KATHLEEN M. SCOTT, Ph.D.

Associate Professor
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Degrees

Ph.D. Biology. Pennsylvania State University at University Park, 1998.
B.S. Microbiology /Molecular Biology. University of Michigan at Ann Arbor, 1991.

Thesis

Ph.D. Inorganic carbon use by hydrothermal vent sulfur chemoautotrophic bacteria.

Research Interests

- Physiological ecology of chemolithoautotrophs.
- Marine and freshwater biogeochemistry.

Honors

- University of South Florida (USF) Outstanding Undergraduate Teaching Award, 2007.
- USF Research Rising Star, 2005.
- New Researcher Grant, USF, 2004.
- Innovative Teaching Award, USF, 2004.
- Braddock Fellowship, Department of Biology, Pennsylvania State University. 1992 - 1995.
- NSF Predoctoral Fellowship, 1992 - 1995.

Professional Experience

- **Associate Professor, University of South Florida, August 2009-present.**
- **Assistant Professor, University of South Florida, August 2003-present.**
- **Research Assistant, Harvard University, July 2000 - July 2003.**
  Co-Principal Investigator: Dr. Colleen Cavanaugh.
- **Postdoctoral Fellow, Harvard University, July 1998 – July 2000.**
  Co-Principal Investigator: Dr. Colleen Cavanaugh.
- **Graduate Research Assistant, Pennsylvania State University, September 1992 - July 1998.**
  Thesis Advisor: Dr. Charles Fisher.
- **Undergraduate Research Fellow, Woods Hole Oceanographic Institute, Summer 1990.**
  Project Advisor: Dr. Paul Dunlap.
- **Undergraduate Researcher, University of Michigan, Fall 1988 - Spring 1992.**
  Project Advisor: Dr. Harry Douthit.

Publications

- Dobrinski K. and **Scott K.M.** (2011). Transcription response by *Thiomicrospira crunogena* to the concentration of dissolved inorganic carbon. In prep.
- Thomas P. J., Boller A. J., Cavanaugh C. M., Tabita F. R., **Scott K.M.** (2011). Isotope fractionation by RubisCO from metabolically versatile proteobacteria. In prep.
- Boller A. J., Thomas P. J., Cavanaugh C. M., **Scott K. M.** (2011). Isotope fractionation by RubisCO from marine diatom *Skeletonema costatum.* In prep.
- Quasem, I., USF Genomics Class of 2006, USF Genomics Class of 2007, USF Genomics Class of 2008, and **Scott K.M**. (2011). The citric acid cycle of *Thiomicrospira crunogena:* An oddity amongst the Proteobacteria. In prep.
- **Scott K. M**., Dobrinski K., Boller A., Le Bris N. (2011). Response of hydrothermal vent vestimentiferan *Riftia pachyptila* to differences in habitat chemistry. Submitted.
- Boller A. J., Thomas P. J., Cavanaugh C. M., **Scott K. M.** (2011). Low stable carbon isotope fractionation by coccolithophore RubisCO. Geochimica et Cosmochimica Acta. In press.
- Kerfeld C. and **Scott K. M.** (2011). Using BLAST to teach 'E-value-tionary' concepts. PLoS Biol. 9(2): e1001014.
- **Scott K. M.,** Fox G., and Girguis P. R. (2011). Measuring isotope fractionation by autotrophic microorganisms and enzymes. In "Methods in Methane Metabolism", Methods in Enzymology, 494:281-99. ed. S. Ragsdale. Elsevier Inc., Cambridge.
- Ditty, J. L., Kvaal, C. A., Axen, S., Kim, E., Kerfeld, C. A., Bailey, C., Britton, R. A., Goodner, B. W., Freyermuth, S. K., Gordon, S. G., Heinhorst, S., Johns, M. A., Reed, K., Sanders-Lorenz, E. R., **Scott, K**., Xu, Z. (2010). Incorporating Genomics and Bioinformatics across the Life Sciences Curriculum. PLoS Biol 8(8): e1000448. doi:10.1371/journal.pbio.1000448
- Dobrinski K., Boller A., and **Scott K. M**. (2010). Expression and function of four carbonic anhydrase homologs in deep-sea hydrothermal vent chemolithoautotroph *Thiomicrospira crunogena. Applied and Environmental Microbiology* 76: 3561-3567.
- **Scott K. M.**, Sievert S. M., Klotz M. G., Chain P. S. G., Hauser L. J., Hemp J., Hügler M., Land M., Lapidus A., Larimer F. W., Lucas S., Malfatti S. A., Meyer F., Paulsen I. T., Ren Q., Simon J., and the USF Genomics class (2008). Genome of the epsilonproteobacterial chemolithoautotroph *Sulfurimonas denitrificans. Applied and Environmental Microbiology* 74: 1145-1156.
- **Scott, K.M.**, Henn-Sax, M., Longo, D., and Cavanaugh, C.M. (2007) Kinetic isotope effect and biochemical characterization of form IA RubisCO from the marine cyanobacterium *Prochlorococcus marinus* MIT9313. *Limnology and Oceanography* 52: 2199-2204.
- **Scott, K.M.** and Cavanaugh, C.M. (2007) CO_2 uptake and fixation by endosymbiotic chemoautotrophs from the bivalve *Solemya velum. Applied and Environmental Microbiology* 73: 1174-1179.
- **Scott K.M.**, Sievert SM, Abril FN, Ball LA, Barrett CJ, Blake RA, Boller AJ, Chain PS, Clark JA, Davis CR, Detter C, Do KF, Dobrinski KP, Faza BI, Fitzpatrick KA, Freyermuth SK, Harmer TL, Hauser LJ, Hugler M, Kerfeld CA, Kong WW, Land M, Lapidus A, Larimer FW, Longo DL, Lucas S, Malfatti S, Massey SE, Martin DD, McCuddin Z, Meyer F, Moore JL, Ocampo LH, Paul JH, Paulsen IT, Reep DK, Ren Q, Ross RL, Sato PY, Thomas P, Tinkham

LE, Zeruth GT (2006) The genome of the deep-sea vent chemolithoautotroph *Thiomicrospira crunogena*. *Plos Biology* 4: 1-17.

- Dobrinski, K., Longo, D., and **Scott, K.M.** (2005) A hydrothermal vent chemolithoautotroph with a carbon concentrating mechanism. *Journal of Bacteriology* 187: 5741-5766.
- **Scott, K.M.** (2005) Allometry of gill masses, gill surface areas, and foot biomass $\delta^{13}C$ values of the chemoautotroph-bivalve symbiosis *Solemya velum*. *Mar. Biol.* 147: 935-941.
- **Scott, K.M.**, Schwedock, J., Schrag, D. P., and Cavanaugh, C.M. (2004) Influence of form IA RubisCO and environmental dissolved inorganic carbon on the $\delta^{13}C$ of the clam-chemoautotroph symbiosis *Solemya velum. Environmental Microbiology* **6**: 1210-1219.
- Schwedock, J., Harmer, T.L., **Scott, K.M.,** Hektor, H.J. Seitz, A.P., Fontana, M.C., Distel, D.L., and Cavanaugh, C.M. (2004) Characterization and expression of genes from the RubisCO gene cluster of the chemoautotrophic symbiont of *Solemya velum: cbbLSQO. Archives of Microbiology* **182**: 18-29.
- **Scott, K.M.**, Lu, X., Cavanaugh, C.M., and Liu, J. (2004) Optimal methods for estimating kinetic isotope effects from different forms of the Rayleigh distillation equation. *Geochimica et Cosmochimica Acta* **68**: 433-442.
- **Scott, K.M.** (2003) A $\delta^{13}C$-based carbon flux model for the hydrothermal vent chemoautotrophic symbiosis *Riftia pachyptila* predicts sizeable CO_2 gradients at the host-symbiont interface. *Environmental Microbiology* **5**: 424-432.
- Robinson, J.J., **Scott, K.M.**, Swanson, S.T., O'Leary, M.H., Horken, K., Tabita, F.R., and Cavanaugh, C.M. (2003) Kinetic isotope effect and characterization of form II RubisCO from the chemoautotrophic endosymbionts of the hydrothermal vent tubeworm *Riftia pachyptila*. *Limnology and Oceanography* **48:** 48-54.
- Smith, E., **Scott, K.M.**, Nix, E., Korte, C., and Fisher, C. (2000) Growth and condition of seep mussels (*Bathymodiolus childressi*) at a Gulf of Mexico brine pool. *Ecology* **81**: 2392-2403.
- **Scott, K.M.**, Bright, M., Macko, S.A., and Fisher, C.R. (1999) Carbon dioxide use with different affinities by chemoautotrophic endosymbionts of the hydrothermal vent vestimeniferans *Riftia pachyptila* and *Ridgeia piscesae*. *Marine Biology* **135**: 25-34.
- **Scott, K.M.**, and Fisher, C.R. (1998) The burden of independence: Inorganic carbon utilization strategies of the sulfur chemoautotrophic hydrothermal vent isolate *Thiomicrospira crunogena* and the symbionts of hydrothermal vent and cold seep vestimentiferans. *Cahiers de Biologie Marine* **39**: 379-381.
- Nix, E., Fisher, C., Vodenichar, J., and **Scott, K.** (1995) Physiological ecology of a mussel with methanotrophic endosymbionts at three hydrocarbon seep sites in the Gulf of Mexico. *Marine Biology* **122**: 605-617.
- **Scott, K.,** and Fisher, C. (1995) Physiological ecology of sulfide metabolism in hydrothermal vent and cold seep vesicomyid clams and vestimentiferan tube worms. *American Zoologist* **35**: 102-111.
- MacDonald, I., Guinasso, N., Sassen, R., Brooks, J., Lee, L., and **Scott, K.M.** (1994) Gas hydrate that breaches the sea floor on the continental slope of the Gulf of Mexico. *Geology* **22**: 699-702.
- **Scott, K.M.**, Fisher, C.R., Vodenichar, J.S., Nix, E., and Minnich, E. (1994) Inorganic carbon and temperature requirements for autotrophic carbon fixation by the chemoautotrophic

symbionts of the giant hydrothermal vent tube worm, *Riftia pachyptila*. *Physiological Zoology* **67**: 617-638.

Grant Proposals Funded

- USDA Cooperative State Research and Extension Service: US Department of Agriculture Higher Education Challenge Grants Program. 2008-2010. $73,400. "Searching the deep sea for clues to enhance agricultural carbon fixation: An undergraduate research program to isolate, characterize, and sequence novel autotrophs".
- JGI/DOE Community Sequencing Program. 9 genome sequences. "Thiomicrospiras: Ubiquitous sulfur-oxidizing autotrophs from an undersampled lineage of Gammaproteobacteria".
- NSF-MCB-Cellular Systems; MCB-Genes and Genome Systems, National Science Foundation. 2007-2011. $635,509 (2 mos/yr summer support for K. Scott). "CAREER: The carbon concentrating mechanism of the deep-sea hydrothermal vent chemolithoautotroph *Thiomicrospira crunogena"*. University of South Florida.
- USDA Cooperative State Research and Extension Service: US Department of Agriculture Higher Education Challenge Grants Program. 2005-2006. $47,239. "Sequence and Consequence: A hands-on approach to bioinformatics research for undergraduates".
- USF New Researcher Grant. 2004-2005. $8,735. "Genes of a hydrothermal vent bacterium induced by low concentrations of carbon dioxide: Adaptations to the Proterozoic-to-Phanerozoic CO2 crisis".
- USF Innovative Teaching Grant. 2004. $5,000. "Making the genomic era a cornucopia for undergraduate biology education".
- Microbial Genome Program, Department of Energy. 2003-2004. Draft-level genome sequence of *Thiomicrospira crunogena* and *Thiomicrospira denitrificans.* Co-written with Stefan Sievert. "Nomination of *Thiomicrospira crunogena* and *Thiomicrospira denitrificans* for genome sequencing by the Department of Energy".
- Biological Oceanography, National Science Foundation. 2003-2006. $319,553. Co-written with C. Cavanaugh. "Molecular and biochemical basis for stable carbon isotopes in marine autotrophs using Form IC and Form ID RubisCO".
- Biological Oceanography, National Science Foundation. 2000-2003. $397,879. Co-written with C. Cavanaugh. "Molecular and biochemical basis for stable carbon isotopes in marine autotrophs using Form IA RubisCO".
- West Coast and Polar Regions Undersea Research Center, National Undersea Research Program. 1998-2000, $117,481 and 6 ALVIN dives. Co-written with C. Cavanaugh. "Environmental, physiological, and molecular factors influencing stable carbon isotope ratios of deep-sea chemoautotrophic symbioses".

Invited Presentations

- "Role of Carbonic Anhydrase in a Chemolithoautotroph". Summer 2010, University of Florida.
- "A Bellyful of Bicarbonate: Surprising Carbon Concentrating Mechanisms in Deep-Sea Vent Bacteria". Winter 2010, Harvard University.

- "Stable Carbon Isotope Values of Chemoautotrophic Symbioses: Biochemistry, Anatomy, and Some Unresolved Questions". Winter 2009, Observatoire Oceanographique, Banyuls, France.
- "Genome-Informed Insights into the Carbon Concentrating Mechanism of Hydrothermal Vent Bacterium *Thiomicrospira crunogena"*. Winter 2009, Observatoire Oceanographique, Banyuls, France.
- "Isotope Discrimination by Marine RubisCO Enzymes". Fall 2009, California Institute of Technology.
- "Isotope Discrimination by Phylogenetically Distinct RubisCO Enzymes". Summer 2008, Gordon Research Conference: The Molecular Basis of C1 Metabolism.
- "Genomics Curriculum Development". Fall 2007, Department of Energy-Joint Genome Institute Undergraduate Research Program in Microbial Genome Annotation Workshop.
- "Marine Microbial Carbon Fixation". Fall 2007, University of Southern Mississippi Bennett Symposium.
- "Marine Microbial Carbon Fixation". Spring 2007, Woods Hole Oceanographic Institution.
- "Adaptations for chemolithoautotrophy at deep-sea vents apparent from the genome of *Thiomicrospira crunogena"*. Summer 2006, Munster, Germany. International Society for Microbial Sulfur Metabolism.
- "The completed genome of *Tms. crunogena:* A system optimized for autotrophy at the deep-sea hydrothermal vents". Spring 2006. ASM General Meeting.
- "A carbon concentrating mechanism in a deep-sea chemoautotroph". Fall 2004. The Fifth International Symposium on Inorganic Carbon Utilization by Aquatic Photosynthetic Organisms.
- "Stable Carbon Isotope ratios of chemoautotrophic symbioses: Enzymatic and morphological factors". Fall 2003. University of South Florida College of Marine Science.
- "Different choices for different lifestyles: Inorganic carbon uptake by chemoautotrophic bacteria from hydrothermal vents and elsewhere". Fall, 2003. University of Southern Mississippi.
- "Form IA RubisCO from chemoautotrophic bacteria: Kinetic isotope effects". Summer, 2002. Gordon Research Conference: The Molecular Basis of C1 Metabolism.
- "Carbon fixation by chemoautotrophic bacteria from deep-sea hydrothermal vents and elsewhere". Spring, 2003. The University of South Florida.
- "Carbon dioxide uptake and fixation by chemoautotrophic bacteria from hydrothermal vents and elsewhere". Spring, 2002. Woods Hole Oceanographic Institution.
- "Strangers in the night, exchanging gases: What $\delta^{13}C$ values tell us about gas exchange in chemoautotrophic symbioses". Winter, 2002. Clark University.
- "Carbon dioxide uptake and fixation by chemoautotrophic bacteria from the hydrothermal vents and elsewhere". Fall, 2001. Second International Symposium on Hydrothermal Vent Biology.
- "Inorganic carbon uptake by chemoautotrophic bacteria". Winter, 2000. Woods Hole Oceanographic Institution.
- "Extracellular CO_2 and HCO_3^- use by symbiotic and free-living hydrothermal vent sulfur chemoautotrophs". Fall, 2000. Third International Congress on Symbiosis.
- "Stable carbon isotope values of organisms at deep-sea vents". Winter, 2000. San Francisco State University.
- "Carbon fixation by symbiotic and free-living hydrothermal vent chemoautotrophs". Fall, 1999. Harvard University.

- "Inorganic carbon use at in situ pressure by the endosymbionts of the deep sea hydrothermal vent tubeworm, *Riftia pachyptila*." Spring, 1996. Eberly College of Science Graduate Honors Seminar.

Symposia Chaired

- "Genomics of Sulfur-Oxidizing Bacteria". Co-chaired with Stefan Sievert. ASM General Meeting, May 2006.

Conference Presentations

- I. Quasem and **K. Scott** (2010). Complete oxidative citric acid cycle in an obligate chemolithoautotroph. Gordon Research Conference: The molecular basis of C1 metabolism.
- M. Mangiapia and **K. Scott** (2010). From CO_2 to Cell: Energetic Cost of the Calvin Benson Bassham and Reductive Citric Acid Cycles Based on Genome Data. Gordon Research Conference: The molecular basis of C1 metabolism.
- **K. Scott**, K. Dobrinski, A. Boller, K. Menning, I. Quasem, and P. Thomas (2009). The ship goes down with all hands: Impact of the hydrothermal vent habitat on the chemolithoautotrophic endosymbionts from the vestimentiferan tubeworm *Riftia pachyptila.* General Meeting, American Society for Microbiology.
- K. Menning, K. Dobrinski, and **K. Scott** (2009). Identifying the components of the carbon concentrating mechanism of deep-sea hydrothermal vent chemolithoautotrophic bacterium *Thiomicrospira crunogena*. General Meeting, American Society for Microbiology.
- I. Quasem and **K. Scott** (2009). Comparative genomics of the citric acid cycle in Proteobacteria. General Meeting, American Society for Microbiology.
- K. Dobrinski and **K. Scott** (2008). Gene transcription associated with a chemolithoautotrophic carbon concentrating mechanism. Gordon Research Conference: The molecular basis of C1 metabolism.
- A. Boller, P. Thomas, C. M. Cavanaugh, and **K. Scott** (2008). Isotope discrimination by RubisCO from *Skeletonema costatum.* Ocean Sciences Meeting, American Geophysics Union/American Society for Limnology and Oceanography.
- P. Thomas, A. Boller, B. Tabita, C. M. Cavanaugh, and **K. Scott** (2008). Isotope discrimination by form IC RubisCO from *Rhodobacter sphaeroides.* Ocean Sciences Meeting, American Geophysics Union/American Society for Limnology and Oceanography.
- K. Dobrinski and **K. Scott** (2007). Genes encoding the carbon concentrating mechanism of the hydrothermal vent chemolithoautotroph *Thiomicrospira crunogena*. General Meeting, American Society for Microbiology.
- J. Paul, J. Mobberly, and **K. Scott** (2006). A prophage in the hydrothermal vent obligate chemoautotroph *Thiomicrospira crunogena*. American Society for Limnology and Oceanography.
- I. L. G. Newton, F. J. Stewart, T. Woyke, P. M. Richardson, K. W. Barry, J. C. Detter, D. C. Bruce, S. Sullivan, **K. M. Scott,** J. A. Eisen, and C. M. Cavanaugh (2006). The *Calyptogena magnifica* symbiont draft genome: An obligate, maternally transmitted endosymbiont with extensive metabolic capabilities. General Meeting, American Society for Microbiology.
- A. Boller, P. Thomas, C. Cavanaugh, and **K. M. Scott.** (2006). Kinetic isotope effects of form IC/D Rubisco enzymes. General Meeting, American Society for Microbiology.

- K. Dobrinski and **K. M. Scott.** (2006). Optimized protocol for introducing DNA into the gamma proteobacterial sulfur chemolithoautotroph *Thiomicrospira crunogena*. General Meeting, American Society for Microbiology.
- D. Longo, S. Guerin, and **K. M. Scott.** (2004). A Chemolithoautotroph with a Carbon Concentrating Mechanism. General Meeting, American Society for Microbiology.
- **K. M. Scott**, J. Schwedock, and C. M. Cavanaugh. (2002). Form IA RubisCO from chemoautotrophic bacteria: Kinetic isotope effects**.** Annual Meeting, American Society for Limnology and Oceanography.
- **K. M. Scott**, J. J. Robinson, and C. M. Cavanaugh. (2000). Kinetic parameters of RubisCOs from chemoautotrophic symbioses**.** Annual Meeting, American Society for Limnology and Oceanography.
- **K. M. Scott**, J. J. Robinson, and C. M. Cavanaugh. (1999). Influence of Form I and Form II Rubisco and environmental dissolved inorganic carbon on stable carbon isotope values in chemoautotrophic bacteria**.** Juan de Fuca Results Symposium.
- **K. M. Scott**, J. J. Robinson, D. T. Nguyen, J. Schwedock, and C. M. Cavanaugh. (1999). Form I and Form II Rubisco in chemoautotrophic bacteria: Influence on stable carbon isotope values?? General Meeting, American Society for Microbiology.
- **K. M. Scott** and C. R. Fisher. (1998). Inorganic carbon use by symbiotic and free-living hydrothermal vent sulfur chemoautotrophs. Gordon Research Conference on the Molecular Basis of Microbial One-Carbon Metabolism.
- **K. M. Scott**, M. Bright, and C. R. Fisher. (1997). The burden of independence: Inorganic carbon utilization strategies of the sulfur chemoautotrophic hydrothermal vent isolate *Thiomicrospira crunogena* and the symbionts of hydrothermal vent and cold seep vestimentiferans. 1st International Conference on Hydrothermal Vent Biology.
- **K. M. Scott** and C. R. Fisher. (1997). Affinities for inorganic carbon and forms used by the autotrophic symbionts of hydrothermal vent vestimentiferans. 2nd International Congress on Symbiosis.
- **K. M. Scott** and C. R. Fisher. (1996). Inorganic carbon utilization at 204 atmospheres by the endosymbionts of the deep sea hydrothermal vent tubeworm, *Riftia pachyptila*. Symbiosis 96!
- C. R. Fisher, I. A. Urcuyo, D. Julian, and **K. M. Scott**. (1996). Hydrothermal vent and cold seep vestimentiferan tubeworms: Very similar symbiotic associations, very different physiological ecologies. Symbiosis 96!
- **K. M. Scott** and C. R. Fisher. (1996). Affinity for inorganic carbon, and the forms of inorganic carbon used, by the autotrophic symbionts of hydrothermal vent vestimentiferans. Annual Meeting, Society for Integrative and Comparative Biology.
- **K. M. Scott**, J. Vodenichar, and C. R. Fisher. (1993). Inorganic carbon substrate of the chemoautotrophic symbionts of *Riftia pachyptila*. Annual Meeting, American Society for Zoology.
- E. Nix, **K. M. Scott**, and C. R. Fisher. (1993). In situ growth of SM1a: An undescribed mytilid fueled by gas. Annual Meeting, American Society for Zoology.

Research Cruise Participation

- 2007: December 25 – January 20, Clipperton Transform Fault, East Pacific Rise
- 1999: August 23 - September 6, Endeavor Segment, Juan de Fuca Ridge
  April 15 - May 5, Clipperton Transform Fault, East Pacific Rise

- 1998: July 29 - August 9, Endeavor Segment, Juan de Fuca Ridge
- 1997: July 9 - 18, Louisiana Slope, Gulf of Mexico
  September 6 - 27, Endeavor Segment, Juan de Fuca Ridge
- 1996: February 9 - March 27, Clipperton Transform Fault, East Pacific Rise
  October 12 - 20, Endeavor Segment, Juan de Fuca Ridge
- 1995: March 21 - April 12, Clipperton Transform Fault, East Pacific Rise
  July 8 - 20, Endeavor Segment, Juan de Fuca Ridge
  September 18 - 30, Louisiana Slope, Gulf of Mexico
  December 7 - 21, Clipperton Transform Fault, East Pacific Rise
- 1994: July 1 - 15, Endeavor Segment, Juan de Fuca Ridge
  September 25 - October 5, Louisiana Slope, Gulf of Mexico **(Chief Scientist)**
  November 6 - December 5, Clipperton Transform Fault, East Pacific Rise
- 1993: June 23 - July 14, Louisiana Slope, Gulf of Mexico
- 1992: March 23 - April 24, Clipperton Transform Fault, East Pacific Rise
  May 22 - 27, Alaminos Canyon, Gulf of Mexico
  August 9 - 22, Louisiana Slope, Gulf of Mexico

Professional Society Participation

- International Society for Microbial Ecology
- American Society for Limnology and Oceanography
- American Society for Microbiology
- Union of Concerned Scientists

Service to the field

- **American Society for Microbiology/Joint Genome Institute Functional Genomics Institute.** July 2010 and 2011. Co-chaired a 4-day workshop to assist professors from colleges and universities worldwide in the implementation of functional genomics-related curriculum innovations.
- **American Society for Microbiology Spring Bioinformatics Institute.** Spring 2009 – present. Co-chaired a 4-day workshop to assist professors selected from colleges and universities worldwide in the implementation of bioinformatics-related curriculum innovations.
- **Department of Energy-Joint Genome Institute Undergraduate Research Program in Microbial Genome Annotation.** Fall 2007 – present. Pilot faculty collaborator for curriculum development and implementation.
- **University-National Oceanographic Laboratory System Deep Submergence Science Committee**, member, Fall 2004-2008.

Proposal Review Participation

- NSF IOS Proposal Reviewer, Spring 2009
- NSF DEB Proposal Reviewer, Spring 2009
- NSF IOS Proposal Reviewer, Fall 2008
- NSF MIPS Proposal Reviewer, Spring 2008

- NSF Genes and Genomes Proposal Reviewer, Spring 2007
- USF Innovative Teaching Program, Spring 2006
- USF Internal Awards Program, Fall 2005
- NSF Marine Geology and Geophysics, Fall 2005
- NOAA Undersea Research Program, Fall 2005
- NSF Biological Oceanography, Spring 2005
- NSF Microbial Observatories Proposal Reviewer, Fall 2004
- NSF Systematics Proposal Reviewer, Fall 2003

Proposal Panel Review Membership

- NSF MCB Fall 2010
- DOE Biological Systems Research on the Role of Microbial Communities in Carbon Cycling, Spring 2010
- NASA Exobiology Review Panel Member, Spring 2010
- JGI/DOE Community Sequencing Program Panel Member, Spring 2007
- NASA Exobiology Review Panel Member, November 2003

Manuscript Review Participation

- Frontiers in Microbial Physiology and Metabolism, Associate Editor

Manuscript Review Participation (ad hoc)

- Plos One
- Geobiology
- Environmental Microbiology
- Limnology and Oceanography
- Deep Sea Research
- Journal of Bacteriology
- Plant Physiology
- Functional Plant Biology
- Microbiology

Courses Taught

- GLY 6739, *Global Biogeochemistry,* USF, Team-taught, Fall 2008 and 2009.
- BSC 5931, *Topics in Microbial Ecology,* USF, Fall 2007 and 2008.
- BSC 5931, *Genomics*, USF, Fall 2004–9.
- BSC 4937, *Global Climate Change: Impacts on Marine Ecosystems*, USF, Fall 2006.
- MCB 4404, *Microbial Physiology and Genetics*, USF, Spring 2004-10.
- MCB 4404L, *Microbial Physiology and Genetics Lab,* USF, Spring 2004-10.
- BSC 6907, *Coral Physiology*, USF, Fall 2003.
- Thesis Supervisor for Mary Mangiapia, Fall 2009-present.
- Dissertation Supervisor for Rene Weisner, PhD student, Fall 2008-present.
- Thesis Supervisor for Kristy Menning, MS student, Fall 2007-present.
- Thesis Supervisor for Ishtiaque Quasem, MS student, Fall 2007-present.

- Dissertation Supervisor for Amanda Boller, PhD student, Spring 2005-present.
- Thesis Supervisor for Phaedra Thomas, MS student, Fall 2005-Summer 2008.
- Dissertation Supervisor for Kim Dobrinski, PhD student, Fall 2004-Summer 2009.
- Committee member (non-chair) for four USF Masters and seven PhD students, Fall 2003-present.
- Mentor for twenty-one undergraduate researchers, USF, Fall 2003-present.
- Mentor for four undergraduate researchers, Harvard University, Fall 1998 – Summer 2003.
- Graduate Teaching Assistant (TA) and Guest Lecturer, *Physiological Ecology*, Pennsylvania State University (PSU), Spring 1998.
- TA, *Cells and Molecules*, PSU, Spring 1997.
- TA, *Function and Development of Organisms,* PSU, Fall 1996.
- Mentor for two undergraduate researchers, PSU, Spring 1996 - Spring 1998.

Thesis Completion by My Research Group

- "The citric acid cycle of *Thiomicrospira crunogena:* An oddity amongst the Proteobacteria". MS Thesis, Ishtiaque Quasem. Successfully defended, Fall 2009.
- "*Thiomicrospira crunogena*: A hydrothermal vent chemolithoautotroph with a carbon concentrating mechanism". PhD Thesis, Kimberly Dobrinski. Successfully defended, Summer 2009.
- "Isotope discrimination by form IC RubisCO enzymes". MS Thesis, Phaedra Thomas. Successfully defended, Summer 2008.

Outreach Participation

- **USF Lunch with a Scholar Program, Winter 2009.** "Plants that Bleed and CO_2 Vacuums: The Counterintuitive world of Deep-Sea Hydrothermal Vents".
- **Summer Project for a High School Student, Summer 2008.** Mentored Grace Vaziri on a two-week project to decipher chemotaxis by *Thiomicrospira crunogena*.
- **USF Summer Workshop on Genomics for High School Science Teachers. Summer 2008 and 2009.** Chaired and presented a two-week summer workshop for Hillsborough School District high school biology teachers on molecular evolution and the use of public genetic databases in curriculum development.
- **Science Fair Project Advisor, Fall 2004, Spring 2006.** Mentored Hannah Rutherford with her 8th grade science fair project, "Got Thiomicrospira? This bacterium can sniff and swim for nutrients under pressure".
- **The Educational Cooperative Summer Institute at Dover Sherborne High Schoo**l. **Summer 2001.** Lectured on deep sea hydrothermal vents, and presented possible laboratory exercises, to high school teachers.
- **Eyes to the Future Program, Fall 1999-2001.** Scientist mentor for young women in middle and high school.
- **REVEL Program, Fall 1997.** Trained two high school teachers to be research assistants on a research cruise to the Juan de Fuca Ridge.