

Sharyn K. Freyermuth, Ph.D.

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EDUCATION

- Ph.D. **Duke University**, Durham, North Carolina (May 1991)
Biochemistry and Genetics, Thesis Advisor: Robert E. Webster, Ph.D.
Dissertation title: *Studies on the TolA and TolB proteins: components of a multistep translocation system in Escherichia coli.*
- BS **University of Georgia**, Athens, Georgia (1984)
Major: Genetics, *Summa Cum Laude*; Member of University Honors Program; National Merit Scholar; Phi Beta Kappa
Undergraduate Research: *Restriction map analysis and sequencing of a soybean actin gene* with Richard B. Meagher, Ph.D.; Department of Genetics, University of Georgia

PROFESSIONAL EXPERIENCE

- Assistant Dean of Academic Programs**, University of Missouri (50% time) *June 2009-present*
- College of Agriculture, Food & Natural Resources
- Courses taught include *Foundations for College Success*, a 1 hour seminar course for second semester freshmen in academic difficulty. Duties include advising chair of the Agriculture major, helping with recruitment and career services in the college, faculty enrichment workshops, advising students in academic distress, Summer Welcome advising for entering freshmen; oversee the CAFNR research internship program.
- Associate Teaching Professor**, University of Missouri (50% time) *Sept 2010 - present*
- Biochemistry Department, College of Agriculture, Food and Natural Resources
- Courses taught include *Biotechnology in Society*, a 3 hour lecture/discussion class for non-majors; *Introduction to Biochemistry Laboratory*, a 2 hour lab course for entering freshmen; *Discovering Sciences Freshman Interest Group*, a 1 hour seminar class for entering freshmen.
- Director of Undergraduate Advising in Biochemistry**, University of Missouri *July 2011 - present*
- Overseeing advising of Biochemistry majors by faculty advisors, advising majors, Summer Welcome advising for entering freshmen majors, advising transfer students, meeting with prospective majors; maintaining Biochemistry honors program; faculty advisor for undergraduate Biochemistry Club.
- Interim Assistant Dean of Academic Programs**, University of Missouri *July 2008-May 2009*
- College of Agriculture, Food & Natural Resources
- Teaching Assistant Professor**, University of Missouri *Sept 2004 – Aug 2010*
- Biochemistry Department, College of Agriculture, Food and Natural Resources
- Courses taught include *Biotechnology in Society*, a 3 hour lecture/discussion class for non-majors; *Molecular Biology Laboratory* a 3 hour writing intensive laboratory class for majors; *Exploring Bioethics through Fact*

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and Fiction, a 1 hour seminar course targeted to pre-med, honors students; *Foundations for College Success*, a 1 hour seminar course for freshmen; *Senior Seminar in Biochemistry* a 1 hour capstone course for majors to present their research. Additional duties include co-facilitating the Biochemistry Freshman Interest Group, advising majors and assisting with Summer Welcome advising for entering freshmen majors.

Resident Instruction Resident Instructor, University of Missouri Aug 1998 – Aug 2004

- Biochemistry Department, College of Agriculture, Food and Natural Resources (100% teaching)

Postdoctoral Fellow, University of Missouri Aug 1992 – July 1998

- Biochemistry Department, College of Agriculture, Food and Natural Resources
Postdoctoral research with Joseph C. Polacco, Ph.D.; Biochemistry Department, University of Missouri; NSF Postdoctoral Fellowship in Plant Biology (1993-1996); Research area: *Molecular and genetic studies of soybean urease activation.*

Postdoctoral Fellow, University of Colorado – Boulder Aug 1991 – July 1992

- Department of Molecular, Cellular and Developmental Biology
Postdoctoral research with L. Andrew Staehelin, Ph.D.; Department of Molecular, Cellular and Developmental Biology, University of Colorado. Research area: *Functional and structural studies on the plant cell wall polysaccharide xyloglucan.*

SELECTED HONORS/AWARDS

- **Excellence in Advising Nominee**, Advisors Forum, University of Missouri, 2011
- **Outstanding Senior Teaching Award**, College of Agriculture, Food and Natural Resources, University of Missouri, 2007
- **Food and Agricultural Sciences Excellence in College and University Teaching Award Nominee**, National Associate of State Universities and Land-Grant Colleges, 2007
- **Biochemistry Faculty Fellowship for Teaching**, Division of Biochemistry, College of Agriculture, Food and Natural Resources, University of Missouri, 2007-2008
- **Teaching Scholars III**, College of Agriculture, Food and Natural Resources, University of Missouri, 2003-2006
- **Excellence in Advising Nominee**, Advisors Forum, University of Missouri, 2008

GRANTS AND FELLOWSHIPS

- PI on USDA Higher Education Challenge Grant: *Searching the deep sea for clues to enhance agricultural carbon fixation* (\$265,621) – 9/2008-8/2011. Collaboration between MU, UCLA and University of South Florida. Development of curricular materials to allow students to isolate and characterize novel autotrophic microbes.
- Co – PI on NSF CCLI Grant: *Addressing the Assessment Gap in Undergraduate Science: Development of Innovative Assessments for Learning in Biotechnology (DIAL-B)* (\$149,980) – 1/2009-12/2010. Designing, testing, and dissemination of innovative assessments for biotechnology.
- Co – PI on USDA Grant: MU Multicultural Scholars Program - Passport to Success (\$144,000) - 12/1/2006-6/1/2011. Four year scholarships for 6 minority students.

COMMITTEES/SERVICE/PROFESSIONAL ORGANIZATIONS

- Biochemistry Undergraduate Education Committee
- Pre-professional Scholars Program Committee, MU Medical School
- CAFNR Course and Curriculum Committee
- CAFNR Scholarship & Awards Committee
- Ex-officio member, CAFNR Learning Improvement Committee
- Advisor Chair, Agriculture major and Biochemistry major
- CAFNR Liaison for MU Fellowships Advisory Board
- North American Colleges and Teachers of Agriculture, member
- National Science Teachers Association, member
- Science Teachers of Missouri, member
- Sigma Xi, The Scientific Research Society, member
- The Phi Beta Kappa Society, Secretary-Treasurer for Alpha of Missouri

RESEARCH PUBLICATIONS/CURRICULUM

- Ditty, Jayna L., Kvaal, Christopher A., Goodner, Brad, **Freyermuth, Sharyn K.**, Bailey, Cheryl, Britton, Robert A., Gordon, Stuart G., Heinhorst, Sabine, Reed, Kelynn, Xu, Zhaohui, Sanders-Lorenz, Erin R., Axen, Seth, Kim, Edwin, Johns, Mitrick, Scott, Kathleen, Kerfeld, Cheryl A. (2010) Incorporating Genomics and Bioinformatics across the Life Sciences Curriculum. PLoS Biology, Volume 8 (August 2010). <http://www.plosbiology.org/article/info%3Adoi%2F10.1371%2Fjournal.pbio.1000448>
- Halverson, K.H., **Freyermuth, S.K.**, Siegel, M.A., & Clark, C.G. (2010). What Undergraduates Misunderstand about Stem Cell Research. *International Journal of Science Education*. **32**: 2253-2272.
- Concannon, J., Siegel, M., Halverson, K., **Freyermuth, S.**, (2010). College Students' Conceptions of Stem Cells, Stem Cell Research, and Cloning. *J Sci Educ Technol*. **19**:177-186. <http://www.springerlink.com/content/h4858t3h17243312/fulltext.pdf>
- Halverson, K.L., Siegel, M.A., & **Freyermuth, S.K.** (2010). Non-Science majors' critical evaluation of websites in a biotechnology course. *J Sci Educ Technol*. **19**:612-620. <http://www.springerlink.com/content/12r1h88181gj0474/fulltext.pdf>
- Rebello, C.M., Witzig, S.B., Siegel, M.A., & **Freyermuth, S.K.** (in press). Assessment practices for understanding science-related attitudes. In Saleh, I.M., & Khine, M.S. *Attitude Research in Science Education: Classic and Contemporary Measurements*. Information Age Press.
- Rebello C.M., Siegel M.A., Witzig S.B., **Freyermuth S.K.**, & McClure B.A. (in press). Epistemic beliefs and conceptual understanding in biotechnology: A case study. *Research in Science Education*.
- Halverson, K., Siegel, M.A., & **Freyermuth, S.** (2009). Lenses for framing decisions: Undergraduates' decision making about stem cell research. *International Journal of Science Education*. Vol. 31, No. 9, 1 June 2009, pp. 1249–1268. <http://www.informaworld.com/smpg/content~db=all~content=a904477398~frm=titlelink>

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- Kathleen M. Scott*, Stefan Sievert, Fereniki N. Abril, Lois A. Ball, Chantell J. Barrett, Rodrigo A. Blake, Amanda J. Boller, Patrick S. Chain, Justine A. Clark, Carisa R. Davis, Chris Detter, Kimberly F. Do, Kimberly P. Dobrinski, Brandon I. Faza, Kelly A. Fitzpatrick, **Sharyn K. Freyermuth**, Tara L. Harmer, Loren J. Hauser, Cheryl A. Kerfeld, William W. Kong, Miriam Land, Alla Lapidus, Frank W. Larimer, Dana L. Longo, Susan Lucas, Stephanie A. Malfatti, Steven E. Massey, Darlene D. Martin, Zoe McCuddin, Folker Meyer, Jessica L. Moore, Luis H. Ocampo, John H. Paul, Ian T. Paulsen, Douglas K. Reep, Rachel L. Ross, Priscila Y. Sato, Phaedra Thomas, Lance E. Tinkham, and Gary T. Zeruth. (2006). *The genome of Deep-sea Vent Chemolithoautotroph Thiomicrospira crunogena XCL-2*. PLoS Biol 4(12): e383.
doi:10.1371/journal.pbio.0040383
<http://www.plosbiology.org/article/info%3Adoi%2F10.1371%2Fjournal.pbio.0040383>

OTHER TEACHING/LEARNING OPPORTUNITIES

- Biotech University, Sept 2009, Oct 2010, Sept 2011: "Genetic Engineering: The Basics." Talk and activity for science journalism students
 - Writing abstracts and making posters. Given to CAFNR undergrad research interns, 2/10; 2/11.
 - Guest lecturer in Ag Econ (Ethical Issues in Agriculture), 2/10; 2/11
 - Biochemistry Session for summer camps (Kaufmann, Life Sciences Quest, Camp Wyman) 7/10.
 - A variety of sessions about CAFNR and the Biochemistry major for prospective student groups (both on campus and off campus)
 - Planned and oversaw CAFNR Winter Teaching Workshop, 1/10
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