

Lisa A. Mangiamele

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Education

University of North Carolina, Chapel Hill, NC. Doctor of Philosophy student, 2003 – present.
Advisor: Dr. Sabrina Burmeister (2005 – present)
Advisor: Dr. Kenneth Lohmann (2003 – 2005)

Colgate University, Hamilton, NY. Bachelor of Arts, 2001.
Major Concentration: Neuroscience. GPA 3.25

Sea Education Association, Woods Hole, MA. SEA Semester, Fall 1999.
Studied Oceanography, Nautical Science, and Maritime Studies. GPA 3.33

Research Interests

Sensory neurobiology, specifically, the neural mechanisms mediating female preferences for complex mating signals.

Neural basis of behavior, sensory-motor integration in animal communication.

Research Experience

Visiting Student, Smithsonian Tropical Research Institute, Gamboa, Panama
Sponsored by Dr. M.J. Ryan and Dr. S.S. Burmeister. October-November 2007
Conducted field research to test the hypothesis that the auditory system of female túngara frogs has a greater response to more complex calls – a key prediction of the sensory exploitation theory of sexual selection.

Graduate Research Assistant, University of North Carolina, Chapel Hill, NC
Under Dr. S.S. Burmeister. 2006 – present
Used molecular cloning techniques and PCR to clone the immediate-early gene, *Arc*, in the frogs *Xenopus tropicalis* and *Pysalaemus pustulosus*. Summer 2007.

Conducted field research in Puerto Jimenez, Costa Rica in collaboration with the Organization for Tropical Studies. Collected female túngara frogs and recorded male vocalizations at breeding ponds. November 2006.

Graduate Research Assistant, University of North Carolina, Chapel Hill, NC
Under Dr. K.J. Lohmann. May-August 2004, 2005
Assisted in field research in Melbourne Beach, FL investigating the magnetic sense of sea turtles. Built magnetic coil systems and assisted in development of software to control current output to magnetic coils. Conducted nest survey and collected hatchlings. Netted juvenile sea turtles and cared for captive animals. Collected and analyzed circular data on geomagnetic orientation behavior of sea turtles.

Research Technician, Boston University School of Medicine,

Center for Behavioral Development, Department of Psychiatry, Boston, MA.

Under Dr. J.I. Luebke, September 2001 – June 2003.

Utilized IR-DIC microscopy to locate, record from, and label neurons in the hippocampus and cerebral cortex of young versus aged rat and Rhesus monkey.

Analyzed morphology of labeled neurons using Neurolucida software. Responsible for histology and analysis of electrophysiological data.

Research Assistant, Marine Biological Laboratory, Woods Hole, MA.

Under Dr. P.L. Edds-Walton and Dr. R.R. Fay, Summer 2001.

Assisted in the characterization of auditory neurons located in the midbrain of the oyster toadfish (*Opsanus tau*). Chiefly responsible for cryosectioning and histology.

Conducted field work to collect recordings of toadfish boatwhistles.

Guest Student, Woods Hole Oceanographic Institution, Woods Hole, MA.

Under Dr. W. A. Watkins and Ms. MaryAnn Daher, Summer 2001.

Utilized Avisoft Sound Analysis software to identify and characterize the biologically relevant temporal and frequency components of the oyster toadfish boatwhistle.

NSF Research Experience for Undergraduates: Marine Models in Biological Research. Marine Biological Laboratory, Woods Hole, MA.

Under Dr. L.C. Rome and Dr. P.L. Edds-Walton, Summer 2000.

Conducted field work to record the boatwhistle mating call of the oyster toadfish.

Analyzed the temporal aspects of the boatwhistle as they related to swimbladder muscle function.

Senior research thesis, Colgate University, Hamilton, NY.

Under Dr. A.J. Tierney, Fall 2000-Spring 2001.

Investigated the effects of serotonin and serotonin receptor agonists on aggressive behavior in crayfish.

Independent research project, SSV Westward, Sea Education Association, Fall 1999.

Investigated the effects of iron depletion on phytoplankton productivity and nutrient uptake in the North Atlantic.

Teaching Experience

Guest Lectures:

“**Action Potentials**” In Behavioral Neuroscience, Dr. Sabrina Burmeister, University of North Carolina, Chapel Hill, NC. Spring 2007.

“**The Genomic Action Potential**” In Behavioral Neuroscience, Dr. Sabrina Burmeister, University of North Carolina, Chapel Hill, NC. Spring 2007.

“**Motor Systems, Part I & II**” In Behavioral Neuroscience, Dr. Sabrina Burmeister, University of North Carolina, Chapel Hill, NC. Spring 2007.

“**Reading and Writing About Science**” In Behavioral Neuroscience, Dr. Sabrina Burmeister, University of North Carolina, Chapel Hill, NC. Spring 2007.

“Introduction to the nervous system and sensory perception” In Introductory Biology (for majors), Dr. Rebecca M. Price, Elizabeth City State University, Elizabeth City, NC. Spring 2006.

Assistantships:

The Writing Center

University of North Carolina at Chapel Hill. Fall 2008 – Spring 2009.
Received training in the teaching of writing. Tutored undergraduates in one-on-one sessions. Evaluated student writing and counseled on how to improve writing skills.

Behavioral Neuroscience. Dr. Sabrina Burmeister

Department of Biology, University of North Carolina at Chapel Hill. Spring 2006,2007.
Written primary literature report grading, exam grading. Guest lecturing on selected topics (see above).

Animal Behavior. Dr. Catherine M.F. Lohmann,

Department of Biology, University of North Carolina at Chapel Hill. Fall 2003, Spring 2004, Fall 2004, Fall 2005, Spring 2006, Summer 2008.
Two three-hour labs/week, short lecture, quiz writing and grading, written lab report grading. Course’s focus was to improve students’ scientific writing skills and their understanding of the scientific process.

Human Anatomy and Physiology. Dr. Kenneth Bynum, Dr. Corey Johnson.

Department of Biology, University of North Carolina at Chapel Hill. Spring 2005,2008.
Two three-hour labs/week, short lecture, exam and lab report grading. Assisted students with laboratory exercises. Course’s focus was to improve students’ knowledge of anatomy & physiology with hands-on exercises.

Students Mentored:

Claire Thomson (B.S., Univ. of North Carolina at Chapel Hill) Summer 2008.
Jamie Wagner (B.A., Oberlin College) Summer 2007
Allison Boothe (B.S., Univ. of North Carolina at Chapel Hill) 2006
Tyler Martin (B.S., Univ. of North Carolina at Chapel Hill) 2006
Kyla Davidoff (B.A., Univ. of North Carolina at Chapel Hill) 2004, 2005

Publications

Mangiamele, L.A. and Burmeister, S.S. (in press) Acoustically-evoked immediate-early gene expression in the pallium of the túngara frog. *Brain, Behavior, and Evolution*.

Burmeister, S.S., **Mangiamele, L.A.**, and Lebonville, C.L. 2008. Acoustic modulation of immediate-early gene expression in the auditory midbrain of female túngara frogs. *Brain Research* 1190: 105-114.

Chang, Y.M., Rosene, D.L., Killiany, R.J., **Mangiamele, L.A.**, and Luebke, J.I. 2005. Increased action potential firing rates of layer 2/3 pyramidal cells in the prefrontal cortex are significantly related to cognitive performance in aged monkeys. *Cerebral Cortex* 15(4):409-418.

Edds-Walton, P.L., **Mangiamele, L.A.**, and Rome, L.C. 2002. Boatwhistles from oyster toadfish (*Opsanus tau*) around Waquoit Bay, Massachusetts. *Bioacoustics* 13:153-173.

Tierney, A.J. and **Mangiamele, L.A.** 2001. Effects of serotonin and serotonin analogs on posture and agonistic behavior in crayfish. *Journal of Comparative Physiology A* 187(10): 757-67.

Scientific Presentations

Oral Presentations

Mangiamele, L.A. and Burmeister, S.S. 2007. Acoustically-evoked immediate-early gene expression in the pallium of the túngara frog is spatially distributed. Frog Hearing and Acoustic Communication. Satellite Meeting to the 8th International Congress of Neuroethology, Vancouver, Canada.

Mangiamele, L.A. and Burmeister, S.S. 2007. Acoustically-evoked immediate-early gene expression in the pallium of the túngara frog. Society for Integrative and Comparative Biology Annual Meeting, Phoenix, AZ.

Abstracts and Poster Presentations

Mangiamele, L.A. and Burmeister, S.S. 2006. Temporal and spatial patterns of immediate-early gene expression in the auditory midbrain of female tungara frogs. Society for Neuroscience Abstracts. SfN Annual Meeting, Atlanta, GA.

Fuxjager, M.J., **Mangiamele, L.A.**, Davidoff, K.R.B, and Lohmann, K.J. 2006. Effects of the magnetic environment of sea turtle nests on magnetic orientation behavior in hatchlings. Society for Integrative and Comparative Biology Annual Meeting, Phoenix, AZ.

Mangiamele, L.A. and Lohmann, K.J. 2005. Do hatchling loggerheads use wave sounds as an orientation cue during sea-finding behavior? 25th Annual International Symposium on Sea Turtle Biology and Conservation, Savannah, GA.

Chang, Y.M., Rosene, D.L., Killiany, R.J., **Mangiamele, L.A.**, and Luebke, J.I. 2004. Increased action potential firing rates of layer 2/3 pyramidal cells in the prefrontal cortex are significantly related to cognitive performance in aged monkeys. SfN Annual Meeting, San Diego, CA.

Rosene, D.L., Luebke, J.I., **Mangiamele, L.A.**, Sandell, J.H., and Peters, A. 2003. Anatomical and physiological properties of the corpus callosum in the aged rhesus monkey. Society for Neuroscience Abstracts. SfN Annual Meeting, New Orleans, LA.

Chang, Y.M., **Mangiamele, L.A.**, Rosene, D.L., and Luebke, J.I. 2002. Effects of aging on the electrophysiological properties of layer 2/3 pyramidal cells in the prefrontal cortex of Rhesus monkeys. Society for Neuroscience Abstracts. SfN Annual Meeting, Orlando, FL.

Tierney, A.J., **Mangiamele, L.A.**, Blanck, J.K., Moll, S.F. and Thyssen, J.A. 2000. Effects of serotonin receptor agonists on posture and aggressive behavior in crayfish. Society for Neuroscience Abstracts. Society for Neuroscience Annual Meeting, New Orleans, LA.

Honors

Dean's Award for Academic Excellence, Colgate University, Fall 1998, Spring 2001.

Dean's Award for Community Service, Colgate University, Spring 2000.

Beta Beta Beta Biological Honor Society, Upsilon Phi Chapter, Colgate University, Spring, 2001.

Awards

Graduate Student Mentor Award, Office for Undergraduate Research, University of North Carolina. Summer 2008. **\$1,000**

H.V. Wilson Award, Department of Biology, University of North Carolina. 2004, 2005, 2006. **\$250- \$400**

PADI Foundation Research Grant, 2005. **\$2,500** "Variation in migratory behavior and orientation mechanisms in three populations of loggerhead turtle hatchlings (*Caretta caretta*)."

Professional Organizations

J.B. Johnston Club, student member, 2005 - present.

Animal Behavior Society, student member, 2006

Society for Neuroscience, student member, 2006 – present.

Society for Integrative and Comparative Biology, 2006, 2007.

Service

"DNA Day" Science Outreach Project Volunteer

UNC-CH and National Human Genome Research Institute. April, 2007

Biology Graduate Student Association Secretary Spring 2007-Fall 2007

Biology Dept Center for Teaching and Learning Liason Spring 2006-Fall 2006

Graduate Student Coordinator: Biology 251 Graduate Seminar.

Department of Biology, University of North Carolina. Fall 2004.

Skills

Instrumentation Experience: hydrophone (KSP HS 107-220) and tape recorder system (NagraIV SJ), Cryostat microtomy, Infrared Differential Interference Contrast (IR-DIC) microscopy, extracellular patch clamp recording, fluorescent dye labeling and 3-D reconstruction of CNS neurons, immunocytochemistry, radioactive *in situ* hybridization, PCR, molecular cloning & primer design, gel electrophoresis.

Computer skills: SAS and SPSS Statistical software, Signal, Raven, and Avisoft SASLab Sound Analysis Software, Spike (for Macintosh), Pulse/PulseFit Acquisition Software (HEKA Elektronik), Neurolucida, Microsoft Windows, Word, Excel, Powerpoint, Apple MacOS.

Sail handling and Navigation skills, including celestial navigation and radar plotting.

Outdoor Photography.