

# Sabrina Susanne Burmeister

*Assistant Professor of Biology and Neurobiology*

23 June 2009

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## Education

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2001	University of Texas, Neuroscience	Ph.D.
1994	New College of Florida, Biology	B.A.

## Professional Experience

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2006 – date	Assistant Professor of Biology, University of North Carolina
2008 – date	Assistant Professor, Curriculum in Neurobiology, University of North Carolina
2005	Research Assistant Professor of Biology, University of North Carolina
2001-2005	Postdoctoral Fellow, Stanford University

## Honors

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2002	Outstanding Doctoral Dissertation Award (Honorable Mention), University of Texas Graduate school
2000	Grants-in-Aid of research, Society for Integrative and Comparative Biology
2000	Student Poster Award (Honorable Mention), Society for Integrative and Comparative Biology
2000	Travel Award, Society for Behavioral Neuroendocrinology
2000	Professional Development Award, University of Texas Graduate School
1999	Professional Development Award, University of Texas Graduate School
1997 – 1999	Predocotrual NRSA Institutional Training Grant
1999	University Co-Operative Society Fellowship, University of Texas Graduate School
1998	Best Student Paper, Society for Integrative and Comparative Biology
1998	A. M. Wenner Strong Inference Award, Society for Integrative and Comparative Biology
1997	Professional Development Award, University of Texas Graduate School
1994	Grant-in-Aid of Research, Sigma Xi

## Bibliography

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### **Refereed Articles, Published**

- Burmeister, S.S., R.G. Munshi & R.D. Fernald. in press. Cytoarchitecture of a cichlid fish telencephalon. *Brain, Behavior and Evolution*.
- Chakraborty, M. & S.S. Burmeister. 2009. Estradiol induces sexual behavior in female túngara frogs. *Hormones and Behavior* 55:106-112.
- Mangiamele, L.A. & S.S. Burmeister. 2008. Acoustically evoked immediate early gene expression in the pallium of female túngara frogs. *Brain, Behavior and Evolution* 72(3):239-250.
- Burmeister, S.S., L.A. Mangiamele, & C.L. Lebonville. 2008. Acoustic modulation of immediate early gene expression in the auditory midbrain of female túngara frogs. *Brain Research*, 1190:105-114.
- Burmeister, S.S. 2007. Genomic responses to behavioral interactions in an African cichlid fish: mechanisms and evolutionary implications. *Brain, Behavior and Evolution* 70:247-256.
- Harbott, L.K., S.S. Burmeister, R.B. White, M. Vagell, & R.D. Fernald. 2007. Androgen receptors in the cichlid fish *Astatotilapia burtoni* : Structure, localization and expression levels. *Journal of Comparative Neurology* 504:57-73.
- Burmeister, S.S., V. Kailasanath, & R.D. Fernald. 2007. Social dominance regulates expression of androgen and estrogen receptor genes. *Hormones and Behavior* 51:164-170.
- Burmeister, S.S., E.D. Jarvis, & R.D. Fernald. 2005. Rapid behavioral and genomic responses to social opportunity. *Public Library of Science Biology* 3(11):1996-2004.
- Burmeister, S.S., & R.D. Fernald. 2005. Evolutionary conservation of the egr-1 immediate-early gene response in a teleost. *Journal of Comparative Neurology* 481(2):220-232.
- Burmeister, S.S. & W. Wilczynski. 2005. Social signals regulate gonadotropin-releasing hormone neurons in the green treefrog. *Brain, Behavior and Evolution* 65:26-32
- Hoke, K.L, S.S. Burmeister, R.D. Fernald, S. Rand, M.J. Ryan, & W. Wilczynski. 2004. Functional mapping of the auditory midbrain during mate call reception. *Journal of Neuroscience* 24(50):11264-11272.
- Kime, N.M., S.S. Burmeister, & M.J. Ryan. 2004. Female preferences for socially variable call characters in the cricket frog (*Acris crepitans*). *Animal Behaviour* 68:1391-1399.
- Burmeister, S.S., A. Ophir, M. J. Ryan & W. Wilczynski. 2002. Information transfer during cricket frog contests. *Animal Behaviour* 64:715-725.
- Burmeister, S., & W. Wilczynski. 2001. Social context influences androgenic effects on calling in the green treefrog (*Hyla cinerea*). *Hormones and Behavior* 40:550-558.
- Burmeister, S., C. Somes, & W. Wilczynski. 2001. Behavioral and hormonal effects of exogenous arginine vasotocin and corticosterone in the green treefrog. *General and Comparative Endocrinology* 122:189-197.
- Burmeister, S. & W. Wilczynski. 2000. Social signals influence hormones independently of calling behavior in the treefrog (*Hyla cinerea*). *Hormones and Behavior* 38(4): 201-209.

- Burmeister, S., J. Konieczka, & W. Wilczynski. 1999. Agonistic encounters in a cricket frog (*Acris crepitans*) chorus: behavioral outcomes vary with local competition and within the breeding season. *Ethology* 105:335-347.
- Burmeister, S., W. Wilczynski, and M.J. Ryan. 1999. Temporal call changes and prior experience affect graded signalling in the cricket frog. *Animal Behaviour* 57:611-618.
- Burmeister, S., P.A. Couvillon, and M.E. Bitterman. 1995. Performance of honeybees (*Apis mellifera*) in analogues of the rodent radial maze. *Animal Learning & Behavior* 23(4): 369-375.

### **Un-refereed Publications**

- Burmeister, S.S. in press. Modern methods in neuroethology. In Encyclopedia of Animal Behavior (M. Breed and J. Moore, eds). Elsevier.
- Burmeister, S.S. 2005. Sex differences in the brain: plasticity and constraints. Focus on: Androgen-induced vocal transformation in adult female African clawed frogs. *Journal of Neurophysiology* 94:33-34.
- Burmeister, S.S. 2001. Behavioral Neuroendocrinology of the Green Treefrog (*Hyla cinerea*). Doctoral Dissertation. University of Texas at Austin.

### **Oral Presentations and Abstracts**

- Mangiamele, L.S. & S.S. Burmeister 2009. Neural coding of conspecific signals in female túngara frogs (*Physalaemus pustulosus*). (lecture) J.B. Johnston Club.
- Chakraborty, M. & S.S. Burmeister 2009. Sexually dimorphic androgen and estrogen receptor mRNA expression in the brain of túngara frogs. (poster) Society for Neuroscience.
- Mangiamele, L.S. & S.S. Burmeister 2009. Neural correlates of species recognition in female túngara frogs (*Physalaemus pustulosus*). (lecture) Canadian Society of Zoologists.
- Mangiamele, L.S. & S.S. Burmeister. 2008. Activity-regulated cytoskeletal-associated protein (Arc) mRNA in the brain of túngara frogs. (poster) Society for Neuroscience.
- Chakraborty, M. & S.S. Burmeister. 2008. A neural preference for conspecific calls in the female túngara frog. (poster) Society for Neuroscience.
- Burmeister, S.S., C.L. Lebonville, & R.D. Fernald. 2008. Rapid modification of preoptic area *egr-1* and vasotocin mRNA by social opportunity. (lecture) Society for Integrative and Comparative Biology.
- Chakraborty, M. & S.S. Burmeister. 2008. Effects of estradiol on sexual motivation and preferences towards conspecific calls in female túngara frogs. (lecture) Society for Integrative and Comparative Biology.
- Burmeister, S.S. & M. Chakraborty. 2007. Hormonal modulation of phonotaxis in the túngara frog. (lecture) Frog Hearing & Acoustic Communication Satellite Meeting, International Congress of Neuroethology.
- Mangiamele, L.A. & S.S. Burmeister. 2007. Acoustically-evoked immediate-early gene expression in the medial and lateral pallium of the túngara frog. (lecture) Frog Hearing & Acoustic Communication Satellite Meeting, International Congress of Neuroethology.
- Chakraborty, M. & S.S. Burmeister. 2007. Estradiol induces female receptivity to conspecific calls in the túngara frog. (lecture) Society for Integrative and Comparative Biology.
- Mangiamele, L.A. & S.S. Burmeister. 2007. Acoustically-evoked immediate-early gene expression in the pallium of the túngara frog. (lecture) Society for Integrative and Comparative Biology.

- Chakraborty, M. & S.S. Burmeister. 2006. Distribution of androgen and estrogen receptor gene expression in the brain of the female túngara frog. (poster) Society for Neuroscience.
- Mangiamele, L.A. & S.S. Burmeister. 2006. Temporal and spatial patterns of immediate-early gene expression in the auditory midbrain of female túngara frogs. (poster) Society for Neuroscience.
- Burmeister, S.S., V. Kailasanath, & R.D. Fernald. 2005. Social regulation of sex steroid receptor expression in a cichlid fish. (poster) Society for Neuroscience.
- Burmeister, S.S., E.D. Jarvis, & R.D. Fernald. 2004. Induction of *egr-1* in the preoptic area during phenotypic change. (poster) Society for Neuroscience.
- Kailasanath, V., S.S. Burmeister, K.L. Hoke, and R.D. Fernald. 2004. Characterization of three estrogen receptors in a cichlid fish. (poster) Society for Neuroscience.
- Burmeister, S.S., E.D. Jarvis, & R.D. Fernald. 2004. Rapid response of the preoptic area to social opportunity. (lecture) Society for Integrative and Comparative Biology.
- Kailasanath V., S.S. Burmeister, K.L. Hoke, & R.D. Fernald. 2004. Characterization of multiple estrogen receptors in a cichlid fish. (poster) Society for Integrative and Comparative Biology.
- Hoke, K.L., S.S. Burmeister, K. Lynch, R.D. Fernald, S. Rand, W. Wilczynski, & M.J. Ryan, 2003. Functional mapping of the auditory midbrain in the túngara frog, *Physalaemus pustulosus*, using immediate early gene expression. (poster) Society for Neuroscience.
- Burmeister, S.S., R.G. Munshi, & R.D. Fernald, 2003. Afferents to the preoptic area in a cichlid fish with socially controlled reproductive phenotypes. (lecture) Society for Integrative and Comparative Biology.
- Burmeister, S. & R.D. Fernald, 2002. Immediate-early gene expression in the brain of a cichlid fish, *Haplochromis burtoni*. (poster) Society for Neuroscience.
- Burmeister, S., 2002. Social context influences androgenic effects on calling in the treefrog. (lecture) American Society for Zoologists.
- Burmeister, S., 2001. Interactions between the communication and endocrine systems of the green treefrog. (lecture) J.B. Johnston Club.
- Burmeister, S. & W. Wilczynski. 2001. Effects of social signals on plasma androgens and forebrain GnRH immunoreactivity in the green treefrog. (poster) Society for Neuroscience.
- Burmeister, S., W. Wilczynski, & F. Gonzalez-Lima. 2000. Influence of social signals on metabolic capacity of the auditory system in a treefrog. (poster) Society for Neuroscience.
- Burmeister, S., & W. Wilczynski. 2000. Influence of social signals on androgens, corticosterone, and calling behavior in the green treefrog. (poster) Society for Behavioral Neuroendocrinology.
- Wilczynski, W., S. Burmeister, & C. Somes. 2000. Behavioral and hormonal effects of exogenous arginine vasotocin and corticosterone in the green treefrog. (poster) Society for Behavioral Neuroendocrinology.
- Burmeister, S. and W. Wilczynski. 2000. Social signals influence androgens independently of calling behavior in the treefrog. (poster) American Society for Zoologists.
- Burmeister, S. & W. Wilczynski, 1999. Gonadal effects on metabolic capacity of the forebrain and auditory system of an anuran amphibian. (poster) Society for Behavioral Neuroendocrinology.
- Burmeister, S., A. Ophir, & W. Wilczynski, 1998. The functional significance of graded aggressive signals in cricket frogs. (lecture) American Society for Zoologists.
- Chu, J., S. Burmeister, & W. Wilczynski, 1998. The effect of social signal on androgen levels in male frogs. American Society for Zoologists.

- Burmeister, S., & W. Wilczynski, 1997. Identification of neurosecretory cell populations by injections of HRP into the blood of the frog, *Rana pipiens*. (poster) Society for Neuroscience.
- Burmeister, S., & W. Wilczynski, 1997. Temporal call features that trigger aggressive vocal responses in male cricket frogs. (lecture) American Zoologist.
- Konieczka, J., S. Burmeister, & W. Wilczynski, 1997. Chorus density predicts behavioral response of male cricket frogs to conspecific calls. (poster) American Society for Zoologists.
- Ophir, A., S. Burmeister, & W. Wilczynski, 1997. The effects of stimulus calls on the behavioral outcome of a simulated agonistic interaction in male cricket frogs. (poster) American Society for Zoologists.
- Burmeister, S. & W. Wilczynski, 1996. Projections from forebrain and midbrain areas to the median eminence and neurohypophysis in the frog *Rana pipiens*. (poster) Society for Neuroscience.
- Burmeister, S., & W. Wilczynski, 1996. Male cricket frogs respond differently to stimulus calls that vary temporally. (lecture) American Society for Zoologists.

## Teaching

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### Courses

- |              |   |
|--------------|---|
| every Spring | Behavioral Neuroscience (Biol 455), 60 undergraduate students |
| 2007 Fall    | Principles of Brain Evolution (Biol 857), 4 graduate students |

### Graduate students supervised

- |             |                   |
|-------------|-------------------|
| 2009 – date | Nicholas Garcia   |
| 2005 – date | Lisa Mangiamele   |
| 2005 – date | Mukta Chakraborty |

### Undergraduate Honors Projects Supervised

- |      |   |
|------|---|
| 2007 | Andrea Martin, "The role of androgens in the risky calling behavior of male túngara frogs."   |
| 2007 | Eveleen Randall, "Plasticity in the central auditory system." (Research Advisor, Paul Manis)  |
| 2007 | Nancy DeMaria, "Activation of the paraventricular nucleus and exposure to maternal behavior in rat pups." (Research Advisor, Cort Petersen) |

## Grants

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|-------------|--|
| 2005 – 2010 | National Science Foundation, \$457,465 (direct costs), PI (Co-PI, M.J. Ryan).  |
| 2009        | UNC Junior Faculty Development Award, \$7500.  |
| 2009-2010   | National Science Foundation Doctoral Dissertation Improvement Grant, \$12,397 (direct costs). PI (Co-PI, M. Chakraborty) |
| 2009        | National Science Foundation Research Experience for Undergraduates Supplementary Award, \$5050 (direct costs). PI.       |
| 2008-2009   | National Science Foundation Research Experience for Teachers Supplementary Award, \$13,300 (direct costs). PI.           |

2002 – 2004 National Institute for Neurological Disorder and Stroke, \$125,496, Postdoctoral Individual NRSA, PI.

## Professional Service

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### **Professional Service to Discipline**

#### Ad Hoc Reviewer

Grants: National Science Foundation

Journals: *PLoS Biology*; *Behavioral Neuroscience*; *Journal of Neurophysiology*; *Journal of Comparative Neurology*; *Animal Behaviour*; *Integrative and Comparative Biology*; *Comparative Biochemistry and Physiology*; *Brain, Behavior and Evolution*; *Behavioral Ecology and Sociobiology*; *Ethology*; *Anatomical Record*, *Australian Journal of Zoology*; *Journal of Herpetology*.

Book Chapters: Anuran Communication (Michael J. Ryan, editor).

#### Grant Panel Member

2008, National Science Foundation, Animal Behavior Panel

2007, National Science Foundation, Doctoral Dissertation Improvement Grant Panel

#### Society Memberships

Society for Neuroscience, J.B. Johnston Club, Society for Integrative and Comparative Biology.

#### Other Professional Service

Program committee member (2007-2010): J.B. Johnston Club

Program committee member (2007): Frog Hearing and Acoustic Communication Satellite Meeting of the International Congress of Neuroethology.

#### Invited Symposia and Seminars

Canadian Society of Zoologists, Symposium title: The neurological, metabolic and genomic underpinnings of behaviour. Scarborough, Canada, 12-15 May 2009

6<sup>th</sup> World Congress of Herpetology, Symposium title: Sensory ecology of anuran communication. Manaus, Brazil, 17-22 August 2008.

Triangle Consortium for Reproductive Biology, Symposium title: Signaling in reproduction. National Institute of Environmental Health Sciences, 2008.

Winter Animal Behavior Conference. Steamboat Springs, Colorado, 2007.

Karger Workshop, Symposium title: Plasticity and diversity in behavior and brain function: Important raw material for natural selection? Atlanta, Georgia, 2006.

Animal Behavior Society, Symposium title: An integrative approach to sexual communication: Brain, behavior and evolution in túngara frogs. Oaxaca, Mexico, 2004.

University of California, Davis, Division of Biological Sciences, 2003.

### **Professional Service Within UNC-CH**

#### Dissertation Committees

Cris Ledong-Retig

Brian Powell (Duke University Biology Dept.)

Matthew McKown

Jonathan Micancin  
Lisa Davenport  
Michael Baltzley, Ph.D., May 2006

Undergraduates Supervised in Research (My Laboratory):

Lauren Eberly (Summer 2009\*)  
Rachel Glaeser (Spring 2009, Summer 2009\*\*)  
Lama Moussa (Spring 2009)  
Joan Winter (Fall 2008, Spring 2009)  
Sera Haith (Fall 2008, Spring 2009)  
Claire Thomson (Summer 2008\*)  
Josh Savitz (Spring 2008)  
Rodrigo Guillen (Fall 2007)  
Kevin Li (Spring 2007, Fall 2007)  
Andrea Martin (Spring 2006, Summer 2006\*, Fall 2006, Spring 2007)  
Allison Boothe (Fall 2006, Spring 2007)  
Tyler Martin (Spring 2006, Fall 2006)

\* *Research funded through Summer Undergraduate Research Fellowships*

\*\* *Recipient of NSF Research Experience for Undergraduates*

Undergraduates Supervised in Research (Others' Laboratories):

Eveleen Randall (Spring 2006, Fall 2006, Spring 2007)  
Nancy DeMaria (Fall 2006, Spring 2007)  
Dhairya Jani (Fall 2006)

Departmental Committees

Executive Committee, UNC Neurobiology Curriculum (2008-present)  
Search committee, Department Business Officer/Manager (Spring 2009)  
Chair's advisory committee (2008/2009)  
MCDB graduate admissions committee for BBSP (2007/2008)  
Quantitative biology committee (2007/2008)  
Undergraduate advising committee (2005/2006; 2006/2007; 2007/2008; 2008/2009)  
Biology department graduate admissions committee (2005/2006; 2006/2007)  
Departmental seminar committee (2006/2007; 2008/2009)  
Faculty secretary (Spring 2007)  
Faculty search committee for assistant professor (Spring 2007)

University Committees

UNC-SPGRE Program, Biology Department representative (2006/2007; 2007/2008; 2008/2009)