasdsq.org), 2015-2018
Secretary 2015-16, Treasurer 2016-17, Vice-President 2017-18

Reviewing for Journals (ad hoc):

Addiction Biology
Alcohol
Alcohol and Alcoholism
Alcoholism: Clinical and Experimental Research
Animal Cognition
Behavioural Brain Research
Behavioural Processes
Biomed Central: Neuroscience
Brain Research Bulletin
British Journal of Pharmacology
Canadian Journal of Experimental Psychology
Current Psychopharmacology
Developmental Neuroscience
Developmental Psychobiology
Developmental Science
European Journal of Pharmacology
European Journal of Neuroscience
European Neuropsychopharmacology
Experimental Brain Research
Hippocampus
Journal of Comparative Psychology
Journal of Comparative and Physiological Psychology
Journal of Experimental Psychology: Animal Behavior Processes
Journal of Experimental Psychology: Animal Learning and Cognition
Journal of Experimental Psychology: Learning, Memory, and Cognition
Journal of the Experimental Analysis of Behavior
Journal of the International Neuropsychological Society
Journal of Neuroscience
Learning and Motivation
Neurobiology of Aging
Neurobiology of Learning and Memory
NeuroImage
Neuropharmacology
Neuropsychologia
Neuroscience
Neuroscience Journal
Neuroscience Letters
Neurotoxicology
Neurotoxicology Research
PLoS One
Psychological Review
Psychological Science
Psychopharmacology
Physiological Psychology
Physiology and Behavior
Synapse

Reviewing for Funding Organizations:

NIH-NIAAA AA04 Study Section, Member, July 2014 - present.

NIH-F02A Behavioral Neuroscience Review Panel (NRSAs F30,F31,F32 awards)

Mar, 2012 – Mar, 2013

NIH-NIAAA AA04 Study Section, Guest reviewer, November, 2013.

Ad hoc reviewer, National Science Foundation (NSF).

Ad hoc reviewer, National Science and Engineering Research Council (NSERC) of Canada

Ad hoc reviewer: Canadian Institutes of Health Research (CIHR).

Ad hoc reviewer, Canadian Institute for Health Research (CIHR). Canada Research Chairs (CRC) program.

Ad hoc reviewer, Wellcome Trust, UK

Ad hoc reviewer. Hospital for Sick Children. Toronto, CA.

University Service (UNM):

2008-2013. Scientific Member, Institutional Animal Care and Use Committee (IACUC).

2013-present. Chair, Institutional Animal Care and Use Committee (IACUC).

2014-present. Animal Research Advisory Committee (ARAC).

Departmental Service (PSYCHOLOGY AT UNM):

2005-8. UNM Psychology Department Computer Committee.

2006-present. UNM Psychology Department Animal Research Facility Committee.

2008-2010. UNM Psychology Department Human Subjects Committee.

2010-2013: Psychology Department Colloquium committee

2011-2017: *Chair*, Cognition, Brain and Behavior Area

2011-2017: Policy and Planning committee

2014-2015 : Salary committee

2016-present : Director Psychology Honors Program

Other Service at UNM:

2007-2012. Faculty advisor, UNM Neuroscience Club

2011. Review committee, Teaching Excellence Awards, College of Arts and Sciences, UNM

2011. Review committee, Teaching Assistant Awards, College of Arts and Sciences, UNM

2007-present. Faculty Advisor for the Quad-L Foundation (www.unm.edu/~quadl)

Community Service:

Feb 24, 2006 – Science Fair Judge – Cottonwood Montessori School Corrales, NM

April 7, 2006 – Presentation to New Mexico Psychological Association (NMPA). Title: *Stimulant Drugs, Brain Plasticity, and Behavior*.

2005-6. Mentor to Andrew Abernathy, Rio Rancho mid-high school.

Mar 14, 2008 – Science Fair Judge – New Mexico Academy of Sciences. Judge for junior division paper competition.

2017. Advisor to Madeline Sussman (Jefferson Middle School) for Science Fair Project

Fetal Alcohol Spectrum Disorders Awareness Day/Month. 2014-Present. Over the past two years I have helped organize presentations by UNM students on the dangers of alcohol consumption during pregnancy and the behavioral consequences of prenatal alcohol exposure. These efforts will be expanded in the coming years in conjunction with my role as an officer of the Fetal Alcohol Spectrum Disorders Study Group and my involvement with the UNM Neurosciences Alcohol Research Center. In 2015 I also organized a successful effort to disseminate information about FASD Awareness Day activities across the country via the FASD Study Group's facebook page.