

Derek A. Hamilton

VITA

Revised: Feb 11, 2025

Professor of Psychology, The University of New Mexico

Email : dahamilt@unm.edu

Address: MSC03 2220

1 University of New Mexico

Albuquerque, NM 87131

Webpage : www.unm.edu/~dahamilt

Phone : 505-277-2200

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

Current Positions

- 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

2010-2016 Associate Professor

2005-2010 Assistant Professor

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

2018 Acting Chair, Department of Psychology

2019-2020 Assistant Vice President for Research, University of New Mexico Main Campus

2020-Present Chair, Department of Psychology

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 broadly to the University's research mission. At present I am the Assistant Vice President for Research on UNM's Main Campus, where I provide oversight of research centers and bureaus and interface with external corporate research partners. I Chaired the Institutional Animal Care and Use Committee from 2013-2018, which ensures compliance with federal law and regulations for research at UNM involving non-human animal species. I know serve as an *ex officio* member of the IACUC representing the Office of the VP for Research. I served as Chair for the Cognition, Brain, and Behavior (CBB) Area in the Department of Psychology from 2011-2017 and served as Acting Chair of Psychology in 2018. 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 recently completed a term as President 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 = 38, Total Citations 4,770 (Source, ISI web of knowledge; <http://www.researcherid.com/rid/H-4447-2013>)

h = 45, i10 = 79, Total Citations 8,001 (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]

- *97. Gonçalves-Garcia, M., Davies, D., Savage, D. D. & **Hamilton, D. A.** (2024). The histamine H3 receptor inverse agonist SAR-152954 reverses deficits in long-term potentiation associated with moderate prenatal alcohol exposure. *Alcohol*, 118, 45-55.
- *96. Gonçalves-Garcia, M., Barto, D., Reyna, N., Clark, B. J. & **Hamilton, D. A.** (2024). The prominence of action sequences and behavioral similarity in the Morris water task. *Perspectives on Behavior Science*, 47, 449-470
- *95. Dunn, B. R., Olguin, S. L., Davies, S., Pavlik, N. G., Brigman, J. L., **Hamilton, D.**, Savage, D. D., Maxwell, J. R. (2024) Sex-specific alterations in cognitive control following moderate prenatal alcohol exposure and transient systemic hypoxia ischemia in the rat. *Alcohol, Clinical & Experimental Research*. DOI: 10.1111/acer.15276. PMID: 38302722.
- *94. Gonçalves-Garcia, M. & **Hamilton, D. A.** (2024). Unraveling the complex relationship between prenatal ethanol exposure, hippocampal LTP, and learning and memory. *Frontiers in Molecular Neuroscience*, 16. <http://doi.org/10.3389/fnmol.2023.1326089>
- *93. Reyna, N. C., Clark, B. J., **Hamilton, D. A.**, & Pentkowski, N. S. (2023). Anxiety and Alzheimer's disease pathogenesis: focus on 5-HT and CRF systems in 3xTg-AD and TgF344-AD animal models [Review]. *Frontiers in Aging Neuroscience*, 15. <https://doi.org/10.3389/fnagi.2023.1251075>
92. Fink, B. C., Claus, E. D., Cavanagh, J. F., **Hamilton, D. A.**, & Biesen, J. N. (2023). Heart rate variability may index emotion dysregulation in alcohol-related intimate partner violence. *Frontiers in psychiatry*, 14. doi:10.3389/fpsy.2023.1017306
- *91. Howell, B.A., & **Hamilton, D.A.** (2022). Baseline heart rate variability (HRV) and performance during a set-shifting visuospatial learning task: The moderating effect of trait negative affectivity (NA) on behavioral flexibility. *Physiology & Behavior* 243, 113647
90. Silveri, M. M., Sneider, J. T., Cohen-Gilbert, J. E., Oot, E. N., Seraikas, A.M., Schuttenberg, E.M., **Hamilton, D. A.**, Sabolek, H., Harris, S.K., & Nickerson, L.D. (2022). Perceived stress and rejection associated with functional network strength during memory retrieval in adolescents. *Cognitive Neuroscience*, 2, 99-112.
- *89. Rodriguez, C.I., Vergara, V.M., Calhoun, V.D., Savage, D.D., **Hamilton, D.A.**, Tesche, C.D., & Stephen, J.M. (2021). Disruptions in global network segregation and integration in adolescents and young adults with fetal alcohol spectrum disorder. *Alcoholism : Clinical and Experimental Research*, 45, 1775-1789.
- *88. Rodriguez, C.I., Vergara, V.M., Davies, S., Calhoun, V.D., Savage, D.D., & **Hamilton, D.A.** (2021). Detection of prenatal alcohol exposure using machine learning classification of resting-state functional network connectivity data. *Alcohol* 93, 25-34.
- *87. Howell, B.A., & **Hamilton, D.A.** (2021). Trait affective differences influence behavioral flexibility in virtual spatial and non-spatial discrimination tasks. *Personality and Individual Differences*, 270, 110424.
86. Sneider, J. T., Cohen-Gilbert, J. E., **Hamilton, D. A.**, Seraikas, A.M., Oot, E. N., Schuttenberg, E.M., Nickerson, L.D., & Silveri, M. M. (2020). Brain Activation during Memory Retrieval is Associated with Depression Severity in Women. *Psychiatry Research : Neuroimaging*, 307, 111204.
- *85. Harvey, R.E., Berkowitz, L.E., Savage, D.D., **Hamilton, D.A.**, & Clark, B.J. (2020). Altered hippocampal place cell representation and theta rhythmicity following moderate prenatal alcohol exposure. *Current Biology*, 30, 3556-3569.e5

84. Mole, J.P., Fasano, F., Evans, J., Sims, R., **Hamilton, D.A.**, Kidd, E., Metzler-Baddeley, C. (2020) Genetic risk of dementia modifies obesity effects on white matter myelin in cognitively healthy adults, *Neurobiology of Aging*, 94, 298-310.
- *83. Madden, J. T., Thompson, S. M., Magcalas, C. M., Wagner, J. L., **Hamilton, D. A.**, Savage, D. D., . . . Pentkowski, N. S. (2020). Moderate prenatal alcohol exposure reduces parvalbumin expressing GABAergic interneurons in the dorsal hippocampus of adult male and female rat offspring. *Neuroscience Letters*, 718, 134700. [doi:https://doi.org/10.1016/j.neulet.2019.134700](https://doi.org/10.1016/j.neulet.2019.134700)
82. **Hamilton, D.A.**, Mooney, S.M., Petrenko, C.L.M., & Hamre, K.M. (2020). Proceedings of the 2019 Annual Meeting of the Fetal Alcohol Spectrum Disorders Study Group. *Alcohol*, 86, 25-33.
81. Fink, B.C., Howell, B.C., Cavanagh, J.F., **Hamilton, D.A.**, Claus, E.D., & Frost, M.E. (2019) Frontal Alpha Asymmetry in Alcohol-Related Intimate Partner Violence. *Social, Cognitive and Affective Neuroscience*, 11, 1209-1217. <https://doi.org/10.1093/scan/nsz101>
80. **Hamilton, D.A.**, Silasi, G., Magcalas, C.M., Pellis, S.M., & Kolb, B.E. (2020). Social and olfactory experiences modify neuronal morphology of orbital frontal cortex. *Behavioral Neuroscience*, 134, 59-68.
- *79. Harvey, R.E., Berkowitz, L.E., **Hamilton, D.A.**, & Clark, B.J. (2019). The Effects of Developmental Alcohol Exposure on the Neurobiology of Spatial Processing. *Neuroscience & Biobehavioral Reviews*, 107:775-794.
78. Klintsova, A., **Hamilton, D.A.**, Mooney, S., & Petrenko, C. (2019). Proceedings of the 2018 Annual Meeting of the Fetal Alcohol Spectrum Disorders Study Group. *Alcohol*, 81, 47-55.
- *77. Frost, M.E., Peterson, V.L., Bird, C. W., McCool, B.A., & **Hamilton, D. A.** (2019). Effects of Ethanol Exposure and Withdrawal on Neuronal Morphology in the Agranular Insular and Prelimbic Cortices: Relationship to Withdrawal-Related Structural Plasticity in the Nucleus Accumbens. *Brain Sciences*, 9, 180. [doi:https://doi.org/10.3390/brainsci9080180](https://doi.org/10.3390/brainsci9080180)
- *76. Sanchez, L. M., Goss, J., Wagner, J., Davies, S., Savage, D. D., **Hamilton, D. A.**, & Clark, B. J. (2019). Moderate prenatal alcohol exposure impairs performance by adult male rats in an object-place paired-associate task. *Behavioural Brain Research*, 360, 228-234. doi:10.1016/j.bbr.2018.12.014
75. Lewine, J.D., Weber, W., Gigliotti, A., McDonald, J.D., Doyle-Eisele, M., Banger, N., Paulson, K., Magcalas, C., **Hamilton, D.A.**, Garcia, E., Raulli, R., & Laney, J. (2018). Addition of ketamine to standard-of-care countermeasures for acute organophosphate poisoning improves neurobiological outcomes. *Neurotoxicology*, 69, 37-46.
74. Sneider, J. T., Cohen-Gilbert, J. E., **Hamilton, D. A.**, Stein, E. R., Golan, N., Oot, E. N., . . . Silveri, M. M. (2018). Adolescent Hippocampal and Prefrontal Brain Activation During Performance of the Virtual Morris Water Task. *Frontiers in Human Neuroscience*, 12(238). doi:10.3389/fnhum.2018.00238
73. Wozniak, J., Klintsova, A., **Hamilton, D.**, & Mooney, S. (2018). Proceedings of the 2017 Annual Meeting of the Fetal Alcohol Spectrum Disorders Study Group. *Alcohol*, 69, 7-14.
72. Miller, M. G., **Hamilton, D. A.**, Joseph, J. A., & Shukitt-Hale, B. (2018). Dietary blueberry improves cognition among older adults in a randomized, double-blind, placebo-controlled trial. *European Journal of Nutrition*, 57, 1169-1180.
- *71. Donaldson, T. N., Barto, D., Bird, C. W., Magcalas, C. M., Rodriguez, C. I., Fink, B. C., & **Hamilton, D. A.** (2018). Social order: Using the sequential structure of social interaction to discriminate abnormal social behavior in the rat. *Learning and Motivation*, 61, 41-51.
70. 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*, 96, 128-136.

69. 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.

*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). Preweanling 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., & Wishaw, 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., & Wishaw, 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., & Wishaw, 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., & Wishaw, 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

4. Dougher, M.J., & **Hamilton, D.A.** (2018). The contextual science of learning : Integrating behavioral and evolution science within a functional approach. In *Evolution and Contextual Behavioral Science*. Ed. David Sloan Wilson and Steven C. Hayes. Context Press: Oakland, CA.
3. **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.
2. Strupp, M. Schautzer, F., **Hamilton, D.A.**, Brüning, R., Markowitsch, H.J., Kalla, R., Darlington, C., Smith, P., & Brandt, T. (2008) Chronische Bilaterale Vestibulopathie führt zu Störungen des räumlichen Gedächtnisses und einer beidseitigen Atrophie des Hippocampus. In: Scherer H. (eds) *Der Gleichgewichtssinn*. Springer, Vienna.
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

16. Action sequences and slips in spatial navigation. Society for the Quantitative Analysis of Behavior (SQAB). Denver, CO., May 25, 2023.
15. Moderate prenatal alcohol and behavioral flexibility. University of Arkansas Medical School, August 22, 2018.
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.

RESEARCH FUNDING

Active Funding:

Past Funding:

Title : Neuroinflammation : Role in FASD cognitive deficits (PI : P Drew)

Agency : NIAAA

Proposal # : 1R01AA026665-01A1

Funding Period : 9/2018 - 8/2024

1.2 Calendar

Role: Co-I (PI on UNM Subaward)

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

Agency: NIH/NIAAA

Proposal # ; 1P50AA022534-02

Funding Period : 08/2019 – 06/2024

PI : D.D. Savage

Role : Co-Investigator (Component 3)

Title : Alcohol research training in neurosciences

Agency : NIH/NIAAA

Proposal # : 2T32 AA014127

Funding Period : Aug 1, 2018 – July 31,2023

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 and Steering Committee Member

Title: Impact of SAR152954 on prenatal alcohol exposure-induced neurobehavioral deficits.

(PI : DD Savage)

Agency: NCATS

Proposal # : UH2 TR002082

Funding Period : 8/2017 - 7/2020
Role: Co-I

1.2 Calendar

Title: Prenatal Alcohol Exposure and Neural Representations of Space

Agency: NIH/NIAAA
Proposal # : R21 AA02498
Funding Period : 1/2017-1/2020
Total Direct Costs : \$275,000
Role: PI, co-PI Benjamin Clark

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
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).

SERVICE

Professional Organizations (* indicates elected position)

*Officer, Fetal Alcohol Spectrum Disorders Study Group (www.fasdsq.org), 2015-2019

Secretary 2015-16, Treasurer 2016-17, Vice-President 2017-18, President 2018-19.

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).

2013-2018. Chair, Institutional Animal Care and Use Committee (IACUC).

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

2019-2020. Assistant VP for Research Main Campus

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

2018 : Acting Chair

2020-Present : Chair

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)

2020-present. College of Arts and Sciences Curriculum Committee

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.