

**CURRICULUM VITAE
2015**

JON S. MILLER

Professor of Biology

Presidential Engagement Professor

Director for Teacher Licensure in Biology

Department of Biological Sciences

Director for the Center for Secondary Science and Mathematics Education

College of Liberal Arts and Sciences

Northern Illinois University

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EDUCATION:

Doctor of Philosophy, Entomology (Cellular Biochemical Physiology), University of Nebraska-Lincoln, August, 1998.

Master of Science, Entomology (Cellular Biochemical Physiology), University of Nebraska-Lincoln, December, 1994.

Master of Education, Curriculum and Instruction (Secondary Science Education), University of Nebraska-Lincoln, August, 1987.

Bachelor of Science, Secondary Science Education (Biological Science Major, Botany and Zoology Minor), University of Nebraska-Lincoln, May, 1976.

Nebraska Professional Teaching Certificate, Biological Science Endorsement for grades 7 through 12, All Districts.

PROFESSIONAL EXPERIENCE:

Teaching Experience:

University and College Teaching in Science

Professor, Department of Biological Sciences, Northern Illinois University, 2012-present.

Associate Professor, Department of Biological Sciences, Northern Illinois University, 2005-2012.

Assistant Professor, Department of Biological Sciences, Northern Illinois University, 1999-2005.

Lecturer: Human Physiology for the School of Biological Sciences, University of Nebraska-Lincoln. Spring semester of 1998, 1999.

Instructor: Human Anatomy and Physiology for College of Saint Mary, Lincoln Campus, Lincoln, Nebraska. Fall semester, 1998.

Laboratory Instructor: Human Anatomy and Physiology for Southeast Community College, Lincoln Campus, Lincoln, Nebraska. Spring semester, 1997.

Laboratory Instructor: Insect Biochemistry/Physiology for Dr. David W. Stanley, Department of Entomology, University of Nebraska-Lincoln. Fall of odd numbered years 1991-1997.

Laboratory Teaching Assistant: Biology for Dr. Richard Boohar, for the School of Biological Sciences, University of Nebraska-Lincoln, 1975.

University Teaching in Education

Professor, Nature of Science Course for the Teacher Licensure Programs in the natural sciences, College of Liberal Arts and Sciences and Science Teacher Education Professional Development Program, Department of Biological Sciences, Northern Illinois University, DeKalb, Illinois. Fall semesters and summer sessions (currently).

Professor, Science Teaching Methods Courses for the Teacher Licensure Programs in the natural sciences, College of Liberal Arts and Sciences and Science Teacher Education Professional Development Program, Department of Biological Sciences, Northern Illinois University, DeKalb, Illinois. Fall and spring semesters (currently).

Supervisor of Clinical Experiences in Teacher Licensure for Biological Sciences: Department of Biological Sciences, Northern Illinois University, DeKalb, Illinois. Every fall semester (currently).

Supervisor of Student Teaching in Teacher Licensure for Biological Sciences: Department of Biological Sciences, Northern Illinois University, DeKalb, Illinois. Every spring semester (currently).

Instructor: Science Methods for the Department of Education, Nebraska Wesleyan University, Lincoln, Nebraska. Spring semester of 1998.

Cooperating Teacher: For Student Teachers in Secondary Science Education for the University of Nebraska-Lincoln Teacher Education Program, 1979-1999.

Cooperating Teacher: For Student Teachers in Secondary Science Education for the Nebraska Wesleyan University Teacher Education Program, 1979-1999.

Secondary Science Teaching

Teacher of Biology, Microbiology, and Chemistry; Lincoln East Senior High School, Lincoln, Nebraska, 1998-1999.

Teacher of Human Anatomy and Physiology, Biology, and Chemistry; Lincoln Northeast Senior High School, Lincoln, Nebraska, 1979-1998.

Teacher of Biology and Chemistry; Ralston Senior High School, Ralston, Nebraska, 1978-1979.

Teacher of Physical Science; Millard Central Junior High School, Millard, Nebraska, 1976-1978.

Research Experience:

Principle Investigator in Math-Science Teacher Education and Professional Development Program, Department of Biological Sciences, Northern Illinois University, DeKalb, Illinois, 2004-present.

Principle Investigator in Insect Cellular Immunity, Department of Biological Sciences, Northern Illinois University, DeKalb, Illinois, 1999-present.

Summer Research/Laboratory Assistant in Insect Biochemistry/Physiology under the supervision of Dr. David W. Stanley, Department of Entomology, University of Nebraska-Lincoln, 1992-1998.

Summer Faculty Fellowship in Biochemistry, conducted research in insect biochemistry under the supervision of Dr. David W. Stanley, Department of Entomology/Biochemistry, University of Nebraska-Lincoln, 1991.

Exercise Physiology Laboratory Assistant for Dr. William Thorland, Department of Health, Physical Education and Recreation, University of Nebraska-Lincoln, for a Summer Research Study of Junior Olympic Athletes, 1979.

Refereed Journal Articles in Science Research

1. **Miller, J.S.**, Sarah, O. (in Preparation) Effects of heavy metal toxicity on immunological responses in the tobacco hornworm, *Manduca sexta*.
2. **Miller, J.S.** and Smid, B. (in preparation) Eicosanoid biosynthesis inhibitors influence mortality and cellular immune responses in larvae of the tobacco hornworm, *Manduca sexta*, when injected with fungal conidia *Aspergillus flavus* and *Aspergillus nidulans*.
3. McAdoo, J.L. and **Miller, J.S.** (in preparation) Eicosanoids mediate hemocyte migration response to injury of hemocytes and selected tissues.
4. Stanley, D., Haas, E., and **Miller, J.S.** (2012) Eicosanoids: Exploiting Insect Immunity to Improve Biological Control Programs. *Insects* 3: 492-510; DOI 10.3390/insects3020492.
5. Stanley, D., **Miller, J.S.**, and Hasan Tunaz. (2009) Eicosanoid Actions in Insect Immunity. *Journal of Innate Immunity*. 1:282-290; DOI 10.1159/000210371.

6. Merchant, D., Ertl, R.L., Rennard, S.I., Stanley, D.W., and **Miller, J.S.** (2008) Eicosanoids Mediate Insect Hemocyte Chemotaxis. *Journal of Insect Physiology* 54 (1): 215-221.
7. Kwon H.S., Stanley, D.W., and **Miller, J.S.** (2007) Bacterial Challenge and Eicosanoids Act in Plasmotocyte Spreading. *Entomologia Experimentalis et Applicata* 124 (3): 285-292
8. Stanley, D.W. and **Miller, J.S.** (2006) Eicosanoid Actions in Insect Cellular Immune Functions. *Entomologia Experimentalis et Applicata*. 119: 1-13. (mini review)
9. **Miller, J.S.** (2005) Eicosanoids Influence *In Vitro* Elongation of Plasmotocytes from the Tobacco Hornworm, *Manduca sexta*. *Archives of Insect Biochemistry and Physiology* 59:42-51.
10. **Miller, J.S.** and Stanley, D.W. (2004) Lipopolysaccharide Evokes Microaggregation Reactions to Hemocytes Isolated from Tobacco Hornworms, *Manduca sexta*. *Comparative Biochemistry and Physiology* 137: 285-295.
11. Phelps, P.K., **Miller, J.S.**, and Stanley, D.W. (2003) Prostaglandins, Not Lipoxygenase Products, Mediate Insect Microaggregation Reactions to Bacterial Challenge in Isolated Hemocyte Preparations. *Comparative Biochemistry and Physiology* 136: 409-416.
12. **Miller, J.S.** and Stanley, D.W. (2001) Eicosanoids Mediate Microaggregation Reactions to Bacterial Challenge in Isolated Insect Hemocyte Preparations. *Journal of Insect Physiology* 47: 1409-1417.
13. Stanley, D.W., Hoback, W.W., Bedick, J.C., Tunaz, H., Rana, R.L., Nor Aliza, A.R., **Miller, J.S.** (1999) Eicosanoids Mediate Nodulation Reactions to Bacterial Infections in Larvae of the Butterfly, *Colias eurytheme*. *Comparative Biochemistry and Physiology* 123, 3: 217-223.
14. Tunaz, H., Bedick, J.C., **Miller, J.S.**, Hoback, W.W., Rana, R.L., Stanley, D.W. (1999) Eicosanoids Mediate Nodulation Reactions to Bacterial Infections in Adults of two 17-year Periodical Cicadas, *Magicicada septendecim* and *M. cassini*. *Journal of Insect Physiology* 45: 923-931.
15. **Miller J.S.**, Howard R.W., Rana, R.L., Tunaz, H., Stanley, D.W. (1999) Eicosanoids Mediate Nodulation Reactions to Bacterial Infections in Adults of the Cricket, *Gryllus Assimilis* *Journal of Insect Physiology* 45: 75-83.
16. Howard, R.W., **Miller, J.S.**, Stanley-Samuelson, D.W. (1998) The Influence of Bacterial Species and Intensity of Infections on Nodule Formation In Insects. *Journal of Insect Physiology* 44, 2: 157-164.
17. Stanley-Samuelson, D.W., Pedibhotla, V.K., Rana, R.L., Rahim, N.A.A, Hoback, W.W, and **Miller, J.S.** (1997). Eicosanoids Mediate Nodulation Response to Bacterial Infections in Larvae of the Silkworm, *Bombyx mori*. *Comparative Biochemistry and Physiology* 118A: 93-100.
18. **Miller, J.S.** and Stanley-Samuelson, D.W. (1996). The Pharmacology of the Eicosanoid Biosynthesis Inhibitor, Indomethacin, in Larvae of the Tobacco Hornworm, *Manduca sexta*. *Journal of Insect Physiology* 42, 9: 893-901.

19. **Miller, J.S.**, Howard, R.W., Nyugen, T., Nyugen, A., Stanley-Samuelsan, D.W. (1996). Eicosanoids Mediate nodulation responses to bacterial infections in larvae of the tenebrionid beetle, *Zophobas atratus*. *Journal of Insect Physiology* 42: 3-12.
20. Uscian, J.M., **Miller, J.S.**, Sarath, G., and Stanley-Samuelsan, D.W. (1995). A Digestive Phospholipase A₂ in the Tiger Beetle *Cicindela circumpicta*. *Journal of Insect Physiology* 4, 2: 135-141.
21. **Miller, J.S.**, Nguyen, T., and Stanley-Samuelsan, D.W. (1994). Eicosanoids Mediate Insect Nodulation Responses to Bacterial Infections. *Proc. Nat'l. Acad. Sci. USA* 91: 2418-12422.
22. Uscian, J.M, **Miller, J.S.**, Howard, R.W., and Stanley-Samuelsan, D.W. (1992) Arachidonic and Eicosapentaenoic Acids in Tissue Lipids of Two Species of Predacious Insects, *Cicindela circumpicta* and *Asilis sp.* *Comparative Biochemistry and Physiology* 103B, No. 4: 833-838.

Invited Book Chapters

1. Stanley, D.W. and **Miller, J.S.** (2008) The Role of Eicosanoids in Insect Immunity. In: *Insect Immunology*. (Beckage, N. Ed) Elsevier Inc.
2. Stanley, D.W. and **Miller, J.S.** (1998) Eicosanoids and Reproduction in Animals: What Can We Learn from Invertebrates? In: *Eicosanoids and Related Compounds in Plants and Animals*. (Rowley, AF, Kuhn, JH, and Schewe, T, Eds.) pp 185-198. Portland Press, London.
3. **Miller, J.S.** and Stanley, D.W. (1998) Techniques for Assaying Nodulation in Insects. In: *Techniques in Insect Immunity*. (Wiesner, A, Dunphy, G.B., Marmaras, V.J, Morishima, I., Sugumaran, M., and Yamakawa, M., Eds.) pp 265-270. SOS Publications, Fair Haven, NJ.

Published Abstracts in Research

1. Stanley, D.W. and **Miller, J.S.** (2006) Eicosanoids in Invertebrate Immunity: An In Vitro Approach. *IN VITRO, Journal of the Society for In Vitro Biology*, 42: 5A.

Refereed Journal Articles Related to Science Teaching

1. Toth, R. and **Miller, J.S.** (in preparation) The Process of Scientific Inquiry as it Relates to a Discussion of Creation: II. Never Say Fact: Data and Induction.
2. **Miller, J.S.** and Toth, R. (2014) The Process of Scientific Inquiry as it Relates to the Creation/Evolution Controversy: I. A Serious Social Problem. *The American Biology Teacher*, Vol. 76, 4: 238-241.
3. Marcus, L., Plumeri, J., Baker, G., and **Miller, J.S.** (2013) A Student-centric Teaching Method to Correctly Visualize the Molecular Basis of Hyperbolic Kinetics in Biological Systems. *Advances in Physiology Education* 37:165-175.

4. **Miller, J.S.** and Windelborn, A.F. (2013) Investigating Diffusion with Technology. *Physics Education* 48: 459-464.
5. Naples, V.L., Breed, D. and **Miller, J.S.** (2010) A Skeleton Tells Its Own Story: Forensic Anthropological Analysis for the Science Classroom Laboratory. *The American Biology Teacher*, Vol. 72, 3: 162-171.
6. Naples, V.L. and **Miller, J.S.** (2009) Evolving the Concept of Homology. *Bioscene*: Vol. 35, 1: 43-47.
7. Hubbard, C.J., **Miller, J.S.**, Olson, D. (2005) An Exciting Way to Teach An Old Topic: The Cadaver-Based Anatomy Short-Course for High School Students. *The Anatomical Record Part B: The New Anatomist*. 269:181-193.
8. Naples, V.L. and **Miller, J.S.** (2004) Making Tracks: The Forensic Analysis of Footprints and Footwear Impressions. *The Anatomical Record Part B: The New Anatomist*, 279B: 9-15.
9. **Miller, J.S.** (2004) Insects in the Classroom: A Study of Animal Behavior. *Science Activities*, 41: 24-31.
10. **Miller, J.S.**, Wong, S.L., Sass, M., and Nienhuis, J. (2004) Micro-Pipetting: An Important Laboratory Skill for Molecular Biology. *The American Biology Teacher*, Vol. 66: 291-296.
11. **Miller, J.S.** and Naples, V.L. (2002) Forensic Entomology for the Laboratory-based Biology Classroom. *The American Biology Teacher*, Vol. 64, 2: 136-142.
12. **Miller, J.S.** and Stanley, D. W. (2000) Investigating an immune response to bacterial infection. *In: Tested Studies for Laboratory Teaching*, Volume 21 (S.J. Karcher, Ed.). Proceedings of the 21st Workshop/Conference of the Association for Biology Laboratory Education (ABLE), pages 135-145.

Published Abstract Related to Teaching

1. Szendrak, E., Read, P., **Miller, J.S.** and Nadaskuti, M. (1998) Teaching Prospects of Plant Biotechnology for High School. Lippay Janos and Vas Karoly Int. Scientific Symposium, pages 114-115.

Grants Pending or Funded for Math-Science Teacher Education

1. Illinois Math Science Partnership Grant (ISBE/USDE), I-STEM. Funded 2015-current (\$750,000 over 3 yrs)
2. Illinois Math Science Partnership Grant (ISBE/USDE), Project ENGINE: Engineering the Next Gen Initiative for Northern Illinois Engagement. Funded 2012-2014 (\$320,000 over 2 yrs)
3. Illinois Math Science Partnership Grant (ISBE/USDE), Integrating Math and Science with Content, Pedagogy, and Technology. Funded 2011-2013 (\$280,000 over 2 yrs)

4. Illinois Math Science Partnership Grant (ISBE/USDE), Mastering Biology with Content, Pedagogy, and Technology. Funded 2007-2012 (\$1,000,000 over 5 yrs)
5. Illinois State Board of Education Eisenhower Grant, Meeting the Needs of Exceptional Students in Science. Funded 2004 (\$90,000 for one year)

Workshops, Technical Reports Related to Teaching:

Miller, J.S. (2015) Protocols, Strategies and Resource Management. Summer (June 22-26, 2015) Workshop for Training Mentor Teachers Breakout Facilitator and Presenter. Office of Educator Licensure and Preparation, Northern Illinois University, DeKalb, IL.

Miller, J.S., Wong, S., Sass, M., Nienhuis, J. (2000) Visualization of Molecular Biological Principles with Wisconsin Fast Plants and PCR Technology. Sponsored by DeKalb High School, DeKalb, IL, and The Department of Biological Sciences, Northern Illinois University, DeKalb, IL in collaboration with the Department of Horticulture, University of Wisconsin, Madison, WI.

Miller, J.S., Bell-Wehr, J., Sass, M., Saar, D., Nienhuis, J. (2000) Broccoli, Cabbage and DNA: A Workshop in Molecular Biology. Sponsored by Oak Park River Forest High School, Oak Park, IL, Triton Community College, River Grove, IL, and Northern Illinois University Department of Biological Sciences, DeKalb, IL, in collaboration with the Department of Horticulture, University of Wisconsin, Madison, WI.

Miller, J.S., Johns, M., Sass, M., Saar, D., Nienhuis, J. (2000) Pilot Workshop in Molecular Biology. Sponsored by Northern Illinois University Department of Biological Sciences, DeKalb, IL, in collaboration with the Department of Horticulture, University of Wisconsin, Madison, WI.

Miller, J.S. and Thornton, R. (1999). Summer workshop for Elementary School Teachers. "Butterflies, Bugs, and Biology." Sponsored by Lincoln Public School, Lincoln, Nebraska, Department of Entomology, University of Nebraska, Lincoln Nebraska, Math and Science Area of Strength.

Szendrak, E., Read, P., **Miller, J.S.,** and Nadaskuti, M. (1998) Teaching Prospects of Plant Biotechnology for High School. Lippay Janos and Vas Karoly Int. Scientific Symposium.

Miller, J.S. and Merritt, D, (1997). Procedure for Student Health Care Skills Licensure, for the School-to-Work Program for the Lincoln Public School District.

Miller, J.S. (1988). Course Learnings Curriculum for High School Human Anatomy and Physiology for the Lincoln Public School District.

Poster Presentations:

Yatsyk, I., Persino, P., Holtz, M., Spears, J., **Miller J.S.,** and Vemu, S. Transforming a STEM Classroom with Higher-Order Cognitive Skills for Improved Student Metacognition. American Association for the Advancement of Science Annual Meeting in Chicago, IL, February 13-17, 2014.

Persino, P., **Miller J.S.**, and Vemu, S. Transforming A Biology Course to a Blended Community, Course Transformation Project, Northern Illinois University, October 31, 2013.

Miller, J.S., Johns, M., and Wong, S. Sharing Our Skills in Biotechnology: A Partnership with Public Schools and NIU. NIU P-20 Initiative program. Invited Poster Presentation held at NIU-Altgeld Hall, January 19, 2005.

Miller, J.S., Phelps, P.K., and Stanley, D.W. Prostaglandins, Not Lipoxygenase Products, Mediate Insect Microaggregation Reactions to Bacterial Challenge in Isolated Hemocyte Preparations. National Meeting of the Entomological Society of America, Cincinnati, OH, October, 2003

Miller, J.S., Howard R.W., Nguyen T., Nguyen A., Rosario R.M.T., Stanley-Samuels D.W. Eicosanoids Mediate Nodulation Responses to Bacterial Infections in Larvae of the Tenebrionid Beetle *Zophobas atratus*. National Meeting of the Entomological Society of America, Las Vegas, NV, December, 1995

Miller, J.S. and Stanley-Samuels D.W. The Pharmacology of the Eicosanoid Biosynthesis Inhibitor, Indomethacin, in Larvae of the Tobacco Hornworm, *Manduca sexta*. National Meeting of the Entomological Society of America, Dallas TX, December, 1994.

Miller, J.S., Nguyen T., Stanley-Samuels D.W. Eicosanoids Mediate Insect Nodulation Responses To Bacterial Infections. National Meeting of the Entomological Society of America, Indianapolis IN, December, 1993.

Oral Presentations:

Miller, J.S. *Introduction to Service Learning through Student Research for High School Science*. Conference for Ideas for Integrating Science, Technology, Engineering, the Arts, and Mathematics into Your Classroom, Northern Illinois University, DeKalb, IL. Invited Seminar. August 3, 2015.

Miller, J.S. *Hot Topics for Next Generation Science Standards*. McHenry College Leadership Day. McHenry County College, McHenry, IL. Invited Seminar. February 13, 2014.

Miller, J.S. *Science Teacher Education: Recruitment, Education, and Retention of Future Science Teachers*. Department of Entomology, University of Nebraska-Lincoln, Lincoln, NE. Invited Seminar. May 23, 2011.

Miller, J.S. *Teacher Education in Biology*. Department of Biological Sciences, Northern Illinois University, DeKalb, IL. April 7, 2011.

Miller, J.S. *Eicosanoids Mediate Insect Cellular Immune Reactions to Bacterial Infections*. Department of Biological Sciences, Northern Illinois University, DeKalb, IL. March 3, 2011.

Miller, J.S. *Mastering Biology with Content, Pedagogy, and Technology*, Colloquium Speaker for Department of Leadership, Educational Psychology and Foundations, Northern Illinois University, DeKalb, IL, September 24, 2010.

Miller, J.S. *Eicosanoids Mediate Insect Cellular Immune Reactions to Bacterial Infections*. Department of Entomology, University of Illinois-Urbana Champaign, Urbana, IL. Invited Seminar. October 10, 2005.

Miller, J.S. *Eicosanoids Mediate Insect Cellular Immune Reactions to Bacterial Infections*. Department of Biological Sciences, Illinois State University. Invited Seminar. March 31, 2005.

Miller, J.S. *Eicosanoids Mediate Insect Cellular Immune Reactions to Bacterial Infections*. Department of Biological Sciences, Northern Illinois University, DeKalb, IL. April 29, 2004.

Miller, J.S. *Eicosanoids Mediate Insect Cellular Immune Reactions to Bacterial Infections*. Department of Biological Sciences, Western Illinois University, Macomb, IL. Invited Seminar. April 23, 2004.

Miller, J.S. *Eicosanoids Mediate Insect Cellular Immune Reactions to Bacterial Infections*. Department of Entomology, University of Missouri, Columbia, MO. Invited Seminar. April 16, 2004.

Miller, J.S. *Science/Ag Teachers Workshop*. Co-sponsored by Monsanto Foundation and Northern Illinois University. Waterman Research Laboratory Facilities, Waterman, IL, November 10, 2001.

Miller, J.S. and Stanley, D.W. *Workshop Presenter for ABLE Conference* at the University of Nebraska-Lincoln, School of Biological Sciences, Lincoln, NE, June, 1999.

Miller, J.S. and Stanley-Samuelson D.W. *Presenter for the University of Nebraska-Lincoln Department of Entomology Pest Management Training School*, Lincoln, NE, February, 1996.

Miller, J.S. *A Workshop for Public School Teachers: Insects in the Classroom*. Entomological Society of America, North Central Branch, Insect Expo, Omaha, NE, March, 1996.

Miller, J.S. and Stanley-Samuelson D.W. *High School Research in Immunology*. Nebraska Association of Teachers of Science Fall Conference, Camp Calvin Crest, Fremont, NE, October, 1994.

PROFESSIONAL SERVICE:

Institutional Service:

University Committees

University Committee on Initial Educator Licensure (UCIEL) formerly Committee on Initial Teacher Licensure (CITC). I annually serve on this committee. As a voting member of UCIEL/CITC, I participate in the oversight structure for teacher licensure at NIU. My involvement includes serving on subcommittees such as the CAEP/NCATE Standards committee, the Conceptual Framework committee and various ad hoc committees. I was chair of UCIEL/CITC during the CAEP/NCATE accreditation process in 2001. I chaired this committee for the second time during the fall of 2014 and spring 2015.

The Middle School Task Force (2005-2006). The Middle School Task Force was organized under the direction of the Associate Provost to determine the nature of preparing middle school teachers at NIU. As a member of the task force, I was involved in identifying the processes by which teacher licensure candidates are prepared to teach middle school in all academic areas across the university.

Middle Level Teaching and Learning Licensure Program Development Committee (2013-2015). As a result of serving on the Middle School Task Force, I was then asked to participate on the committee to develop and implement a Middle Level Licensure Program for NIU. This program is the result of an initiative put forth by the ISBE that a stand-alone licensure program unique to Middle School Education be developed in put into the action by the Fall of 2015. I represent the CLAS, specifically the sciences. In addition, I will continue to serve as a member of the Middle Level Teaching and Learning Licensure Program Committee that will oversight over the program.

The STEM Work Group (2007-current). This committee is associated with the University's P-20 Task Force (the Deans of Education, Engineering, Health and Human Sciences, Liberal Arts and Sciences, Visual and Performing Arts, University Outreach and the Provost's Office) and has created various working groups to address the various STEM education issues. My participation in this group involved improving the efficiency and effectiveness of NIU's efforts in STEM education. I am currently chair.

Research and Development STEM Learning Exchange representative for NIU (2012-current). The R & D STEM Learning Exchange is a \$10.3 million public-private partnership designed to better prepare Illinois students for careers in STEM fields. These statewide Learning Exchanges will work together with regional, educational and business networks to aggregate curricular resources, assessment tools, professional development systems, work-based learning opportunities and problem-based learning challenges. They will support performance evaluation across the P-20 education and workforce system, and result in better prepared students for a 21st century workforce.

Governing Board for the NIU-Professional Development School sites (2012-current). I participate on the Governing Board for five Professional Development School districts.

College Committees

Committee on Teacher Professional Development (CTPD). Current Chair 2015-2016. I annually serve on this committee. As a member of CTPD, I participate in the oversight of licensure programs in the CLAS. I've chaired this committee several times in the past.

College Council (2011-2013). I represented the Department of Biological Science on the College Council. As a member of The College Council, I had the responsibility of reviewing and voting on applications for sabbatical as well as applications for tenure and promotion, including hearings for appeals of tenure and promotion recommendations. Additional duties include ranking of research and artistry proposals.

The Dean's Representative for supervisory committees for the Graduate School. I am called to serve in this capacity once or twice a year. My duties include attending doctoral defenses in the College of Education here at NIU. I then write and submit a report to the Dean of the Graduate School regarding the quality of the candidates' dissertation defense experience.

Director for the Center for Secondary Science and Mathematics Education (CSSME). I chaired the planning effort for the development of the CSSME and now serve as the Director. The CSSME is currently housed in the College of Liberal Arts and Sciences. The CSSME was approved by the Illinois Board of Higher Education during the fall of 2012. The overarching goal of the CSSME is to enhance the quality of science and mathematics education throughout northern Illinois and beyond. Activities will begin during the spring of 2013.

Departmental Committees:

Teacher Licensure and Secondary Education Committee. I annually serve on these committees. I report to the members on the alignment of the licensure program requirements with the Department's requirements for the biology major. Advisement is often sought from the other members of the committee, primarily the undergraduate advisor, regarding potential candidates' qualification for admittance to the licensure program in biology. In addition, these committees are working on the implementation of new criteria for the David Layman Scholarship program. This scholarship is awarded to students pursuing the biology major and teacher licensure in biology.

Governance and Graduate Committees. I have served on the Department's Governance Committee (2005-2007 and 2012-2013) and Graduate Committee (2006-2008). The Governance Committee reviews application for equipment and determines the distribution of funds for the purchase of equipment to individuals in the department. The Graduate Committee works with the Department's graduate advisor on the recruitment and admission of graduate students that have applied to the Department of Biological Sciences to pursue advanced degree programs. The committee also plays a role in the assignment of graduate assistantships to support the various laboratory based courses. I recently completed a third term on Governance Committee during the spring of 2015.

Department's Seminar Committee (2005-2006). I helped recruit and host seminar speakers as the Cell Section representative, and assisted recruitment of speakers for the Ecology and Evolution Section.

Public Service Activities

Consult for school district science curriculum reform. DeKalb School District 428 (2001) and Kaneland School District 302 (2002-2003) and currently Huntley School District 158. I apply my professional expertise of science education and State and National standards (NGSS) to help the school districts modernize their science curriculum goals.

Service to the Scientific Community and Teacher Education

Illinois Science Teachers Association Region II Director (2015-current). Currently Chair of the Search Committee for a new Executive Director for the ISTA.

Reviewer of Manuscripts in Science Research. I review manuscripts for journals in my field of research including *Journal of Insect Physiology*, *Archives of Insect Biochemistry and Physiology*, *Comparative Biochemistry and Physiology*, *Insect Biochemistry and Molecular Biology*, *Annals of the Entomological Society of America*, *Entomologia Experimentalis et Applicata*, *Biologia*, *Naturwissenschaften*, and *Entomologica Fennica*.

Reviewer of Manuscripts in Science Education. I review manuscripts for journals in the field of science education including *The American Biology Teacher*, *Journal of Biology Education*, *Journal of College Science Teaching*, *Journal of Science Education and Technology*, and *Science Activities*. I have been a consulting editor for the journal *Science Activities* since 2004.

President's Award Committee for the Entomological Society of America. I chaired this committee in 2009 and 2010.

Advisory Panel for the *Science in the Moment Project*. I serve on the advisory panel for the Science in the Moment Project (SciMo). The *Science in the Moment Project* is a research study directed by Drs. Jennifer Schmidt and Lee Shumow of the Department of Leadership, Educational Psychology and Foundations, College of Education, at Northern Illinois University. The project focuses on documenting, describing, and understanding students' momentary levels of cognitive and affective engagement while learning high school science. Researchers systematically record students' in-the-moment classroom experiences as they occur, and link various aspects of subjective experience to specific courses (i.e., general science, biology, chemistry, and physics), content units (i.e., simple machines, ionic and covalent chemical bonding), and instructional activities (i.e., lectures, labs, group work).

OTHER PROFESSIONAL INFORMATION:

Membership In Professional Organizations

American Association of Colleges for Teacher Education

Illinois Science Teachers Association (Board Member and Region 2 Director)

The National Association of Biology Teachers

National Science Teachers Association

American Entomological Society

Awards and Honors

Presidential Engagement Professorship, 2014

My article in the *Journal of Insect Physiology*, Volume 54, Issue 1, 2008, received an award for being a "Top Cited Article" for 2008-2010 (Merchant, D., Ertl, R.L., Rennard, S.I., Stanley, D.W., and Miller, J.S. (2008) Eicosanoids mediate insect hemocyte chemotaxis. *Journal of Insect Physiology* 54 (1): 215-221).

UNL Regents Tuition Fellowship for 1997-1998 Academic Year.

UNL Regents Tuition Fellowship for 1997 Summer Session.

Sigma Xi Outstanding High School Science Teacher Award, 1994.

UNL Regents Tuition Fellowship for 1992-93 Academic Year.

UNL Regents Tuition Fellowship for 1993 Summer Session.

Babson Scholarship for Secondary Science Education 1975 and 1976.