

CURRICULUM VITAE

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Education

B.A. Psychology *summa cum laude*, University of New Mexico, 1990
M.S. Psychology *with distinction*, University of New Mexico, 1991
Ph.D. Psychology, University of New Mexico, 1994

Professional Positions since Ph.D.

Assistant Professor, Department of Zoology, The University of Oklahoma, 2011-
Lecturer, School of Biological Sciences, The University of Texas at Austin, 2007-2011
Research Scientist, Section of Neurobiology, The University of Texas at Austin, 2006-2011
Research Associate Professor, Dept of Biological Sciences, FIU, 2002-2006
Assistant Professor, Dept of Psychology, Florida International University (FIU), 1994-2002

Research Interests

- Real-time relationships between behavior, ion channels, and excitable cell plasticity
- Development and sexual dimorphism of plasticity in excitable cells
- Development and sexual dimorphism of plasticity in animal communication signals

Honors and Awards

Case-Hooper Professor of Neurobiology, The University of Oklahoma 2011-
Young Investigator Award, 2010, International Society for Neuroethology.
NSF IOS 1052394 (pending) \$693k, Real-time interactions between ion channels and behavior.
NINDS 1R01NS069881 (19th percentile as new investigator / not funded) \$1.25M, Sexual dimorphism of intrinsic plasticity in excitable cells.
NIMH 1K01MH064550 (2003 - 2008) \$594k, Ion channels in regulation of excitable membranes.
NIGMS S06GM08205 (1998 - 2000) \$223k, An animal model of arbitrary stimulus classes and class-based transfer of stimulus functions.
Ford Foundation Predoctoral Fellowship (1991 - 1994). \$53k
University of New Mexico Graduate Student Valedictorian, 1994
Phi Beta Kappa, 1990

Teaching and Academic Supervising (course evaluation data available on request)

Undergraduate Courses Taught (Institution, Semesters)

Neurobiology Laboratory (UT, 10 semesters, <http://www.bio365L.net>)
Introduction to Psychology (FIU, 5 semesters)
Introduction to the Experimental Analysis of Behavior (FIU, 11)
Introduction to Biopsychology (FIU, 5)
Advanced Behavior Analysis Lecture/Lab (FIU, 1)

Graduate Courses Taught

Biological Bases of Behavior (FIU, 2 semesters)
Single-case Research Methods (FIU, 2)
Theories of Learning (FIU, 1)
History and Systems of Psychology (FIU, 1)
Proseminar in Experimental Analysis of Behavior (FIU, 2)
Neural Systems and Behavior, Marine Biological Laboratory, 2004

Supervision of Theses and Dissertations

Finlay, C. (MS, 1999). Pavlovian blocking by stimulus class-based transfer of respondent elicitation.

Sotolongo, A. (MS, 2000). Applying the response disequilibrium hypothesis to anxiety disorders in children.

Publications – Neurobiology

Markham, M.R., McAnelly, M.L., Stoddard, P.K., Zakon, H.H. (2009). Circadian and social cues regulate ion channel trafficking. ***PLoS Biology***, 7, e1000203.

Allee S.J., **Markham M.R.**, Stoddard P.K. (2009) Androgens enhance plasticity of an electric communication signal in female knifefish, *Brachyhypopomus pinnicaudatus*. ***Hormones and Behavior***, 56, 264-273.

Markham, M.R., Allee, S.J., Goldina, A., Stoddard, P.K. (2009). Melanocortins regulate the electric waveforms of gymnotiform electric fish. ***Hormones and Behavior***, 55, 306-313.

Stoddard, P.K. & **Markham, M.R.** (2008) Signal cloaking by electric fish. ***Bioscience***, 58, 415-424.

Allee S.J., **Markham M.R.**, Salazar V.L., Stoddard P.K. (2008) Opposing actions of 5HT1A and 5HT2-like serotonin receptors on modulations of the electric signal waveform in the electric fish *Brachyhypopomus pinnicaudatus*. ***Hormones and Behavior***, 53, 481-488.

Stoddard P.K., **Markham M.R.**, Salazar V.L., Allee S. (2007) Circadian rhythms in electric waveform structure and rate in the electric fish *Brachyhypopomus pinnicaudatus*. ***Physiology and Behavior***, 90, 11-20.

Stoddard P. K., Zakon H., **Markham M. R.**, & McAnelly M. L. (2006). Regulation and modulation of electric waveforms in gymnotiform electric fish. ***Journal of Comparative Physiology A***, 192, 613-624.

Markham M. R. & Stoddard P. K. (2005). Adrenocorticotropic hormone enhances the masculinity of an electric communication signal by modulating the waveform and timing of action potentials within individual cells. ***Journal of Neuroscience***, 25, 8746-8754.

Stoddard, P. K., **Markham, M. R.**, & Salazar, V. L. (2003). Serotonin modulates the electric waveform of the gymnotiform electric fish, *Brachyhypopomus pinnicaudatus*. ***Journal of Experimental Biology***, 206, 1353-1362

Publications - Basic and Applied Psychology

Markham MR, Dougher MJ, Augustson E (2002). Transfer of operant discrimination and respondent elicitation via emergent relations of compound stimuli. ***The Psychological Record***, 52, 325-350.

Markham RG, & **Markham MR** (2002). On the role of covarying functions in stimulus class formation and transfer of function. ***Journal of the Experimental Analysis of Behavior***, 78, 509-524.

- Lumpkin PW, Silverman, WK, Weems CF, **Markham MR**, Kurtines WM (2002). Treating a heterogeneous set of anxiety disorders in youths with group cognitive behavioral therapy: A partially nonconcurrent multiple-baseline evaluation. *Behavior Therapy*, 33, 163-177.
- Augustson EM, Dougher MJ, **Markham MR** (2000). Emergence of conditional stimulus relations and transfer of respondent eliciting functions among compound stimuli. *The Psychological Record*, 50, 745-770.
- Markham MR**, Gallogly RH (1998). Does language make humans more than clever apes? *Journal of Applied Behavior Analysis*, 30, 185-186.
- Markham MR**, Butt AE, Dougher MJ (1996). A touch-screen apparatus for training visual discriminations in hooded rats. *Journal of the Experimental Analysis of Behavior*, 65, 173-182.
- Markham MR**, Branscum E, Finlay C, Roark R (1996). Experimental analysis of respondent conditioning in humans. *Experimental Analysis of Human Behavior Bulletin*, 14.
- Dougher MJ, **Markham MR** (1996). Stimulus classes and the untrained acquisition of function. T. R. Zentall and P. M. Smeets (Eds.) *Advances in Psychology Series: The Formation of Stimulus Classes*. North Holland: Elsevier Science Publishers.
- Markham MR** (1995). Truth, philosophy and behavioral science: A reply to Hocutt. *Behavior and Philosophy*, 23, 73-78.
- Greenway DE, Dougher MJ, **Markham MR** (1995). S+/S- reversal procedures may not result in functional equivalence. *Experimental Analysis of Human Behavior Bulletin*, 13, 16-17.
- Dougher MJ, Augustson EM, **Markham MR**, Greenway DE, Wulfert E (1994). The transfer of respondent eliciting and extinction functions through stimulus equivalence classes. *Journal of the Experimental Analysis of Behavior*, 62, 331-351.
- Augustson EM, **Markham MR**, Dougher MJ (1994). A methodological note regarding human classical conditioning. *Experimental Analysis of Human Behavior Bulletin*, 12, 6-17.
- Dougher MJ, **Markham MR** (1994). Stimulus equivalence, functional equivalence, and the transfer of function. In S. C. Hayes, M. Sato, L. Hayes, & K. Ono (Eds.), *Language and Cognitive Events: A Behavior Analytic Perspective*. Reno, NV: Context Press.
- Markham MR**, Dougher MJ (1993). Compound stimuli in emergent stimulus relations: Extending the scope of stimulus equivalence. *Journal of the Experimental Analysis of Behavior*, 60, 529-542.
- Markham MR** (1993). An interface for controlling external devices via the IBM PC/XT/AT parallel port. *Behavior Research Methods, Instruments, & Computers*, 25, 477-478.
- Markham MR**, Dougher MJ, Wulfert E (1993). Social contingencies and the effects of punishment in alcoholics and nonalcoholics. *Behavior Therapy*, 24, 277-284.
- Markham MR**, Miller WR, Arciniega L (1993) BACCuS 2.01: Computer software for quantifying alcohol consumption. *Behavior Research Methods, Instruments, & Computers*, 25, 420-421.

Undergraduate Textbook

Purdy JE, **Markham MR**, Schwartz BL, Gordon WC (2001). *Learning and memory (2e)*. Pacific Grove, CA: Brooks/Cole. (now Cengage Learning)

Published Abstracts - Neurobiology

Markham, M.R., McAnelly, M.L., Stoddard, P.K., Zakon, H.H. (2009). Circadian and social cues regulate ion channel trafficking. *Society for Neuroscience Abstracts*, Program No. 456.5

Goldina A, **Markham MR**, Stoddard PK (2006) Evolution of circadian and melanocortin-induced plasticity in the communication signals of Gymnotiform electric fish. *Society for Neuroscience Abstracts Program No. 579.8.*

McAnelly ML, **Markham MR** (2005) ACTH modulates electrocommunication via effects on the electrocyte sodium current. *Society for Neuroscience Abstracts*, Program No. 205.1

Markham MR, Haskell-Luevano C, Stoddard PK (2004) A melanocortin receptor modulates electrocyte action potentials via a cAMP/PKA pathway. *Society for Neuroscience Abstracts*, Program No. 334.7

Markham MR, Stoddard PK (2003) A melanocortin receptor modulates the amplitude and repolarization time of electrocyte action potentials in male electric fish, *Brachyhypopomus pinnicaudatus*. *Society for Neuroscience Abstracts*, Program No. 828.16

Salazar VL, **Markham MR**, Stoddard PK (2002) Serotonin rapidly enhances sexually dimorphic characters of the electric waveform of the gymnotiform electric fish *Brachyhypopomus pinnicaudatus*. *Society for Neuroscience Abstracts*, Program No. 87.8

Recent Invited and Contributed Presentations

Markham MR (2011, May). Ionic mechanisms of microsecond-scale spike timing in gymnotiform electrocytes. Annual electrosensory meeting, Montreal, QC, Canada.

Markham MR (2011, April). Circadian and social cues regulate ion channel trafficking in electric fish. Bernstein Center for Computational Neuroscience, Munich, Germany.

Markham MR (2010, August). Circadian and social cues regulate ion channel trafficking. Invited presentation to the International Congress of Neuroethology, Salamanca, Spain.

Markham MR (2010 March). Fish control the costs of their electric serenades by regulating ion channel trafficking. Department of Psychology, Hunter College / City University of New York.

Markham MR (2009, November). Social and circadian cues regulate ion channel trafficking in an electric fish. Department of Biology, Sam Houston State University.

Markham MR, McAnelly ML, Stoddard PK, Zakon HH (2008; November). Peptide hormones enhance an electric communication signal via a cAMP/PKA pathway that regulates ion channel trafficking. Paper presented at the annual meeting of the J.B. Johnston Club, Washington, DC.

Stoddard PK, **Markham MR** (2006, June) Evolution from obsolete parts: signal plasticity in electric communication. Symposium on the evolution of sensory and signaling systems, Animal Behavior Society, Snowbird Resort, Salt Lake City.

Past presentations: Author or co-author of 87 presentations at national and regional conferences in neurobiology and psychology. Full list available on request.

Service to the Profession and Institution

Membership in Professional Associations

Society for Neuroscience, 2001-present
International Society for Neuroethology 2003-present
J. B. Johnston Club, 2001-present
Association for Behavior Analysis, 1987-2002
American Psychological Association, 1996 – 2001

Professional Service

Editorial boards

The Behavior Analyst, 1998-2001

Experimental Analysis of Human Behavior Bulletin, 1995-1998

Grant reviewer, National Science Foundation 2005, 2006, 2008

National Organization Service: Association for Behavior Analysis Convention Program Committee, 1997-2001

Manuscript reviewer

*Brain Behavior and Evolution
Neuroscience*

*Journal of the Experimental Analysis of Behavior
Journal of Behavior Therapy and Exptl Psychiatry
The Psychological Record*

*Hormones and Behavior
Brain Research*

*Journal of Applied Behavior Analysis
The Behavior Analyst*

University Service

Chairperson, Institutional Animal Care and Use Committee, FIU, 1995 -1999

Member, Institutional Animal Care and Use Committee, FIU, 1999 -2001

University Research Council, FIU, 1995-1997

College of Arts & Sciences, Curriculum Committee, FIU, 1994 -1996

Member, Psychology Human Subjects Review Committee, FIU, 1995-1998

Minority Access to Research Careers fellowship selection committee, FIU, 2001-2006

Professional References

Harold H. Zakon, Ph.D.

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Philip K. Stoddard, Ph.D.

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