

CURRICULUM VITAE
Peter D. Brodfuehrer, Ph.D.

Position

Professor of Biology
Neural and Behavioral Sciences Concentration Adviser for Biology

Work Address

Department of Biology
Bryn Mawr College
101 N. Merion Ave.
Bryn Mawr, PA 19010
610-526-5095

Education

B.A. in Biology, State University of New York at Buffalo, Buffalo, New York, May 1980.
Ph.D. in Biology, University of Virginia, Charlottesville, Virginia, January 1986.
Thesis Advisor: W. Otto Friesen, University of Virginia, Charlottesville, VA
Thesis Topic: Control of Swimming Activity in the Medicinal Leech by the Head Brain

Research Interests

- Neuronal basis of behavior and behavioral choice
- Science Education
- Environmental Neurotoxicology
- Computational Neuroscience

Job Experience

Research

5/79 - 8/79 College Summer Research Program, Roswell Park Memorial Hospital, Buffalo, New York.
9/79 - 8/80 Honors Research Program, Department of Biology, State University of New York at Buffalo, Buffalo, New York.
5/81 - 8/81 Neural Systems and Behavior Course, Marine Biological Laboratory, Woods Hole, Massachusetts.
1/81 - 8/85 Research assistant in the laboratory of W. Otto Friesen, Department of Biology, University of Virginia, Charlottesville, Virginia.
10/86 Basic Immunocytochemical Techniques in Tissue and Whole-mounts, Marine Biological Laboratory, Woods Hole, Massachusetts.
11/85 - 12/88 Postdoctoral fellow/associate in the laboratory of Ronald R. Hoy, Section of Neurobiology and Behavior, Cornell University, Ithaca, New York.
1/89 - 7/90 Postdoctoral associate in the laboratory of Avis H. Cohen, Section of Neurobiology and Behavior, Cornell University, Ithaca, New York.
8/90 - 8/97 Assistant Professor, Department of Biology, Bryn Mawr College, Bryn Mawr, PA 19010.

- 8/97 - 7/98 Visiting Scientist, Department of Biology, University of California at San Diego, La Jolla, CA 92023.
- 9/97 –8/03 Associate Professor, Department of Biology, Bryn Mawr College, Bryn Mawr, PA 19010.
- 1/04 – 5/04 Visiting Scientist, United States Environmental Protection Agency, Neurotoxicology Division. Research Triangle Park, NC 27711.
- 5/04 Visiting Scientist, Department of Biology, University of California at San Diego, La Jolla, CA 92023.
- 9/03 – present Professor, Department of Biology, Bryn Mawr College, Bryn Mawr, PA 19010.

Teaching (outside of Bryn Mawr College)

- 8/80 - 12/80 Teaching assistant: Introductory biology laboratory, Department of Biology, University of Virginia, Charlottesville, Virginia.
- 1/82 - 5/82 Teaching assistant: Neurobiology laboratory, Department of Biology, University of Virginia, Charlottesville, Virginia.
- 8/85 - 12/85 Lecturer: Neuroethology course (Biological Sciences 424), Section of Neurobiology and Behavior, Cornell University, Ithaca, New York.
- 8/88 - 12/88 Lecturer: Principles of Neurophysiology (Biological Sciences 491), Section of Neurobiology and Behavior, Cornell University, Ithaca, New York.
- 8/95 Faculty: Leech Neurobiology and Development course. Marine Biological Station, Woods Hole, MA. (August 12 - August 19).
- 8/96 Lecturer and instructor: Neuroethology in Jerusalem, Hebrew University, Jerusalem, Israel. (August 11 - August 30).
- 6/00 Faculty: Neural Systems and Behavior Course, Marine Biological Laboratory, Woods Hole, MA.

Professional Development

- 6/05 Bioinformatics Workshop from the National Center for Biotechnology Information at the National Library of Medicine – National Institutes of Health. Bryn Mawr College.
- 6/05 Problem-Based Learning: From Ideas to Solutions through Communication. University of Delaware Institute for Transforming Undergraduate Education.

Administrative Positions

- 9/99 – 5/06 Chair of Biology, Bryn Mawr College
- 9/96 - 5/02 Program Chair, Neural and Behavioral Sciences
- 9/03 – present Neural and Behavioral Sciences Concentration Adviser for Biology
- 9/08 – 5/09 Director of the Center for Science in Society

Publications

Peer reviewed research articles

Brodfehrer, P.D. and Fournier, C.R. (1983) Reflexes evoked by the femoral and coxal chordotonal organs in the cockroach, Periplaneta americana. Comp. Biochem. Physiol. 74A:169-174.

Brodfehrer, P.D. and Friesen, W.O. (1984) A sensory system initiating swimming activity in the medicinal leech. J. Exp. Biol. 108:341-355.

Friesen, W.O. and **Brodfehrer, P.D.** (1984) Identification of neurons in the leech through local manipulations. J. Exp. Biol. 113:455-460.

Brodfehrer, P.D. and Friesen, W.O. (1986) From stimulation to undulation: A neuronal pathway for the control of swimming in the leech. Science 234:1002-1004.

Brodfehrer, P.D. and Friesen, W.O. (1986) Initiation of swimming activity by trigger neurons in the leech subesophageal ganglion. I. Output connections of Tr1 and Tr2. J. Comp. Physiol. A 159:489-502.

Brodfehrer, P.D. and Friesen, W.O. (1986) Initiation of swimming activity by trigger neurons in the leech subesophageal ganglion. II. Role of segmental swim-initiating interneurons. J. Comp. Physiol. A 159:503-510.

Brodfehrer, P.D. and Friesen, W.O. (1986) Initiation of swimming activity by trigger neurons in the leech subesophageal ganglion. III. Sensory input to Tr1 and Tr2. J. Comp. Physiol. A 159:511-519.

Brodfehrer, P.D. and Friesen, W.O. (1986) Control of leech swimming activity by cephalic ganglia. J. Neurobiol. 17:697-705.

Brodfehrer, P.D. and Hoy, R.R. (1988) Effect of auditory deafferentation on the synaptic connectivity of a pair of identified interneurons in adult field crickets. J. Neurobiol. 19:17-38.

May, M. L., **Brodfehrer, P.D.** and Hoy, R.R. (1988) Kinematic and aerodynamic aspects of ultrasound-induced negative phonotaxis in flying Australian field crickets (Teleogryllus oceanicus). J. Comp. Physiol. A 164:243-249.

Brodfehrer, P.D. and Hoy, R.R. (1989) Integration of ultrasound and flight inputs on descending neurons in the cricket brain. J. Exp. Biol. 145: 157-171.

Hoy, R., Nolen, T. and **Brodfehrer, P.** (1989) The neuroethology of acoustic startle and escape in flying insects. In: Principles of Sensory Coding and Processing. J. Exp. Biol. 146:287-306.

Brodfehrer, P.D. and Hoy, R.R. (1990) Ultrasound sensitive neurons in the cricket brain. J. Comp. Physiol. A 166:651-662.

Brodfehrer, P.D. and Cohen, A.H. (1990) Initiation of swimming activity in the medicinal leech by glutamate, quisqualate, and kainate. J. Exp. Biol. 154:567-572.

Brodfehrer, P.D. and Cohen, A.H. (1992) Glutamate-like immunoreactivity in the leech central nervous system. Histochemistry. 97(6):511-516.

Brodfehrer, P.D., Kogelnik, A.M., Friesen W.O. and Cohen, A.H. (1993) Effect of the tail ganglion on swimming activity in the leech. Behav. Neural Biol. 59:162-166.

Brodfehrer, P.D. and Burns, A. (1995) Factors influencing the decision to swim in the medicinal leech. Neuro. of Learning and Mem. 63:192-199.

Brodfehrer, P.D., Parker, H.J., Burns, A. and Berg, M. (1995) Control of the segmental swim generating mechanism by an identified pair of interneurons in the leech head ganglion. J. Neurophysiol. 73:983-992.

Thorogood, M.S.E. and **Brodfehrer, P.D.** (1995) The role of glutamate in swim initiation in the medicinal leech. Invert. Neurosci. 1:223-233.

Brodfehrer, P.D., Debski, E.A., O'Gara, B.A. and Friesen, W.O. (1995) Neuronal control of swimming. J. Neurobio. 27:403-418.

Thorogood, M.S., Almeida, V.W. and **Brodfehrer, P.D.** (1999) Localization of glutamate receptor 5/6/7 - like and glutamate transporter-like immunoreactivity in the leech central nervous system. J. Comp. Neurol. 405:334-344.

Cacciatore, T.W., **Brodfehrer, P.D.**, Gonzalez, J.E., Adams, S.R., Tsien, R.Y., Kristan, W.B.Jr., and Kleinfeld, D. (1999) Identification of neural circuits by imaging coherent changes in membrane potential with FRET-based dyes. Neuron 23:449-459.

Cellucci, C.J., **Brodfehrer, P.D.**, Acera-Pozzi, R., Dobrovolny, H., Engler, E., Thompson, R., Los, J. and Albano, A.M. (2000) Linear and nonlinear measures predict swimming in the leech. Phys. Rev. E 62, 4826-4834.

Brodfehrer, P.D. and Thorogood, M.S.E. (2001). Identified Neurons and the Initiation of Leech Swimming. Progress in Neurobiology. 63(4):371-381.

Albano, A. M., **Brodfeher, P. D.**, Tapyrik, L., and Sundera, S. (2006) Linear and nonlinear properties of prestimulus ventral cord signals distinguish swimming response of the leech to intracellular stimulation. *International Journal of Bifurcation and Chaos* 16:145-155.

Brodfehrer, P.D., Tapyrik, L., Convery, M., Zekavat, G., and Pietras, N. (2006) Modification of Behavioral Responsiveness Following Foraging for Artificial Blood in the Medicinal Leech. *J. Comp. Physiol. A.* 192:817-825.

Brodfehrer, P.D., McCormick, K., Garybeal, C., Tapyrik, L., and Albano, A.M. (2008) Initiation of Swimming or Crawling by a Trigger Interneuron in the Medicinal Leech. *Invert Neurosci.* 8:31-39.

Meacham, C.A., **Brodfehrer, P.D.**, Watkins, J.A., and Shafer, T.J. (2008) Developmentally-regulated sodium channel subunits are differentially sensitive to α -cyano containing pyrethroids. *Toxicology and Applied Pharmacology.* 231(3);273-281.

Albano, A.M., **Brodfehrer, P.D.**, Cellucci, C.J., Tigno, X.T., and Rapp, P.E. Time Series Analysis, or the Quest for Quantitative Measures of Time Dependent Behavior. *Philippine Science Letters*, 1:18-30.

Technical Notes and Laboratory Exercises

Brodfehrer, P.D. and Parker, H.J. (1994) Neurophysiological Burst Analysis. In: SuperScope II Applications. GW Instruments, Somerville, MA.

Sweeney, L.M., **Brodfehrer, P.D.** and Raughley, B. (2004) An Introductory Biology Laboratory that Uses Enzyme Histochemistry to Teach Students about Skeletal Muscle Fiber Types. *Adv. Physiol. Educ.* 28: 23-28.

Abstracts / Posters

Brodfehrer, P.D. and Fournier, C.R. (1981) Chordotonal reflexes in periplaneta americana. (1981) Am. Zool. Abstr. Vol. 21, pp. 1012.

Brodfehrer, P.D. and Friesen, W.O. (1982) Activation of vibration receptors initiates swimming in a semi-intact leech preparation. Neurosci. Abstr. Vol. 8, pp. 529.

Brodfehrer, P.D. and Friesen, W.O. (1983) Responses of vibration receptors in the medicinal leech to near-field stimulation. Neurosci. Abstr. Vol. 9, pp. 324.

Brodfehrer, P.D. and Friesen, W.O. (1984) Swim initiation by neurons in the leech brain occurs by independent pathways. Neurosci. Abstr. Vol. 10, pp. 148.

Brodfehrer, P.D. and Hoy, R.R. (1987) Effect of auditory deafferentation on the synaptic connectivity of identified interneurons in adult crickets. Neurosci. Abstr. Vol. 13, pp. 1144.

May, M. L. and **Brodfehrer, P.D.** (1987) Changes in wing parameters in Teleogryllus oceanicus due to ultrasonic stimuli. Neurosci. Abstr. Vol. 13, pp. 398.

May, M.L., Land, B.R., **Brodfehrer, P.D.** and Hoy, R.R. (1988) A three-dimensional model of the ultrasound-induced negative phonotactic response in the australian field cricket (Teleogryllus oceanicus). Neurosci. Abstr. Vol. 14, pp. 311.

Brodfehrer, P.D., May, M.L. and Hoy, R.R. (1988). Ultrasonic neurons in the brain of crickets. Neurosci. Abstr. Vol. 14, pp. 311.

Brodfehrer, P.D. and Cohen, A.H. (1990) Localization of glutamate-like immunoreactivity in the leech central nervous system. Neurosci. Abstr. Vol. 16, pp. 306.

Johnson, B.R., May, M.L. and **Brodfehrer, P.D.** (1990) Intracellular recording from brain cells in the land snail: A student laboratory exercise for examining neuronal excitability. Physiologist 33:A-40.

Johnson, B.R., May, M.L. and **Brodfehrer, P.D.** (1991) Current events: A student laboratory exercise for examining ionic currents under voltage clamp in snail neurons. Neurosci. Abstr. Vol. 17, pp. 516.

Brodfehrer, P.D. (1992) Suppression of activity in an identified interneuron predicts the initiation of leech swimming . Third International Congress of Neuroethology. Abstract # 244.

Brodfehrer, P.D. , Burns, A and Berg, M. (1993) Regulation of segmental swim-initiating interneurons by a pair of identified interneurons in the leech head ganglion. Neurosci. Abstr. Vol. 19, pp. 1600.

Grobstein, P., **Brodfehrer, P.**, and Oristaglio, J. (1993) The free-will problem: motor choice and intrinsic variability in frog and leech. Neurosci. Abstr. Vol. 19, pp. 1617.

Thorogood, M.S. and **Brodfehrer, P.D.** (1993) Non-NMDA antagonists affect the ability of trigger neurons to excite gating neurons in the swim motor circuitry of the medicinal leech. Neurosci. Abstr. Vol. 19, pp. 1600.

Brodfehrer, P.D. and Burns, A. (1993) To swim or not to swim: control of swimming by neurons in the head ganglion of the medicinal leech. Physiologist 36:A-24.

Brodfehrer, P.D. (1995) Inhibitory Regulation of Swimming. Published by NIH as a supplement for a meeting on AREA grant.

Thorogood, M.S., J. Hyer, and **Brodfehrer, P.D.** (1995) Differential Neurotransmitter release by mechanosensory cells in Hirudo medicinalis. Neurosci. Abstr. Vol. 21, pp. 406.

Melson, S.L. and **Brodfehrer, P.D.** (1996) The role of glutamate in leech swimming. Published by the National Council on Undergraduate Research for a meeting on student research.

Thorogood, M.S., Melson, S.L. and **Broduehrer, P.D.** (1996) Glutamate's role in the expression of leech swimming: Gating cell activation of the oscillator. Neurosci. Abstr. Vol. 22, pp. 1376.

Thorogood, M.S., Almeida, V.W. and **Broduehrer, P.D.** (1997) Localization of GLT-1 and GLUR 5/6/7 in the CNS of Hirudo medicinalis. Neurosci. Abstr. Vol. 23, pp.1234.

Cacciatore, T.W., **Broduehrer, P.D.**, Gonzalez, J.E., Tsien, R.Y, Kristan, W.B., Jr., and Kleinfeld, D. (1998) Neurons that are active in phase with swimming in leech, and their connectivity, are revealed by optical techniques. Fifth International Congress of Neuroethology.

Cacciatore, T.W., **Broduehrer, P.D.**, Gonzalez, J.E., Tsien, R.Y, Kristan, W.B., Jr., and Kleinfeld, D. (1998) Neurons that are active in phase with swimming in leech, and their connectivity, are revealed by optical techniques. Neurosci. Abstr. Vol. 232, pp. 1890.

Broduehrer, P.D., Cellucci, C.J., Acera-Pozzi, R., Albano, A.M. (1998) A computational approach to understanding the neuronal control of leech swimming. Leech Meeting. Aug. 22, 1998. Marine Biological Laboratory, Woods Hole, MA.

Broduehrer, P.D., Cellucci, C. J., Acera-Pozzi, R. and Albano, A.M. (1998) Spatiotemporal Coding of Leech Swimming. The Sixth Annual Dynamical Neuroscience Satellite Symposium. Nov. 6-7, 1998. Los Angeles, CA.

Broduehrer, P.D., Albano, A.M, and Tapyrik-Perichon, L. (2002) Extracellular analysis of the decision to swim in the medicinal leech. East Coast Nerve Net meeting, April 5-7,. Marine Biological Laboratory, Woods Hole, MA.

Jones, R.F. and **Broduehrer, P.D.**, (2002) Intracellular calcium level and long-term excitation in leech neurons. The 13th Annual Saint Joseph's University Sigma Xi Student Research Symposium. pp. 49.

Kumar, N. and **Broduehrer, P.D.**, (2002) Initiation of swimming by leech excitatory peptide. The 13th Annual Saint Joseph's University Sigma Xi Student Research Symposium. pp. 53.

Zukas, A.M. and **Broduehrer, P.D.**, (2002) Neuronal control of the termination of leech swimming. The 13th Annual Saint Joseph's University Sigma Xi Student Research Symposium. pp. 120.

Broduehrer, P.D., Sweeney, L., and Raughley, B. Analysis of skeletal muscle fiber types using enzyme histochemistry. Association for Biology Laboratory Education. University of Nevada, Las Vegas, June 3-7, 2003.

Broduehrer, P.D., and Tapyrik, L. E. (2003). Trigger Neurons Control Leech Swimming via Activation of a Distributed Network. Neurosci. Abstr.

Albano, A. M., **Brodfehrer, P. D.**, Tapyrik L., and Sunder S. (2003) Variance and spatial mutual information patterns distinguish swimming response of the leech to intracellular stimulation. Shanghai International Symposium on Nonlinear Science and Applications November 9-13, 2003

Graybeal, C., McCormick, K., and **Brodfehrer, P.D.** (2003) To Swim or not to Swim: A Multifunctional neuron in the leech. 6th Annual Undergraduate Research Symposium in the Chemical and Biological Sciences. University of Maryland, Baltimore Campus November 1, 2003

Pietras, N. and **Brodfehrer, P.D.** (2003) The Effect of Chemical Cues in Artificial Blood on Behavioral Choice in the Medicinal Leech. 6th Annual Undergraduate Research Symposium in the Chemical and Biological Sciences. University of Maryland, Baltimore Campus November 1, 2003.

Brodfehrer, P.D., Meacham, C.A., Bale, A.S., and Safer, T.J. (2004) Comparison of $Na_v1.2$ and $Na_v1.3$ Sensitivity to Disruption by the Pyrethroid Insecticides Deltamethrin and Tetramethrin, Neurosci. Abstr. Program No. 398.9.

Zekavat, G., Convery, M., and **Brodfehrer, P.D.** (2004) The Effect of the Perception of Blood on Leech Behavioral Responsiveness. 7th Annual Undergraduate Research Symposium in the Chemical and Biological Sciences. University of Maryland, Baltimore Campus, October 16, 2004

McCormick, K., and **Brodfehrer, P.D.** (2005) Initiation of Swimming or Crawling by a Trigger Interneuron in the Medicinal Leech. East Coast Nerve Net meeting, April 1-3, Marine Biological Laboratory, Woods Hole, MA.

Bryant, A., Still, E. and **Brodfehrer, P.D.** (2007) Role of Non-NMDA Receptors in Sustaining Swimming in the Leech. East Coast Nerve Net meeting, April 2007, Marine Biological Laboratory, Woods Hole, MA.

Bryant, A., Still, E. and **Brodfehrer, P.D.** (2007) Role of Non-NMDA Receptors in Sustaining Leech Swimming. Eighth International Congress of Neuroethology, Vancouver, Canada, July 1007.

Brodfehrer, P.D., Tapyrik, L., McCormick, K., and Graybeal, C. (2007) Multifunctional Trigger Interneuron in the Medicinal Leech. Eighth International Congress of Neuroethology, Vancouver, Canada, July 1007.

Brodfehrer, P.D., Bryant, A. and Brady, R. (2008) Mechanisms Underlying Swim Maintenance in the Leech. Neurosci. Abstr.

McKeever, D. Powers, S.E., and **Brodfehrer, P.D.** (2009) Transmitters and Receptors Associated with Prolonged Excitation in Leech Neurons. East Coast Nerve Net meeting, April 2009, Marine Biological Laboratory, Woods Hole, MA.

Membership in Scientific Societies

Society for Neuroscience
Faculty for Undergraduate Neuroscience
International Neuroethology Society
Council for Undergraduate Research

Professional Activities

Research Grants

11/85 - 10/87 National Research Service Award from the National Institute of
Neurological and Communicative Disorders and Stroke. Project Title: Neuronal
Plasticity in the Cricket Auditory System. (**Award = \$32,970**)

4/91 - 3/96 Whitehall Foundation. Project Title: Regulation of Leech Swimming by
Inhibitory Neurons in the Head Ganglion. (**Award = \$117,056**)

6/91 - 5/95 Academic Research Enhancement Award from the National Institute of
Neurological and Communicative Disorders and Stroke. Project Title:
Inhibitory Regulation of Leech Swimming. (**Award = \$97,205**)

3/96 - 2/99 National Science Foundation grant. Project Title: Neural Regulation of
Locomotor Behavior. (**Award = \$74,999**)

3/96 - 2/99 REU supplement to my National Science Foundation grant (Summer '96).
(**Award = \$4,490**)

5/96 - 4/97 Whitehall Foundation. Project Title: Glutamate as a Neurotransmitter in
the Leech. (**Award = \$15,000**)

3/96 - 2/99 REU supplement to my National Science Foundation grant (Summer '97).
(**Award = \$3,990**)

8/97 - 7/98 Senior National Research Service Award from the National Institute of
Neurological and Communicative Disorders/Stroke. Project Title: Spatio-
temporal activity patterns during leech swimming. (**Award =**
\$36,300)

3/96 - 2/00 REU supplement to my National Science Foundation grant (Summer '99).
(**Award = \$4,810**)

8/00 – 7/02 National Science Foundation - Multi-User Equipment and Instrumentation
Resources for Biological Science Grant. Project Title: A Confocal
Microscope for Research in Biological Sciences. (**Award = \$165,985**)

8/01 - 7/04 National Science Foundation - ITR Small Grants. Project Title:
Computational Analysis of Leech Swimming. (**Award = \$361,782**)

9/06 – 8/09 National Science Foundation – Collaborative Research: Neuronal Control of
Animal Movements. (**Award = \$159,394**)

5/07 – 8/07 REU supplement to my National Science Foundation grant. (**Award =**
\$5,600)

Institutional Grants

- 6/04 - 5/09 Sherman Fairchild Foundation – Scientific Equipment Program, Phase IX. Program Director. **(Total Award = \$484,438).**
- 9/04 – 8/08 Howard Hughes Medical Institute - Undergraduate Science Education Program. Program Director. **(Total Award = \$1,200,000).**
- 9/08 – 8/12 Howard Hughes Medical Institute - Undergraduate Science Education Program. Program Director. **(Total Award = \$1,200,000).**
- 9/09 – 8/14 National Science Foundation: Department of Undergraduate Education – Noyce Teacher Scholarship Program at Bryn Mawr and Haverford Colleges, Co-Principal Investigator. **(Total Award = \$900,000).**

Bryn Mawr Faculty Development Grants

- 4/98 Bryn Mawr College Technology Committee. Project Title: Computer-Based Teaching of Cellular Neurophysiology. **(Total Award = \$745).**
- 2/04 – 8/04 Faculty Research Fund. **(Total Award = \$5000).**
- 9/09 – 5/11 Mellon Tri-College Faculty Forum Grant. Project Title: TriCo Biomathematics Initiative. **(Total Award = \$3000).**

Invited Seminars

- 5/89 The University of Minnesota, Department of Physiology.
- 9/89 Participant in the "Neuroethology of the Mauthner System" symposium at the 2nd meeting of the International Society for Neuroethology. West Berlin, Germany.
- 4/91 Villanova University, Department of Biology.
- 4/92 Temple University, Department of Biology.
- 3/93 Swarthmore College, Department of Biology.
- 5/95 Participant in Camden Conference on the Brain for Pre-College Educators, May 20, 1995. University of Rutgers-Camden.
- 12/96 NEC Research Institute, Princeton, NJ.
- 7/99 University of Kaiserslautern, Department of Physiology, Germany.
- 3/01 Invited to serve on 2001 Major Research Instrumentation (MRI) Advisory Panels, National Science Foundation. Declined invitation due to teaching obligations.
- 9/01 Dickinson College, Department of Biology
- 2/03 Member of 2003 NSF Graduate Research Fellowship panel in Neuroscience, Physiology and Microbiology.
- 3/03 Bryn Mawr College Center for Science in Society, A Matter of Time New Discussion Series. "Circadian Rhythms: The Clocks That Time Us".
- 8/03 Neurotoxicology Division of the US Environmental Protection Agency. Research Triangle Park, NC 27711.
- 9/04 First International Meeting on Evolution, Development and Neurobiology of the Leech, Lille, France.
- 11/08 Second Annual Leech Neuroscience Meeting, Washington, DC.

Professional Activities

- Ongoing *Ad hoc* journal article reviewer for - *Journal of Comparative Physiology A*, *Journal of Experimental Biology*, *Comparative Biochemistry and Physiology*,

Journal of Neuroscience, Journal of Neurophysiology, and Integrative and Comparative Biology.

- Ongoing *Ad hoc external reviewer for government grants* - National Science Foundation and Biotechnology and Biological Sciences Research Council of Europe.
- 8/95 Lecturer and instructor in the Leech Neurobiology and Development course. Marine Biological Station, Woods Hole, MA.
- 8/96 Lecturer and instructor in the Neuroethology in Jerusalem course, Hebrew University, Jerusalem, Israel.
- 8/98 Symposium organizer. Leech Neurobiology and Development. Marine Biological Station, Woods Hole, MA.
- 3/99 Participant in Grant Writing Workshop for graduate student professional development in the Graduate School of Arts and Sciences, Bryn Mawr College.
- 3/00 Outside reviewer for reappointment of an assistant professor at Harvey Mudd College, Clarmont, CA.
- 6/00 Faculty in Neural Systems and Behavior course. Marine Biological Station, Woods Hole, MA.
- 8/00 Symposium organizer. Leech Neurobiology and Development. Marine Biological Station, Woods Hole, MA.
- 6/01 Invited to participate in the Euro Nerve Net School, Laboratoire De Neurobiologie, Université Bordeaux, France (invitation rescinded because of lack of funding).
- 9/01 Outside reviewer for promotion to assistant professor at Harvey Mudd College, Clarmont, CA.
- 12/01 Outside reviewer for promotion to full professor at Haverford College, Haverford, PA.
- 1/02 Outside reviewer for promotion to associate professor at Haverford College, Haverford, PA.
- 5/02 Participant in the Tri-College Math/Science Teaching Symposium at Bryn Mawr College. Presentation: Lauren Sweeny, & Peter Brodfuehrer Department of Biology, Bryn Mawr College, "Making Introductory Biology Lab Interesting: Histochemical Analysis of Muscle Fiber Type".
- 5/03 Outside reviewer for promotion to associate professor at Barnard College, New York, NY.
- 8/04 Faculty team member to the Project Kaleidoscope Leadership Initiative Institutions. (ongoing).
- 9/04 Participant in PKAL Leadership Initiative workshop at RPI, Troy, NY.
- 11/04 Outside reviewer for promotion to associate professor at Haverford College, Haverford, PA.
- 2/04 Invited to serve on NSF Graduate Research Fellowship panel in Neuroscience, Physiology and Microbiology. On leave - declined invitation.
- 4/04 Participant in workshop on Cultivating Faculty Leadership: The Role of Faculty at a Liberal Arts College at Union College, Schenectady, NY.
- 2/05 Invited to serve on NSF Graduate Research Fellowship panel in Neuroscience, Physiology and Microbiology. Declined invitation due to teaching obligations.
- 9/05 Chair External Review Committee for Department of Neuroscience, Lafayette College, Easton, PA.

- 03/06 Member of the 2006 HHMI Undergraduate Science Education Program Review Panel. Howard Hughes Medical Institute, Chevy Chase, Maryland.
- 05/06 Faculty Panel on Assessment, Math/Science Pedagogy Workshop, Bryn Mawr College.
- 2005-09 Program Director, Sherman Fairchild grant to Bryn Mawr College.
- 2004-08 Program Director, Undergraduate Education Grant to Bryn Mawr College from Howard Hughes Medical Institute.
- 02/06 Presenter in Stories of Teaching and Learning, Sponsored by Center for Science in Society, Bryn Mawr College.
- 05/06 Presenter on “Rethinking Science Education”, Science in Society Brown Bag Lunch Series. Bryn Mawr College.
- 5/07 External Review Committee of Swarthmore College’s Howard Hughes Medical Institute Undergraduate Education Grant, Swarthmore, PA.
- 5/07 Presenter on “Just in Time Teaching” in symposium on Engaging Millennial Learners in Math and Science Courses sponsored by Math Science Partnership of Greater Philadelphia, Widener University, June 1, 2007.
- 7/09 Outside reviewer for promotion to associate professor at the University of Richmond.

Honors and Awards

- 1980 Graduated Summa Cum Laude, State University of New York at Buffalo, Buffalo, New York.
- 1985 Andrew Flemming Award for outstanding graduate research, Department of Biology, University of Virginia, Charlottesville, Virginia.
- 1998 Who’s Who in America’s Teachers; nominated by Daniel Brum (Haverford ‘97)
- 2003-04 Awarded salary support through the Elizabeth B. Jackson Biology Fund.
- 5/09 Recipient of the Rosalyn R. Schwartz Teaching Award.

Supervised Independent Laboratory Research

- 1990-91 Grace Wong (BMC '91)
- 1991-92 Lori Rogers (BMC '92), Catherine Foster (BMC '92) and Janelle Doyle (BMC '92)
- 1992-93 Melissa Berg (BMC '93) and Jan Kristoff (BMC '93)
- 1994-95 Tamara Rozental (BMC '95), Jennifer Hyer (BMC '95) and Sonya Martin (BMC '95)
- 1995-96 Susanna Melson (BMC '96)
- 1996-97 Vania Almeida (BMC '97), Elizabeth Tinker (BMC '97), Daniel Brum (Haverford '97), Shannon Seymour (BMC '97) and Edward Piskorski (Haverford '97)
- 1998-99 Noreen Khan (BMC '99) and Erin Brown (BMC '99)
- 1999-00 Allison Rosenberg (BMC '00) and Rehema Trimiew (BMC Psychology '00)
- 2000-01 Alexandra Smith (BMC '01), Jason Bernstein (Haverford '01) and Swapna Kamadana (BMC '01)
- 2001-02 Alica Zuckas (BMC '02), Rebecca Jones (BMC '02) and Nirupama Kumar (BMC '02)

- 2002-03 Quraishi, Sabah (BMC '03), Dzani, Kuorkur (BMC '04) and Nickisha Stephenson (Haverford '03), Lauren (BMC '04), Pietras, Nicole (BMC '04) and Ocampo, Robert (Haverford '04)
- 2003-04 Welsh, Lauren (BMC '04), Pietras, Nicole (BMC '04) and Ocampo, Robert (Haverford '04), Tung Nguyen (Haverford '04) and Tara Rajan (BMC '04)
- 2004-05 Ghazal Zekavat, (BMC '06), Maureen Convery (BMC '06), and Kathryn McCormick (BMC '05)
- 2005-06 Ghazal Zekavat (BMC '06) and Maureen Convery (BMC '06)
- 2006-07 Elizabeth Still (BMC '07), Gillian Confair (BMC '07), and Astra Bryant (BMC '08)
- 2007-08 Astra Bryant (BMC '08) and Rachel Brady (BMC '09)
- 2008-09 Dominique McKeever, (BMC '09), Sarah Powers (BMC '09), Heather Foley (BMC '09), and Joo Park (BMC '11).

Summer Undergraduate Research Students

- Summer '91 Janelle Doyle (BMC '92) and Margaret O'Neill (Smith College '92).
- Summer '92 Melissa Berg '93 and Mariam Koodary (withdrew from BMC)
- Summer '94 Jennifer Hyer (BMC '95)
- Summer '96 Vania Almeida (BMC '97), Elizabeth Tinker (BMC '97; done in collaboration with Danielle Carr in Mathematics) and Daniel Brum (Haverford '97).
- Summer '97 Michelle Bostick (BMC '98)
- Summer '99 Elizabeth Windsor (BMC '00) and Jason Bernstein (Haverford '01)
- Summer '00 Alexandra Smith (BMC '01) and Aparna Kanneganti (BMC '01)
- Summer '01 Alica Zuckas (BMC '01) and Rebecca Jones (BMC '01)
- Summer '02 Quraishi, Sabah (BMC '03) and Dzani, Kuorkur (BMC '04)
- Summer '03 Carolyn Graybeal (BMC '04), Nicole Pietras, (BMC '04) and Kathryn McCormick (BMC '05)
- Summer '04 Maureen Convery (BMC '06), Ghazal Zekavat, (BMC '06) and Kathryn McCormick (BMC '05)
- Summer '06 Rebecca Donatelli (BMC '07) and Klaudia Gorska (BMC '08)
- Summer '07 Astra Bryant (BMC '08) and Rachel Brady (BMC '09)
- Summer '08 Dominique McKeever (BMC '09)
- Summer '09 Elizabeth Hamilton (BMC '13) and Dakota Fisher-Vance (BMC '11)

Faculty Committees / Other Activities

- Member of Committee on Faculty Salaries and Benefits, 1991-1994.
- Member of the Health Benefits Review Committee, Fall '92 and Spring '93.
- Member of Committee on Academic Computing, Natural Science Representative, 1992-1993.
- Member of Undergraduate Curriculum Committee, 1992-1995.
- Representative to Bryn Mawr Psychology Department Search Committee, 1992-1993.
- Representative to Bryn Mawr Computer Center Search Committee, Summer '93.
- Representative to the Two College Committee on Academic Cooperation, Fall '94 and Spring '95.
- Member of the selection committee for the Dorothy Nepper Marshall Program, Spring '95

Representative to Bryn Mawr Biology Department Search Committee for a tenure track position in Ecology, 1995-1996.
 Member of the Post-Bac admissions committee, 1995-1997.
 Member of the Institutional Animal Care and Use Committee, 1996-5//01.
 Representative to Haverford Biology Department Search Committee for a tenure track position in Molecular Neurobiology, 1998 - 1999.
 Representative to Bryn Mawr Biology Department Search Committee for a tenure track position in Genetics, 1998-1999.
 Member of Committee on Academic Computing, Natural Sciences Representative, 1998-2001.
 Faculty Representative to the Board of Trustees, 1998 - 2001.
 Representative to Bryn Mawr Biology Library Search Committee for a science librarian position, 1999.
 Faculty Mentor for Ed Wovchko, Assistant Professor in the Department of Chemistry
 Chair of the Search Committee for the Computational Scientist position, 2001-2002.
 Representative to Steering Committee for Computing in Math/Sciences, 1999-present.
 Panel Member - Preview Day's Faculty Panel, October 2001
 Panel Member - Admissions Web Chat, April 3, 2002.
 Chair of the Search Committee for the Ecologist position in Biology, 2002-2003.
 Member of the Undergraduate Admissions Committee, 2004-2007.
 Chair of the Search Committee for Postdoctoral Fellow in Computational Methods, 2004-2005.
 Chair of the Search Committee for the Biochemist / Molecular Biologist position in Biology, 2005-2006.
 Biology representative to the Science Node, 2006-2007.
 Associate Director of Center for Science and Society, 2007-08.
 Member of the Katharine Houghton Hepburn Center steering committee, 2007-2009.
 Member of the Search Committee for Evolutionary Developmental Biologist position in Biology, fall 2007.
Ad Hoc to assist the Provost on evaluating and setting criteria for graduate programs – spring 2008
Ad Hoc committee to discuss revising Parents Weekend – May 2008.
 Director of Center for Science and Society, 2007-08.
 Member of the Search Committee for Computational Ecologist position in Biology, fall 2008.
 Diversity Representative to Geology Search Committee, 2008-09.
 Elected Faculty Representative to Search for Chief Development Officer by the General Faculty – Fall 2008.
 Invited by the Admissions Office to an information session for student tour guides on the Biology Department and the major, Fall 2008.
 Chair of the Search Committee for HHMI Postdoctoral Fellow in Applied Mathematics, 2008-09.
 Chair of the Search Committee for HHMI Postdoctoral Fellow in Science Education, Fall 2008-09.
 Member of the Middle States Working Group on Graduate Education. 2009-2010.

Outreach / Community Activities

- Participant in Brain and Behavior Summer Institute, summers '93, '94 and '95.
- Participant in Camden Conference on the Brain for Pre-College Educators, May 20, 1995. University of Rutgers-Camden. Seminar Title: To swim or not to swim: Control of leech swimming.
- Mentor for Joslyn Carpenter, Lambertton High School student and Bryn Mawr class of 1999, fall '94 and Spring '95.
- Laboratory demonstrations for Lambertton High School students, April '95 and April '96
- Laboratory demonstrations for Philadelphia Middle School students, June 16, 1997
- Laboratory demonstrations for Lambertton High School students, March 12, 1998
- Neuroscience demonstrations for Stratford Friends students, 1997-2000
- Neuroscience demonstrations for Haverford Friends students, 2001
- Participant in Brain and Behavior Summer Institute, summer 2007.
- Participant and coordinator of HHMI sponsored Fridays in the Lab for high school students from Delaware Valley Friends School, 2004-05, 2005-06, 2006-07, and 2007-08.
- Co-Director of HHMI-sponsored Summer Institute for K-12 teachers, Science as Interactive, Interdisciplinary Inquiry, July 21 – August 1, 2008.

Community Relations

- Open Campus Day - April '91, '92, '93, '95, '96. Tea/ dinner with prospective students and their parents.
- Fundraising Volunteers Weekend, October 1994. Dinner with volunteers.
- Wednesdays at Mid-Day. Round-table admissions panel with prospective students, their parents and faculty. Summer '93.
- Vice President of the Haverford Faculty Swim Club, 1992.
- Treasurer of the Haverford Faculty Swim Club, 1993 - 2001.
- Member of Two College Committee for Academic Cooperation, fall '94 - Spring '95.
- Monitor for the 1995 Commencement.
- Represented the Biology Department and the Neural and Behavioral Science concentration at a prospective student's day, September 21, 1996.
- Member of the Parent's Day Committee - Fall '97.
- Majority Inspector for Haverford Township 5th ward, 1st precinct - May 20, 1997 Primary Elections
- Haverford Township Little League umpire, summer '00 – present.
- Volunteered for MoveOn.org during Presidential Election – November 2004.
- Job Shadowing Sponsor for Lower Merion High School, November 2004.