CURRICULUM VITAE FOR PROMOTION AND TENURE

GILLIAN H. ROEHRIG

IDENTIFYING INFORMATION

Academic Rank

Professor, STEM Education, Department of Curriculum and Instruction

Education

Degree	Institution	Date Degree Granted
Ph.D.	University of Arizona Teaching and Teacher Education (Science Education) Advisor: Julie Luft	2002
M.S.	University of Arizona Physical Chemistry	1993
B.S.	University of Southampton, U.K. Chemistry and Mathematics	1990

Positions/Employment

University of Minnesota, Twin-Cities Campus (2002 – present)

Associate Director, STEM Education Center	Aug 2012 – June 2015
Co-Director, STEM Education Center	Aug 2009 – Aug 2012
Professor, Curriculum and Instruction	Aug 2014 - present
Associate Professor, Curriculum and Instruction	Aug 2007 – Aug 2014
Assistant Professor, Curriculum and Instruction	Aug 2004 – Aug 2007

Previous Employment, San Diego State University (2002 – 2004)

Assistant Professor, Chemistry	Aug 2002- Aug 2004

Graduate Appointments, University of Arizona (1990 – 1993, 1999-2002)

Student Teaching Supervisor, Science Education	Aug 1999 – May 2002
Graduate Research Assistant, Science Education	Aug 1999 – May 2002
Graduate Teaching Assistant, Chemistry	Aug 1990 – May 1993

Other Professional Employment

High School Chemistry Teacher Catalina Foothills High School, Tucson, AZ	Aug1995- June 1999

Current Membership in Professional Organizations

American Educational Research Association
Association for Science Teacher Education
National Association of Research in Science Teaching
National Science Teacher Association

HONORS AND AWARDS FOR RESEARCH/CREATIVE WORK, TEACHING, PUBLIC ENGAGEMENT, AND SERVICE

University of Minnesota

Council of Graduate Students Outstanding Faculty Award. April 2010

Institute on the Environment Resident Fellow 2011-2014

CEHD Marty and Jack Rossman Award April 2014

University of Arizona

Outstanding Graduate Student Teaching Award. May 2002

External Sources

President-Elect, Association for Science Teacher Education 2016

Board Member, SciMath Minnesota 2013 - 2016

Board Member, National Association of Research in Science Teaching 2013 - 2016

Board Member at Large, Association for Science Teacher Education 2013 - 2016

Director, North Central Association for Science Teacher Education 2013-2014

Association for Science Teacher Education 2014
Award IV: Innovations in Teaching Science Teachers

Association for Science Teacher Education
Outstanding Mentor Award 2013

Association of Public and Land-grant Universities Promising Practice Award.
For the on-line Science Teacher Induction Network May 2012

RESEARCH, SCHOLARSHIP, AND CREATIVE WORK

Grants and Contracts

External Sources

Received at the University of Minnesota:

Principal Investigator
Co-PIs Julie Brown, Joshua Ellis
Funded by National Science Foundation
A Study on Promoting Reflective and Equitable Practice Through Science Teacher Induction (DUE- 1540789, October 1, 2015 – September 30, 2018)
Total costs: $800,000

Principal Investigator
Co-PI Julie Brown
Funded by Cargill Foundation
Developing STEM Schools in Minneapolis Public Schools (January 1, 2016 – December, 2018)
Total costs: $300,000

Principal Investigator
Co-PI Julie Brown
Funded by Minnesota Department of Education
Minnesota STEM Teachers Learning through Lesson Analysis Project (January 15, 2016 – September 30, 2016)
Total costs: $690,000

Co-Principal Investigator
PI Karen Oberhauser, co-PIs Rob Blair, Michele Koomen
Funded by National Science Foundation
Driven to Discover: Citizen Science Inspires Classroom Investigation (DRL-1417777, October 1, 2014 – September 30, 2018)
Total costs: $591,931

Co-Principal Investigator
PI Tamara Moore, co-PIs Selcen Guzey, Paul Imbertson, Marty Davis
Funded by National Science Foundation
EngrTEAMS: Engineering to Transform the Education of Analysis, Measurement, and Science (DRL #1238140, January 2013 – December 2017)
Total costs: $7,998,075

Co-Principal Investigator
PI Efi Foufoula-Georgiou, co-PIs Karen Gram and Jacques Finlay
Funded by National Science Foundation
WSC-Category 2, Collaborative: Climate and human dynamics as amplifiers of natural change: a framework for vulnerability assessment and mitigation planning (CBET - 1209402, September 2012 – August 2017)
Total costs: $4.3 million, $2,350,068 to University of Minnesota.

Principal Investigator.
Co-PI Cynthia Cattell
Funded by Minnesota Office of Higher Education
Inquiry-based Physical Science for Middle School Teachers (May 2011- June 2015).
Total costs: $208,394

Co-Principal Investigator
PI Frances Lawrenz, co-PIs Keisha Varma and Leah McGuire
Funded by National Science Foundation
Linking Cognitive Science, Measurement Theory and Evaluation Approaches to Assess Development of Scientific Reasoning--Cognition, Measurement and Evaluation (CME) project (#1118433, October 2011 – July 2014)
Total costs: $234,232

Principal Investigator
Co-PIs Efi Foufoula-Georgiou, Karen Campbell, and Diana Dalbotten.
Funded by National Aeronautics and Space Administration (NASA)
CYCLES: Teachers Discovering Climate Change from a Native Perspective (#NNX10AT53A , January 2011- June 2014)
Total costs: $675,841

Professional Development and Curriculum Developer
PI Jane Holmberg, District 287, in collaboration with Metropolitan Educational Cooperative Service Unit, Intermediate District 287, Intermediate District 916, University of Minnesota, Normandale Community College, and Hamline University
Funded by Minnesota Department of Education
Region 11 Minnesota Mathematics and Science Teacher Partnership (MSTP) (June 2008 – July 2015)
Year 1 funding: $1,584,651; Year 2 funding: $610,079; Year 3 funding: $911,790; Year 4 funding: $651,993; Year 5 funding: $703,712; Year 6 funding: $630,585; Year 7 funding: $750,000. Total funding to date: $5,842,810.

Principal Investigator
Co-PI Tamara Moore
Funded by 3M Foundation
STEM fellowships (North St. Paul Public Schools/Saint Paul Schools/South Washington County Schools/White Bear Lake Schools) (August 2008 – August 2015
Total funded: $540,000

Principal Investigator
Co-PI Tamara Moore
Funded by Intermediate District 287
Mathematics and Science Teacher Partnership Evaluation (August 2009 – June 2013)
Total funded: $200,532

Principal Investigator
Co-PIs Terry Wyberg, Cynthia Cattell.
Funded by National Science Foundation (Noyce).
Project IMPACT: Improving Mathematics, Physics and Chemistry Teaching. (DUE #0833250, September 2008 - August 2014).
Total funded: $500,000

Principal Investigator
Funded by National Science Foundation (Noyce)
Supplement award for *Project IMPACT: Improving Mathematics, Physics and Chemistry Teaching* (DUE #0833250, September 2009- August 2014)
Total funded: $99,267

Principal Investigator
Co-PIs Stephan Carlson, Barbara Murphy
Funded by Department of Health and Human Services.
*Ah neen dush: A Science and Mathematics Enrichment Program for the White Earth Reservation Head Start Progra*m. (#90YD0241-01, October 2008- Sept 2011).
Total funded: $675, 841

Co-Principal Investigator
PI Jan Dubinsky.
Funded by National Institute of Health
Brains to High School (SEPA R25 RR025999, 2009 – 2014)

Total funded: $1,350,000

Co-Principal Investigator
PI Jan Dubinsky
Funded by National Institute on Drug Abuse
Changing Brains Through Inquiry, Not Drugs (SEDAPA R25 DA023955, May 2009- May 2011)
Total funded: $500,000

Principal Investigator
Funded by Minnesota Office of Higher Education
Project: Technology-Enhanced Communities (May 2007- June 2009)
Total funded: $95,380

Principal Investigator
Co-PIs Tamara Moore and Stephan Carlson
Funded by National Science Foundation (Information Technology Experiences for Students and Teachers).
Reach for the Sky: Integrating technology into STEM outcomes for American Indian Youth. (#0737565, September 2007- August 2011)
Total funded: $889,183

Co-Principal Investigator
PI Tamara Moore
Funded by National Science Foundation (CCLI-3)
Collaborative Research: Improving Engineering Students' Learning Strategies Through Models and Modeling (#0717529, 2007-2011).
Total funded: $267,298

Principal Investigator
Funded by Minnesota Department of Education
Science, Technology, Engineering, and Mathematics On-line Mentoring Program (2006-2007).
Total funded $27,000

Co-Principal Investigator
PI Julie Luft
Funded by National Science Foundation (Teacher Professional Continuum)
Exploring the Development of Beginning Secondary Science Teachers in Various Induction Programs. (#0353357, 2004 - 2008)
Total award $1,400,000, subcontract award to University of Minnesota $487,079)

University Sources

Co-Principal Investigator
PI Eray Aydil, co-PIs Tamara Moore and Frank Snowden.
Funded by the Office of the Vice President for Research, University of Minnesota
Enhancing Teaching in Interdisciplinary Science and Engineering (EnTISE): A Pilot GK-12 Fellows Program. (2008 - 2009)
Total funded: Two 25% GK-12 Fellows.

Principal Investigator
Grant-In-Aid
Promoting Conceptual Chemistry Knowledge through Inquiry-based Instruction (2006-2007)
Total funded: $17, 900

Principal Investigator
Co-PIs: Bhaskar Upadhyay and Leslie Flynn
Technology Enhanced Learning. Integrating Technology into the K-12 Science Initial Licensure Program (2005-2006)
Total funded: $8,500

Evaluation Grants and Contracts

NASA Immersive Earth (2011-13). Evaluation of 3D visualization curriculum using NASA satellite data funded by Sigma Space Consortium. PI Susan Weller

Renewable Energy and Bioproducts (2007-2013). Teacher professional development ITQ grant funded by Minnesota Office of Higher Education. PI Ulrike Tschirner

Investigative Plant Biology for Elementary Teachers (2007-2013). Teacher professional development ITQ grant funded by Minnesota Office of Higher Education. PI Sue Wick

Inquiring Minds: Itasca Field Biology (2007-2011). Teacher professional development ITQ grant funded by Minnesota Office of Higher Education. PI Kevin Williams

Molecular Biology and Biotechnology (2007-2009). Teacher professional development ITQ grant funded by Minnesota Office of Higher Education. PI Ron Ogaki

Schoolyards, Science, and Sustainability (2007-2009). Teacher professional development ITQ grant funded by Minnesota Office of Higher Education. PI Karen Oberhauser

Monarch and More: Insect Ecology for Elementary Teachers (2007-2009). Teacher professional development ITQ grant funded by Minnesota Office of Higher Education. PI Karen Oberhauser

Publications

Books

Dalbotten, D., Hamilton, P. & Roehrig, G. H.[*] (2014)
Future Earth--Advancing Civic Understanding of the Anthropocene
GeoPress: American Geophysical Union
Edited book, chapters have been reviewed and are now with the publisher
[*] Authors are alphabetical with equal responsibility for writing and editing.

Refereed Journal Articles

[G] Graduate student author
[F] Former graduate student author
[P] Postdoctoral advisee author
[T] Classroom Teacher

64. Karahan, E.[F] & Roehrig, G.H. (2016). Use of Socioscientific Contexts for Promoting Student Agency in Environmental Science Classrooms. *Journal of Faculty of Education 5*(2), 425-442

63. Karahan, E.[F] & Roehrig, G.H. (2016). Use of Web 2.0 Technologies to Enhance Learning Experiences in Alternative School Settings. *International Journal of Education in Mathematics, Science and Technology*, 4(4), 272-283

62. Karahan, E.[F] & Roehrig, G.H. (in press). Secondary School Students' Understanding of Science and Their Socioscientific Reasoning. *Research in Science Education*.

61. Ellingson, C.[G], Roehrig, G., Bakkum, K.[T] and Dubinsky, J. (in press). A classroom tool for facilitating equitable critical discourse in science classroom. *The Science Teacher*.

60. Nam, Y., Karahan, E., & Roehrig, G.H. (2016). Native American Students' Understanding of Geologic Time Scale: 4th-8th Grade Ojibwe Students' Understanding of Earth's Geologic History. *International Journal of Environmental and Science Education*, 11(4), 485-503.

59. Miller, B.G. & Roehrig, G.H. (in press). Indigenous Cultural Contexts for STEM Experiences: Snow Snakes' Impact on Students and the Community. *Cultural Studies in Science Education*.

58. Fox, L.[G] & Roehrig, G.H. (2015). Nationwide Survey of the Undergraduate Physical Chemistry Course. *Journal of Chemical Education*, *92*(9), 1456–1465.

57. Ellis, J.[F], McFadden, J.[F], Anwar, T.[G] & Roehrig, G. (2015). Investigating the Social Interactions of Beginning Teachers Using a Video Annotation Tool. *Contemporary Issues in Technology & Teacher Education, 15*(3). Retrieved from http://www.citejournal.org/vol15/iss3/general/article1.cfm

56. Moore, T.J., Roehrig, G.H., Guzey, S.[F], Stohlmann, M.S.[F], Park, M.S.[G], Kim, Y.R.[G], Callendar, H.L., & Teo, H.J. (2015). Faculty change: A longitudinal study exploring instructional beliefs while implementing Model-Eliciting Activities. *Journal of Engineering Education, 104*(3), 279-302.

55. Ellis, J.[F], Dare, E.[F], Voigt, M.[F], & Roehrig, G. (2015). Rethinking the egg drop with NGSS science and engineering practices. *Michigan Science Teachers Association Journal, 60*(2), 61-66.

54. Harwell, M., Moreno, M., Phillips, A., Guzey, S. Moore, T., & Roehrig, G. (2015). A Study of STEM Assessments in Engineering, Science, and Mathematics for Elementary and Middle School Students. *School Science and Mathematics, 115*(2), 66-74.

53. Roehrig, G.H., Donna, J. D.[F], Billington, B. L.[F], & Hoelscher, M.[G] (2015). Design of Online Induction Programs to Promote Reform-based Science and Mathematics Teaching. *Teacher Education & Practice*, *28*(1-2), 286-303.

52. Liu, S.[G], Roehrig, G.H., Bhattacharya, D.[G] & Varma, K. (2015). In-service teachers' attitudes, knowledge and classroom teaching of global climate change. *The Science Educator*, *14*(1), 1-11.

51. Karahan, E.[G], & Roehrig, G. H. (2015).Constructing media artifacts in a social constructivist environment to enhance students' environmental awareness and activism. *Journal of Science Education and Technology,* 24, 103–118.

50. Guzey, S. [F], Nyachwaya, J. [F], Moore, T. J., & Roehrig G.H. (2014). *Gaa-Noodin-oke (Alternative Energy/Wind Power):* A Curriculum implementation on the White Earth Reservation. *Journal of STEM Education*, *15*(3), 5-13.

49. Warfa, A. [F], Roehrig, G., Schneider, J., & Nyachwaya, J. [F] (2014). The Role of Teacher-Initiated Discourses in Students' Development of Representational Fluency in Chemistry. *Journal of Chemical Education*, *91*(6), 784–792.

48. Warfa, A. [F], Roehrig, G., Schneider, J., & Nyachwaya, J. [F] (2014). Collaborative discourse and the modeling of solution chemistry with magnetic 3D physical models – Impact and characterization. *Chemistry Education Research and Practice, 15*, 835-848

47. McFadden, J. [G], Ellis, J. [G], Anwar, T. [G] & Roehrig, G.H. (2014). Beginning Science Teachers' Use of a Digital Video Annotation Tool to Promote Reflective Practices. *Journal of Science Education and Technology 23*(3), 458-470.

46. Nyachwaya, J, [F] Roehrig, Schneider, J, & Warfa**,** A. [F] (2014). College chemistry students' use of memorized algorithms on the Particulate Nature of Matter. *Chemistry Education Research and Practice. 15*, 81-93

45. Dare, E. [G], Ellis, J. [G], & Roehrig, G.H. (2014). Driven by Beliefs: Understanding Challenges Physical Science Teachers Face When Integrating Engineering and Physics. *Journal of Pre-College Engineering Education Research, 4(2),* 1-13.

44. Guzey, S. [F], Tank, K. [G], Wang, H-H. [F], Roehrig, G., and Moore, T. (2014). A High-Quality Professional Development for Teachers of Grades 3-6 for Implementing Engineering into Classrooms. *School Science and Mathematics*, 114(3), 139-149.

43. Dare, E. [G], Childs, G. [T], Cannaday, A. [T], & Roehrig, G.H. (2014). Blast off with engineering! *Science and Children, 52*(3), 60-64.

42. Dubinsky, J., Roehrig, G. H. & Varma, S. (2013). Infusing Neuroscience into Teacher Professional Development. *Educational Researcher*, *42*(6), 317-329

41. Nam, Y. [F], Roehrig, G. H., Kern, A. L. [F], & Reynolds, B. [G] (2013). Perceptions and Practices of Culturally Relevant Science Teaching in American Indian Classrooms. *International Journal of Science and Mathematics Education, 11(1)*, 143-167.

40. Roehrig, G.H., Michlin, M., Schmitt, L., MacNabb, C., & Dubinsky, J.M. (2012). Teaching Neuroscience to Science Teachers: Facilitating the Translation of Inquiry-Based Teaching Instruction to the Classroom. *CBE- Life Science Education*, *11*(4), 413-424

39. Guzey, S. S. [F], & Roehrig, G. H. (2012). Integrating educational technology into the secondary science teaching. *Contemporary Issues in Technology and Teacher Education, 12*(2). Retrieved from http://www.citejournal.org/vol12/iss2/science/article1.cfm

38. Miller, B. G. [F], Doering, A., Roehrig, G.H., & Shimek, R. (2012). Fostering Indigenous STEM Education: Mobilizing the Adventure Learning Framework through Snow Snakes. *Journal of American Indian Education*, *51*(2), 66-84.

37. Kern, A. L. [F], Roehrig, G. H., & Wattam, D. K. (2012). Inside a beginning immigrant science teacher's classroom: An ethnographic study. *Teachers and Teaching, 18* (4). 469-481.

36. Roehrig, G.H., Campbell, K.M., Dalbotten, D. & Varma, K. (2012). CYCLES: A Culturally-relevant Approach to Climate Change Education in Native Communities. *Journal of Curriculum and Instruction, 6*, 73-89

35. Roehrig, G.H., Moore, T.J., Wang, H.-H. [G], & Park, M.S. [G] (2012). Is adding the E enough?: Investigating the impact of K-12 engineering standards on the implementation of STEM integration. *School Science and Mathematics,* 112, 31-44.

34. Stohlmann, M. [G], Moore, T.J., & Roehrig, G. (2012). Considerations for teaching integrated STEM education. *Journal of Pre-College Engineering Education Research*, *2*(1), 28-34.

33. Roehrig. G. & Nam, Y. [G] (2011). A Review of Teachers' Pedagogical Content Knowledge and Subject Matter Knowledge for Teaching Earth System Concepts. *Journal of Korean Earth Science Society, 32(5), 494-503*

32. Park, M. [G], Nam Y. [G], Moore, T. & Roehrig, G. (2011) The Impact of Integrating Engineering into Science Learning on Student's Conceptual Understandings of the Concept of Heat Transfer, *Journal of the Korean Society of Earth Science Education, 4(2), 89-101.*

31. Wang, H.-H. [G], Moore, T.J., Roehrig, G.H., & Park, M.S. [G] (2011). STEM integration: The impact of professional development on teacher perception and practice. *Journal of Pre-College Engineering Education Research, 1(2),* 1-13.

30. Stohlmann, M. [G], Moore, T.J., McClelland, J. [G], & Roehrig, G.H. (2011). Year-long impressions of a middle school STEM integration program. *Middle School Journal, 43 (1),* 32-40.

29. Roehrig, G.H, Dubosarsky, M. [G], Mason, A. [G], Carlson, S., & Murphy, B. (2011). We Look More, Listen More, Notice More: Impact of Sustained Professional Development on Head Start Teachers' Inquiry-Based and Culturally-Relevant Science Teaching Practices. *Journal of Science Education and Technology*, *20(5)*, 566–578.

28. Dubosarsky, M. [G], Murphy,B., Roehrig, G.H., Frost, L.C., Jones,J. [G], & Carlson, S.C. (with Nette Londo [T], Carolyn Melchert [T], Cheryl Gettel [T], and Jody Bement [T]) (2011). Animal Tracks on the Playground, Minnows in the Sensory Table: Incorporating Cultural Themes to Promote Preschoolers' Critical Thinking in American Indian Head Start Classrooms. *Young Children, 66(5),* 20-29.

27. Nyachwaya, J. [G], Mohammed, A.R [G], Roehrig, G.H., Wood, N. [F], Kern, A.L. [F], & Schneider, J. (2011). The Development of an Open-ended Drawing Tool: An Alternative Diagnostic Tool for Assessing Students' Understanding of the Particulate Nature of Matter. *Chemistry Education Research and Practice, 11*, 165-172

26. Kern, A. L [F], Wood, N. [F], Roehrig, G. H., & Nyachwaya, J. [G] (2010). A Qualitative Report of the Ways High School Chemistry Students Attempt to Represent a

Chemical Reaction at the Atomic/Molecular Level. *Chemistry Education: Research and Practice*, *11*, 165-172.

25. Guzey, S. S. [G] & Roehrig, G. H. (2009). Teaching science with technology: Case studies of science teachers' development of technology, pedagogy, and content knowledge. Contemporary Issues in Technology and Teacher Education, 9(1). Retrieved from http://www.citejournal.org/vol9/iss1/science/article1.cfm

24. Bang, E.J. [G], Kern, A.L. [G], Luft, J.A., & Roehrig G.H. (2007). First-year secondary science teachers. *School Science and Mathematics*, *107* (6), 52-60

23. Roehrig, G. H., & Garrow, S. T. [F] (2007). The impact of teacher classroom practices on student achievement during the implementation of a reform-based chemistry curriculum *International Journal of Science Education*, *29,* 1789–181.

22. Lee, E. [G], Brown, M.N. [G], Luft, J.A., & Roehrig, G.H. (2007). Assessing beginning secondary science teachers' PCK: Pilot year results. *School Science and Mathematics*, *107* (2), 52-60

21. Roehrig, G. H., Kruse, R. A. [P], & Kern, A. L. [G] (2007). Teacher and school characteristics and their influence on curriculum implementation. *Journal of Research in Science Teaching, 44*, 883-907.

20. Luft, J.A., Lee, E. [G], Fletcher, S. [G], & Roehrig, G.H. (2007). Growing or wilting? Beginning biology teachers in a science-focused induction program. *National American Biology Teacher, 69*(6), 341-346.

19. Luft, J. A., Bang, E. J. [G], & Roehrig, G. H. (2007). Supporting beginning science teachers. *The Science Teacher, 74*(5), 24-29.

18. Luft, J. A. & Roehrig, G. H. (2007). Capturing Science Teachers' Epistemological Beliefs: The Development of the Teacher Beliefs Interview. *Electronic Journal of Science Education, 11*(2), 38-63.

17. Roehrig, G. H., & Luft, J. A. (2006) Does One Size Fit All?: The Induction Experience of Beginning Science Teachers from Different Teacher Preparation Programs. *Journal of Research in Science Teaching, 43*(9), 963-985.

16. Roehrig, G. H. & Kruse, R. A. [P] (2005). The Role of Teachers' Beliefs and Knowledge in the Adoption of a Reform-Based Curriculum. *School Science and Mathematics, 105,* 412-422.

15. Kruse, R. A. [P], & Roehrig, G. H. (2005). A Comparison Study: Assessing Teachers' Conceptions with the *Chemistry Concepts Inventory*. *Journal of Chemical Education, 82,* 1246-1250.

14. Luft, J. A., & Roehrig, G. H. (2005) Enthusiasm is not enough: Beginning secondary science teachers in primarily Hispanic settings. *School Science and Mathematics, 105*, 116-26.

13. Roehrig, G. H., & Luft, J. A. (2004) Inquiry teaching in high school chemistry classrooms: The role of knowledge and beliefs. *Journal of Chemical Education, 81*, 1510-1516.

12. Luft, J. A., Kurdziel, J. P., Roehrig, G. H., & Turner, J. (2004) Growing a garden without water: Graduate teaching assistants in introductory science laboratories at a doctoral/research university. *Journal of Research in Science Teaching*, *41*, 211-233.
11. Roehrig, G. H., & Luft, J. A. (2004). Constraints Experienced by Beginning Secondary Science Teachers in Implementing Scientific Inquiry Lessons. *International Journal of Science Education*, *23*, 3-24.
10. Roehrig, G. H., Luft, J. A., Kurdziel, J. P., & Turner, J. A. (2003). Graduate teaching assistant training: Implications for the reform of introductory chemistry course. *Journal of Chemical Education*, *80*, 1206-1210.
9. Luft, J. A., Roehrig, G. H., & Patterson, N. C. (2003). Contrasting landscapes: A comparison of the impact of different induction programs on beginning secondary science teachers' practices and beliefs. *Journal of Research in Science Teaching, 40*, 77-97.
8. Patterson, N. C., Roehrig, G. H., & Luft, J. A. (2003). Running the Treadmill: Explorations of Beginning High School Science Teacher Turnover in Arizona. *The High School Journal*, *86*, 14-22.
7. Luft, J. A., Roehrig, G. H., & Patterson, N. C. (2002). Barriers and pathways: A reflection on the implementation of an induction program for secondary science teachers. *School Science and Mathematics, 102*, 222- 228.
6. Roehrig G. H.[T], Edwards M.[T], & Luft J. A. (2001). Vee-maps: an alternative laboratory assessment. *The Science Teacher, 68*(1), 28-31.
5. Luft, J. A., Tollefson, S. J., & Roehrig, G. H. (2001). Using an alternative report format in undergraduate hydrology laboratories. *Journal of Geoscience Education, 49*(5), 454-460.
4. Edwards M.[T], Luft J., Potter T.[T], & Roehrig G. H.[T], (1999). Extended Inquiry Labs in Chemistry. *The Science Teacher, 66*(6), 44-47.
3. Roehrig, G. H., Oyler, N. A., & Adamowicz, L. (1995). Electron Affinity of Adenine. A Theoretical *ab Initio* Study. *Journal of Physical Chemistry*, *99*, 14285-14289.
2. Mazely, T. L., Roehrig, G. H., & Smith, M. A. (1995). Free Jet Expansions of Binary Atomic Mixtures: a Solution to the Boltzmann Equation. *Journal of Chemical Physics, 103,* 8638-8652.
1. Roehrig, G. H., Oyler, N. A., & Adamowicz, L. (1994). Can Electron Attachment Alter the Tautomeric Equilibrium of Guanine? A Theoretical *ab Initio* Study. *Chemical Physics Letters, 225*, 265-272.

62-64 Work related to Karahan dissertation
58 Work related to Fox dissertation
56 Research funded by NSF Media grant – co-lead by Roehrig and Moore
54-55 Research funded by NSF EngrTEAMS grant
51 Work related to Karahan MA thesis
47, 53, 57 Work related to NSF Noyce grant lead by Roehrig
46, 48-49 Work related to Warfa and Nyachwaya dissertations
45 Research from implementation of MSTP Region 11 professional development for 9th grade physical science teachers

44 Research from implementation of MSTP Region 11 professional development for elementary teachers, primary contributor was Guzey.
43 Classroom study developed as part of the ITQ project with St. Paul Public School. Cannaday and Childs are teachers who were part of the ITQ project.
36, 41, 52 Studies funded by the NASA Cycles grant, designed and lead by Roehrig
40, 42, 61 Studies funded by BrainU project, 40 primary contributor Roehrig, 42 conceptual paper with equal co-author contributions, 61 work lead by graduate student
39 Work related to Guzey dissertation
38, 59 Work related to Miller dissertation
37 Work related to Kern dissertation
33 Work related to Nam dissertation
32, 50, 60 Funded by RFTS grant, work originated by graduate student co-authors
31, 35 Papers originated from MSTP grant. 31 was Wang's dissertation pilot and 35 primary contributor was Roehrig
30, 34 Student originated work from 3M fellowships, writing assistance and support from Roehrig and Moore
28-29 Papers from Head Start grant, designed and lead by Roehrig
26-27 Roehrig, Kern and Wood contributed equally in project design
25 Paper from Integrated technology ITQ grant, study designed by Roehrig
19-20, 22, 24 Papers from *Exploring the Development of Beginning Secondary Science Teachers in Various Induction Programs* grant, designed and co-lead by Luft and Roehrig. Other authors were graduate students
15-16, 21, 23 Papers based on study of chemistry reform in San Diego. This set of related studies was designed and lead by Roehrig. Other authors were a post-doctoral advisee and graduate students mentored by Roehrig.
17 Paper based on my dissertation study. Author order represents contributions to the writing of the paper.
11, 13-14, 18 Papers based on data collected as a graduate student. Author order represents contributions to the writing of the paper.
10, 12 Study on Graduate Teaching Assistants in freshman science classes completed while a graduate student. Author order represents contributions to the writing of paper.
7-9 Work completed as a Graduate Research Assistant on the design of induction programs. Author order represents contributions to the writing of the paper.
5 Based on classroom practices presented in paper 6 used and documented by the second author in her undergraduate classroom
4, 6 Work based on work as a classroom teacher, all teachers [T] were equal contributors to the work
1-3 Written while a MS student in chemistry – first author is the primary contributor to the academic work, last author is the advisor

Book Chapters

[I] Invited to submit a chapter by the editor
[G] Graduate student author
[F] Former graduate student author
[P] Postdoctoral advisee author
[T] Classroom Teacher

1. Roehrig, G.H. (2016). Response to Section IV: Self-Studies and Secondary Science Methods Courses. ASTE Series in Science Education. In Gayle A. Buck and Valarie Akerson (Eds.) *Enhancing Professional Knowledge of Pre-Service Science Teacher Education by Self-Study Research*
2. Donna, J. D. [F] & Roehrig, G.H. (2015). Moving Towards Comprehensive Induction Systems for New Teachers of Science Through the Use of Technology-Enhanced Communities of Practice. In J.A Luft (Ed.) *Newly hired teachers of science: A better beginning.* Sense Publishers.
3. Kern, A. L. [F], Roehrig, G. H., Bhattacharya, D. [G], Wang, J. [G], Finley, F. [G], Reynolds, B. [G], & Nam, Y. [F] (2015). Drawing on Place and Culture in a climate change education in Native Communities. In Mueller, M. & Tippins, D. (Eds.) *EcoJustice, Citizen Science and Youth Activism: Situated Tensions for Science Education*.

4. Bhattacharya, D. [G], Roehrig, G.H., Kern, A.L. [F], & Howard, M. [G] (2014). Teacher Professional Development in the Anthropocene. In D. Dalbotten, P. Hamilton, & G.H. Roehrig (Eds.) *Future Earth: Advancing Civic Understanding of the Anthropocene*. New York: Wiley.
5. Liu, S. [G], Varma, K., & Roehrig, G.H. (2014). Climate Literacy and Scientific Reasoning. In D. Dalbotten, P. Hamilton, & G.H. Roehrig (Eds.) *Future Earth: Advancing Civic Understanding of the Anthropocene*. New York: Wiley.
6. Moore, T.J., Stohlmann, M.S. [G], Wang, H.-H. [F], Tank, K.M. [G], & Roehrig, G.H. (2014). Implementation and integration of engineering in K-12 STEM education. In J. Strobel, S. Purzer, & M. Cardella (Eds.), *Engineering in Pre-College Settings: Research into Practice.*Rotterdam, the Netherlands: Sense Publishers.
7. Brown, A. [T], Roehrig, G., & Moore, T.J. (2014). Middle school engineering education. Submitted to the *STEM Exemplary Science Program (ESP) monograph*. NSTA Press
8. Guzey, S. [F], Moore, T.J., & Roehrig, G. (2014). Genetics: A topic for context-based STEM education. Submitted to the *STEM Exemplary Science Program (ESP) monograph*. NSTA Press
9. [I]Stohlmann, M.S. [F], Roehrig, G.H., & Moore, T.J. (2014).The Need for STEM Teacher Education Development. Invited to the book *STEM Education: How to Train 21st Century Teachers.* Nova Publishers
10. Roehrig, G. H., Groos, D.[G], & Guzey S. [F] (2013). Developing Collective Decision-Making through Future Learning Environments. In M.Mueller, & D. J. Tippins (Eds.) *Contemporary Trends and Issues in Science Education: Assessing Schools for Generation R (Responsibility)*. Netherlands: Springer.
11. Guzey, S. [F], & Roehrig, G. H. (2012). Educational Technology in a Novice Science Teacher's Classroom. In Chen, I., & McPheeters, D. (Eds.), *Cases on Educational Technology Integration in Urban Schools.* (pp. 145-153).
12. Mason, A. [G], Dubosarsky, M. [G], Roehrig, G.H, Carlson, S., Farley, M. [T] (2011). Ah neen dush: Harnessing collective wisdom to create culturally relevant science experiences in pre-K classrooms. In S. Gregory, W.Goins and S. Kewanhaptewa-Dixon (Eds.) *Voices of Native American Indian Educators: Integrating History, Culture and Language to Improve Learning Outcomes for Native American Indian Students.*
13. Roehrig, G.H, Kern, A.L. [F], Wood, N. [F], & Nyachwaya, J. M. [G] (2010). High School Chemistry Students' Representations of Chemical Reactions At The Atomic/Molecular Level. In J. Ryan (Ed.) In J. Ryan, T. Clark, & A. Collier (Eds.) *Assessment of Chemistry.* Talahasee, FL: Association for Institutional Research.
14. Guzey, S.S. [G], Moore, T.J., & Roehrig, G.H. (2010). Curriculum development for STEM integration: Bridge design on the White Earth Reservation. In L. E.

Kattington (Ed.), *Handbook of curriculum development*. Hauppauge, NY: Nova Science Publishers.

15. Sato, M., Roehrig, G. H., & Donna, J. D. [G] (2010). Bending the professional teaching continuum: How teacher renewal supports teacher retention. In J. Rhoton (Ed.) *Science Education Leadership for the 21st Century.* Arlington, VA: National Science Education Leadership Association.

16. Roehrig, G. H., Kern, A. L. [G], & Kruse, R. A. [P] (2008). Faces of reform: The role of the teacher in curriculum implementation. In F. Columbus (Ed.) *Educational Curricula Development and Evaluation.* Hauppauge, NY: Nova Science Publishers.

17. Luft, J. A., Roehrig, G. H., & Patterson, N. C. (2005). Filling the void in the professional development continuum: Assisting beginning secondary science teachers. *NSTA Monograph of Excellence.*

18. Patterson, N. C., Roehrig, G. H., Austin, B. A., & Luft, J. A. (2003) ASIST: An Induction Program for Science Teachers. In J. Rhoton & P. Bowers (Eds.) *Science Teacher Retention: Mentoring and Renewal*. Arlington, VA: National Science Education Leadership Association

2 Work related to Donna dissertation
2-4 Work related to NASA Cycles grants, graduate student lead writing
5 Moore was primary author with equal contributions from other authors
6 Roehrig, Kern and Wood contributed equally in project design
7 Angel Brown is a local teacher, this chapter represents Angel's classroom practices
8 Research related to the Region 11 MSTP grant, primary write was Guzey
9 Equal contributions from all authors
10 Pilot of Groos PhD
11 Work related to Guzey PhD
12 Work from Head Start grant, designed and lead by Roehrig
13 Roehrig was the intellectual lead for this chapter
14 Study funded by RFTS grant, primary author was a graduate student (Guzey)
15 Equal contribution from all three authors
16 Work based on study of chemistry reform in San Diego. This set of related studies was designed and lead by Roehrig. Other authors were a post-doctoral advisee and graduate students mentored by Roehrig.
17-18 Work completed as a Graduate Research Assistant on the design of induction programs. Author order represents contributions to the writing of the paper.

Proceedings of Conferences (Refereed)

[G] Graduate student author
[F] Former graduate student author

1. Karahan, E. [G], Nam, Y. [F], Roehrig, G. H., & Moore, T. J. (2012). Native American students' understandings of geologic time scale: 4-8th grade students' understandings of earth's geologic history. *Procedia - Social and Behavioral Sciences on ScienceDirect, 46*, 3159-3163.

2. Wang, H.-H. [G], Moore, T.J., Roehrig, G.H., & Park, M.S. [G] (2011). *The impact of professional development on teachers integrating engineering into science and mathematics classroom.* Submitted to the 2011American Society for Engineering Education National Conference, Vancouver, BC, 16 pages.

3. Stohlmann, M.S. [G], Moore, T.J., Kim, Y.R. [G], Park, M.S. [G], & Roehrig, G.H. (2011). *The development of an instructional and assessment tool from student*

work on a Model-Eliciting Activity. Submitted to the 2011American Society for Engineering Education National Conference, Vancouver, BC, 13 pages.

4. Miller, R., Moore, T.J., Self, B., Kean, A., Roehrig, G., & Patzer, J. (2010). Model-Eliciting Activities: Instructor perspectives. 2010 American Society for Engineering Education National Conference, Louisville, KY, 12 pages.
5. Wang, J. [G], Moore,T.J., Plumb, S [G]. & Roehrig, G. (2009). *A student task model method for assessing and improving a Model-Eliciting Activity.* 2009 Frontiers in Education Conference, San Antonio, TX, 5 pages.
6. Guzey, S.S. [G], Moore, T.J., & Roehrig, G.H. (2009). *Bridge design on the reservation: A study of curriculum implementation with American Indian youth.* 2009 American Society for Engineering Education National Conference, Austin, TX, 14 pages.
7. Donna, J.D. [G], & Roehrig, G.H. (2008, March). *Project TIN – Using collaborative synchronous and asynchronous technologies to deliver online, community-based induction for beginning teachers*. Proceedings of the 19th Society for Information Technology & Teacher Education International Conference, Las Vegas, NV.

Presentations, Posters, and Exhibits

Invited Presentations at Professional Meetings

1. Keynote panelist. Putting the "T" and "E" in Your STEM Program, *National Science Teacher Association STEM Forum and Expo*, St. Louis, MO, May 2013.
2. Keynote speaker, Broader Impacts Workshop, *Oklahoma State University*, May 2013.
3. Keynote panelist. Building Pathways and Partnerships between High School and College. *National Life Discovery – Doing Science Inaugural Education Conference*, St. Paul, MN, March 2013.
4. Keynote presentation. STEM as a Pathway Toward 21st Century Skills. *Extension Center for Youth Development Annual 2012 Staff Conference: YOUth and You*, St. Cloud, MN, February, 2012.
5. Roehrig, G. H. (2012, June).The Minnesota Teacher Induction Network: Providing Continued Support to Our Teacher Candidates During Their First Year of Teaching, *National Science and Mathematics Teacher Imperative Conference*, Washington, D.C.

Contributed Papers Presented at Professional Meetings

International and National (Refereed)

[G] Graduate student author – Papers with a graduate student first author represent papers developed by the graduate student with my guidance and mentorship

[F] Former graduate student author

1. Dare, E. & Roehrig, G. (April, 2015). Understanding Student Perceptions About Physics: Finding Similarities and Differences Between Middle School Girls and Boys. *National Association for Research in Science*

Teaching, Chicago, IL

2. Anwar, T. & Roehrig, G. (April, 2015). Instructional Coaching Support to Science Teachers for the Implementation of STEM Integrated Curriculum. *National Association for Research in Science Teaching*, Chicago, IL
3. Roehrig, G., Dare, E., Ellis, J., Moore, T., & Guzey, S. (April, 2015). Challenges and Successes: Understanding Middle School Physical Science Teachers' Experiences with STEM Integration. *National Association for Research in Science Teaching*, Chicago, IL
4. Guzey, S., Moore, T., Roehrig, G., Harwell, M., Phillips, A., & Mario Moreno, M. (April, 2015). Learning Science through an Engineering Curriculum. *National Association for Research in Science Teaching*, Chicago, IL
5. Ellis, J., Polizzi, S., Roehrig, G., & Rushton, G. (April, 2015). From New Teacher to Peer Leader: Exploring Teacher Practice in an Online Induction Program. *National Association for Research in Science Teaching*, Chicago, IL
6. Andzenge, S., Karahan, E., Bhattacharya, D., & Roehrig, G. (April, 2015). Eliciting Students' Understanding of River Geography and Socioscientific Issues through a Critical Response Protocol. *National Association for Research in Science Teaching*, Chicago, IL
7. McFadden, J & Roehrig, G.H. (January, 2015). Teachers as Designers: The Iterative Process of Curriculum Design Focused on STEM Integration. *Association for Science Teacher Education*, Portland, OR.
8. Dare, E., Ortmann, L., Anwar, T., Ellis, J., McFadden, J., Chidthachack, S., Moore, T., Roehrig, G.H., & Guzey, S.S. (January, 2015). From Professional Development to Classroom Implementation: Exploring STEM Integration in K-12 Science Education. *Association for Science Teacher Education*, Portland, OR.
9. Loyle-Langholz, A., Bhattacharya, D., & Roehrig, G.H. (January, 2015). In-Service Secondary School Science Teachers' Knowledge Base for Teaching Climate Change. *Association for Science Teacher Education*, Portland, OR.
10. Loyle-Langholz, A., Bhattacharya, D., & Roehrig, G.H. (January, 2015). Exploring Culturally Relevant Teaching and Learning in Science Classrooms. *Association for Science Teacher Education*, Portland, OR.
11. Ellis, J., Polizzi, S.J., Roehrig, G.H., & Rushton, G. (January, 2015). Teachers as Leaders: Exploring the Venture/Vexation Activity in the Teacher Induction Network. *Association for Science Teacher Education*, Portland, OR.
12. Nam, Y., Chen, Y., & Roehrig, G.H. (January, 2015). Preservice Science Teachers' Argumentation and Scientific Reasoning. *Association for Science Teacher Education*, Portland, OR.
13. Ellis, J.A. [G], Roehrig, G.H., McFadden, J. [G], & Anwar, T. [G] (April, 2014). Development of an Online Induction Program. *National Association for*

Research in Science Teaching, Pittsburgh, PA

14. Anwar, T. [G], Roehrig, G.H., Ellis, J.A. [G], & McFadden, J. [G] (April, 2014). Exploring Transformation of Beginning Science Teachers' Reflective Practices. *National Association for Research in Science Teaching*, Pittsburgh, PA.
15. Warfa, A. [F], Roehrig, G., & Schneider, J. (April, 2014). Collaborative Discourses and the Construction of Explanations with Haptic Technology in Chemistry. *National Association for Research in Science Teaching*, Pittsburgh, PA.
16. Dare, E. [G], Ellis, J. [G], & Roehrig. G. (April, 2014). A Multiphase Study Exploring Physical Science Teachers' Practices and Beliefs about Engineering Integration. *National Association for Research in Science Teaching*, Pittsburgh, PA.
17. Bhattacharya, D. [G], Karahan, E. [G], Liu, S. [G], & Roehrig, G. (April, 2014). Using Photo Elicitation Interview to Conceptualize InService Secondary School Science Teachers' Knowledge for Climate Change. *National Association for Research in Science Teaching*, Pittsburgh, PA.
18. Liu, S. [G], Roehrig, G., Loyle, A. [G], & Bhattacharya, D. [G] (April, 2014). Arguing about Global Climate Change: In-Service Teachers' Argumentation and Epistemology on Climate Issues. *National Association for Research in Science Teaching*, Pittsburgh, PA.
19. Nyachwaya, J [F] & Roehrig, G. (April, 2014). College Chemistry Students' Use of Memorized Algorithms on the Particulate Nature of Matter. *National Association for Research in Science Teaching*, Pittsburgh, PA.
20. Karahan, E. [G], Bhattacharya, D. [G], Andzenge, S. [G], McFadden, J. [G], & Roehrig, G.H. (January, 2014). Secondary science teachers' understanding of socioscientific issues and its effects on their curriculum implementation plans. *Association for Science Teacher Education*, San Antonio, TX.
21. Roehrig, G.H, Moore, T.J., & Guzey, S.S. (January, 2014). EngrTeams: integrated STEM education mathematics and science partnership project. *Association for Science Teacher Education*, San Antonio, TX.
22. Liu, S. [G], Roehrig, G.H., Loyle-Langholz, A. [G], & Bhattacharya, D. [G] (January, 2014). In-service teachers' argumentation and epistemology about global climate change. *Association for Science Teacher Education*, San Antonio, TX.
23. Dare, E. [G], Ellis, J.A. [G], Roehrig, G.H. (January, 2014). A balancing act: Teacher challenges with integrating engineering in physical science classrooms. *Association for Science Teacher Education*, San Antonio, TX.
24. Bhattacharya, D. [G], Karahan, E. [G], McClelland, J. [G], Liu, S. [G], & Roehrig, G.H. (January, 2014). Using photo elicitation interview to conceptualize in-service secondary school science teachers' knowledge base for teaching climate change. *Association for Science Teacher Education*, San Antonio, TX.
25. Nyachwaya, J. [F] and Roehrig, G.H. (January, 2014). College chemistry

students' use of memorized algorithms on the Particulate Nature of Matter. *Association for Science Teacher Education*, San Antonio, TX.

26. Ellingson, C. [G], Hoelscher, M. [G], Roehrig, G.H., & Dubinsky, J. (January, 2014). Critical response protocol and classroom discourse. *Association for Science Teacher Education*, San Antonio, TX.
27. Warfa, A. [F], Roehrig, G.H., Schneider, J., & Nyachwaya, J. (January, 2014). The role of teacher's practical moves in developing students representational fluency: A qualitative case study. *Association for Science Teacher Education*, San Antonio, TX.
28. Ellis, J. A. [G], Anwar, T. [G], McFadden, J. M. [G] & Roehrig, G. H. (2014, August). Social interactions of new STEM teachers using video annotation. *30th Annual Conference on Distance Teaching & Learning*, Madison, WI.
29. Ellis, J. A. [G], McFadden, J. M. [G], Anwar, T. [G] & Roehrig, G. H. (2014, January). If you can't say something nice: a design-based research approach investigating the social interactions of new science and math teachers using a video annotation tool. *Association for Science Teacher Education*, San Antonio, TX.
30. Ellis, J. A. [G] & Roehrig, G. H. (2013, April). Affordance and reflection: a design-based research approach to improving reflective practice among new science teachers in an online environment. *World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education*, Las Vegas, NV.
31. Bhattacharya , D. [G], Roehrig, G.H., Karahan, E. [G], & Liu, S. [G] (2013, April). In-Service Secondary School Science Teachers' Conceptions About Global Climate Change. *American Educational Research Association*, San Francisco, CA.
32. Roehrig, G.H., Carlson, S., & Miller, B.G. [F] (2013, April). Approach to Developing Culturally Relevant STEM Programming With American Indian Students. *American Educational Research Association*, San Francisco, CA.
33. Roehrig, G.H., Bhattacharya, D. [G], Karahan, E. [G],& Bilibi, S. C. (2013, April). Watershed Conceptions of Upper Elementary American Indian Students During a Place-Based Inquiry Unit on Watershed Management. *American Educational Research Association*, San Francisco, CA.
34. Roehrig, G.H., Miller, B.G. [F], Carlson, S., & Moore, T.J. (2013, April). Reach for the Sky: Improving STEM Outcomes for American Indian Students. *American Educational Research Association*, San Francisco, CA.
35. Hoelscher, M. [G], Ellingson, C. [G], Haroldson, R.A. [F], Guzey, S. [F], & Roehrig G. H. (2013, April). Science Teacher Authentic Classroom Instruction and Student Neuroscience Learning. *National Association of Research in Science Teaching*, Rio Grande, Puerto Rico.

36. Larkin, D.B., Roehrig, G.H., Emdin, C., Pilitsis, V.K., & Braaten, M. (2013, April). Symposium - Looking Past 2061: Visions of Science Teacher Education for the Next Century. *National Association of Research in Science Teaching*, Rio Grande, Puerto Rico.
37. Roehrig, G. H., Billington, B.[F], Ellis, J.[G], McFadden, J.[G], & Anwar, T.[G] (2013, April). Beginning Teachers' Use of Video Annotation in an Online Teacher Induction Program. *National Association of Research in Science Teaching*, Rio Grande, Puerto Rico.
38. Guzey, S.[F], Ellingson, C.[G], Roehrig, G.H., & Dubinsky, J. (2013, April). How Understanding Neuroscience Impacts Teachers' Pedagogical Beliefs. *National Association of Research in Science Teaching*, Rio Grande, Puerto Rico.
39. Wang, H.-H.[F], Roehrig, G.H., & Moore, T.J. (2013, April). STEM Integration: Opportunities for Using Imagination and Creativity to Apply STEM Knowledge in Life Science. *National Association of Research in Science Teaching*, Rio Grande, Puerto Rico.
40. Karahan, E.[G], & Roehrig, G.H. (2013, April). Addressing Environmental Issues through Social Networking Technologies and Media Design Projects. *National Association of Research in Science Teaching*, Rio Grande, Puerto Rico.
41. Warfa, A.[G], M., Nyachwaya[F], J.M., Roehrig, G.H., & Schneider, J. (2013, April). Improving Student Understanding of Ionic Compounds with Pogil Instruction. *National Association of Research in Science Teaching*, Rio Grande, Puerto Rico.
42. Liu, S.[G], Roehrig, G.H., Varma, K., & Bhattacharya, D.[G] (2013, April). Reasoning About Climate: The Role of Scientific Reasoning in Climate Education. *National Association of Research in Science Teaching*, Rio Grande, Puerto Rico.
43. Roehrig, G.H., Carlson, S., & Miller, B.G.[F] (2013, April). Reach for the Sky: Improving Science Agency for American Indian Students. *National Association of Research in Science Teaching*, Rio Grande, Puerto Rico.
44. Karahan, E.[G] & Roehrig, G.H. (2013, April). Designing multimedia artifacts to enhance students' conceptual understanding of climate change. *Society for Information Technology and Teacher Education*, New Orleans, LA.
45. Karahan, E.[G] & Roehrig, G.H. (2013, April). Designing social networks to promote student motivation and engagement in alternative school environments. *Society for Information Technology and Teacher Education*, New Orleans, LA.
46. Roehrig, G. H., McFadden, J.[G], Ellis, J.[G], & Anwar, T.[G] (2013, April). Is anyone watching? The use of video annotation to promote reflective practice. *Society for Information Technology and Teacher Education*, New Orleans, LA.

47. Roehrig, G. H., McFadden, J. M., Ellis, J. A., & Anwar, T. (2013). *The Minnesota online teacher induction network (TIN): developing reflective practitioners with video annotation software.* Paper presented at the Association for Science Teacher Education, Charleston, SC, United States.

48. Kersten, J. A. [G], Roehrig, G. H., Moore, Y., & Smith, K. (2013, January), Integration of Engineering Education by High School Teachers to Meet Standards in the Physics Classroom. *Association for Science Teacher Education*, Charleston, SC.

49. Canbazoglu-Bilici, S. [G], Guzey, S. S. [F], Donna, J. D. [F], Roehrig, G. H., Karahan, E., [G] Yamak, H., & Kavak, N. (2013, January). A Technological Pedagogical Content Knowledge (TPACK)-Based Lesson Plan Assessment Instrument. *Association for Science Teacher Education*, Charleston, SC.

50. Karahan, E. [G], & Roehrig, G. H. (2013, January). Enhancing Student Awareness and Activism in Solving Environmental Problems through Constructionist & Social Constructivist Learning Processes. *Association for Science Teacher Education*, Charleston, SC.

51. Billington, B. [F], Hoelscher, M. H. [G], Haroldson, R. A. [F], Roehrig, G. H., & Dubinsky, J. M. (2013, January). The Effect of Teacher Curriculum Implementation Strategies on Student Learning After a Neuroscience Professional Development Workshop. *Association for Science Teacher Education*, Charleston, SC.

52. Warfa, A. M. [G], Roehrig, G. H., & Schneider, J. L. (2013, January). Improving Student Understanding of Ionic Compounds with POGIL Instruction. *Association for Science Teacher Education*, Charleston, SC.

53. Nam, Y. [F], Chen, Y-C., & Roehrig, G. H. (2013, January). Pre-Service Science Teachers Argumentation Around Model Based Inquiry Using Socio-Scientific Issue. *Association for Science Teacher Education*, Charleston, SC.

54. Guzey, S. S. [F], Moore, J., & Roehrig, G. H. (2013, January). Integration of Engineering into Science. *Association for Science Teacher Education*, Charleston, SC.

55. Nyachwaya, J. M. [F], Roehrig, G. H., & Sande, M. E. [F] (2013, January). Pedagogical Content Knowledge and the Gas Laws: A Multiple Case Study. *Association for Science Teacher Education*, Charleston, SC.

56. Bhattacharya, D. [G], Karahan, E. [G], Roehrig, G., & Canbazoglu-Bilici, S. [G] (2013, January). Implementation of a Place-Based Approach to Enhance Students' Understanding of Watershed Management. *Association for Science Teacher Education*, Charleston, SC.

57. Roehrig, G. H., Donna, J. D. [F], Billington, B. L. [F], & Hoelscher, M. H. [G] (2013, January). The Teacher Induction Network: Providing Continued

Induction Support to Teachers During Their First Years of Teaching. *Association for Science Teacher Education*, Charleston, SC.

58. Liu, S. [G], Roehrig, G. H., Bhattacharya, D. [G], & Varma, K. (2013, January). Exploring In-Service Teachers' Attitudes, Knowledge and Classroom Practices of Global Climate Change. *Association for Science Teacher Education*, Charleston, SC.
59. Nam, Y. [F], Roehrig, G., & Finley, F. (2012, October). The Water System: Secondary Science Teachers' Knowledge and Teaching Practices. *Asia Regional Conference of International History, Philosophy, and Science Teaching Group*, Seoul, South Korea.
60. Nam, Y. [F], Park, M. S. [G], Kim, Y. R. [G], Roehrig, G., & Moore, T. (2012, October). A Problem-Based Culturally Relevant STEM Curriculum. *Asia Regional Conference of International History, Philosophy, and Science Teaching Group*, Seoul, South Korea.
61. Nam, Y. [F], Finley, F., & Roehrig, G. (2012, October). Developing a Framework for Earth System Knowledge. *Asia Regional Conference of International History, Philosophy, and Science Teaching Group*, Seoul, South Korea.
62. Nam, Y. [F], Roehrig, G., Kern, A. [F], & Reynolds, B. [G] (2012, October). Perceptions and Practices of Culturally Relevant Science Teaching in American Indian Classrooms. *Asia Regional Conference of International History, Philosophy, and Science Teaching Group*, Seoul, South Korea.
63. Martin, A. M., Roehrig, G.H., Londhe, R., LaFrance, J., & Gordon, J. (2012, October). A Common Evaluation Framework for Climate Change Education: Reflections and Lessons Learned from Evaluators on Climate Change Education Initiatives Funded by a Collaboration of Federal Agencies. *American Evaluation Association*, Minneapolis, MN
64. Warfa, A. M. [G], Nyachwaya, J. [G], Roehrig, G. H., & Schneider, J. (March, 2012). Students' Use of Covalent Bond Model to Represent Ionic Bonds: Insights from Particulate Drawing Task, *National Association of Research in Science Teaching*, Indianapolis, IN
65. Park, M. [G], Nam, Y. [F], Moore, T. J., & Roehrig, G. H. (March, 2012). STEM integration: Integrating Engineering to Enhance Science Learning, *National Association of Research in Science Teaching* , Indianapolis, IN
66. Nyachwaya, J. [G], Schneider, J., Wood, N. [F], Warfa, A. M. [G], Kern, A. L. [F], & Roehrig, G. H. (March, 2012). Tracking College Students' Growth in Understanding of the Particulate Nature of Matter, *National Association of Research in Science Teaching* , Indianapolis, IN
67. Liu, S. [G], Wang, J. [G], Varma, K., & Roehrig, G.H. (2012, March). In-service Teachers' Attitudes and Beliefs about Climate Change, *National Association of Research in Science Teaching*, Indianapolis, IN

68. Dubosarsky, M. [F], Roehrig, G. H., Carlson, S., Jones, J. [G], Murphy, B., & Frost, L. (March, 2012). Cultural Themes as the Center of Inquiry Science Curricula in American Indian Head Start Classrooms, *National Association of Research in Science Teaching* , Indianapolis, IN
69. Bhattacharya, B. [G], Karahan, E. [G], Nam, Y. [F], Wang, J. [G], Liu, S. [G], Tierney, B. [G], Varma, K., & Roehrig, G.H. (March, 2012). Conceptualizing In-service Secondary School Science Teachers' Knowledge Base for Climate Change Content, *National Association of Research in Science Teaching*, Indianapolis, IN
70. Albrecht, N. [G], Kirchoff, A. [F], Roehrig, G. H., & Upadhyay, B. (March, 2012). Exploring NOS with Immigrant Somali Youth in a Charter School Biology Curriculum, *National Association of Research in Science Teaching* , Indianapolis, IN
71. Guzey, S. [F], Tank, K.M. [G], Wang, H-H [F], Roehrig, G.H., & Moore, T. (January, 2012). A High-Quality Professional Development for Implementing Engineering into Your Classroom for Teachers of Grades 3-6. *Association for Science Teacher Education*, Clearwater, FL.
72. Dubosarsky, M. [F], Roehrig, G. H., Murhpy, B., Carlson, S., Jones, J. [G], & Frost, L. (January, 2012). The design Culturally Based Inquiry Units for young Children**,** *Association for Science Teacher Education*, Clearwater, FL.
73. Warfa, A. [G], Nyachwaya, J. [G], & Roehrig, G. H. (January, 2012). Students' Use of Covalent Bond Model to Represent Ionic Bonds: Insights from Particulate Drawing Task, *Association for Science Teacher Education*, Clearwater, FL.
74. Miller, B. G. [F], Roehrig, G.H., & Doering, A. (January, 2012).Snow snakes through Adventure Learning: How using a hybrid online environment supports the development of science agency, *Association for Science Teacher Education*, Clearwater, FL.
75. McClelland, J. [G], Bhattacharya, D. [G], Hoelscher, M. [G], Haroldson, R. [G], Roehrig, G.H., & Dubinsky, J. (January, 2012). An Exploration of Different Approaches to Classroom Implementation Following a Workshop on Neuroscience, *Association for Science Teacher Education*, Clearwater, FL.
76. Kern, A. L. [F], Roehrig, G.H., Reynolds, B. [G], Bhattacharya, D. [G], Varma, K., Hougham, R. J., Finley, F. [G], Miller, B. G. [F], Liu, S. [G], Nam, Y. [F], & Karahan, E [G]. (2012, January). Teacher Professional Development for Climate Change Education in Native Communities. *Association for Science Teacher Education*, Clearwater, FL.
77. Roehrig, G.H., Kern, A. L. [F], Varma, K., Bhattacharya, D. [G], Liu, S. [G], Nam, Y. [F], Reynolds, B. [G], Wang, J. [G], & Hougham, R. J. (2012, January). Enhancing Teachers' Understanding of Climate Change for Teaching

Native American Students. *Association for Science Teacher Education*, Clearwater, FL.

78. Roehrig, G.H, Campbell, K. M., Dalbotten, D., Bhattacharya, D. [G], Nam, Y. [F], Varma, K., & Wang, J. [G] (2011, December). Conceptualizing In-service Secondary School Science Teachers' Knowledge Base for Climate Change Content, *American Geophysical Union*, San Francisco, CA.
79. Nam, Y. [F], Campbell, K., Roehrig, G. H., & Dalbotten, D. (2011, October). CYCLES: Teachers Discovering Climate Change from a Native Perspective. *International Conference of Geologic Society of America*, Minneapolis, MN
80. Moore, T.J., Roehrig, G.H., Wang, H. [G], & Park, M.S. [G] (2011, April). Not Your Typical Chair-ity Case: STEM Integration as a Means for Engineering Design. *National Association of Research in Science Teaching*, Orlando, FL.
81. Nyachwaya, J. M. [G], Roehrig, G. H., Kern, A. L. [F], Wood, N., Schneider, J., & Mohammed, A. R. [G] (2011, April). College Students' Understanding of the Particulate Nature of Matter Across Reaction Types. *National Association of Research in Science Teaching*, Orlando, FL.
82. Nam, Y. [F], Park, M. S. [G], Kim, Y. R. [G], Roehrig, G.H. & Moore, T. (2011, April). Shelter Design: Problem Solving Lesson Using a Culturally Relevant STEM Topic. *National Association of Research in Science Teaching*, Orlando, FL.
83. Dubosarsky, M. [G], Roehrig, G.H, Mason, A., Murphy, B., & Carlson, S. (2011, April). .Professional Development Program Boosts Science Teaching Practices among Head-Start Teachers on an American-Indian Reservation. *National Association of Research in Science Teaching*, Orlando, FL.
84. Miller, B. G. [F] & Roehrig, G. H. (2011, April). Employing a Culturally-based Context as a Means to Science Agency: Snow Snakes and STEM. *National Association of Research in Science Teaching*, Orlando, FL.
85. Nyachwaya, J. [G], Lawrenz, F., & Roehrig, G.H. (2011, January). Same program, different practices and views: InService teachers' perceptions of their licensure program. *Association for Science Teacher Education*, Minneapolis, MN.
86. Dubosarsky, M. [G], Roehrig, G.H, Mason, A. [G], Murphy, B., & Carlson, S. (2011, January). Pattern of Change in Teaching Science among Head Start Teachers on an American Indian Reservation. *Association for Science Teacher Education*, Minneapolis, MN.
87. Wang, H. [G], Roehrig, G.H., Moore, T.J., & Park, M.S. [G] (2011, January). Engineering in Science Education: The Impact of Professional Development Program on Different Subject Areas of Science Teachers in

Adding Engineering Concepts in Their Teaching. *Association for Science Teacher Education*, Minneapolis, MN.

88. Dubinsky, J., Roehrig, G.H., Guzey, S.S. [G], McClelland, J. [G], Billington, B. [G], & Jeddeloh, K. (2011, January). BrainU: A teacher professional development program on neuroscience. *Association for Science Teacher Education*, Minneapolis, MN.
89. Nyachwaya, J. [G], Schneider, J., Roehrig, G., Kern, A. [F], Wood, N. [F], & Mohammed, A. R. [G] (2011, Januray). College Students' Conceptual Understanding of the Particulate Nature of Matter. *Association for Science Teacher Education*, Minneapolis, MN.
90. Guzey, S. [G], Roehrig, G.H, & Billington, B. [G] (2010, March). Reflection in Teacher Education: Exploring Preservice Science Teachers' Understanding and Implementation of Inquiry. *National Association of Research in Science Teaching*, Annual Conference, Philadelphia, PA.
91. Guzey, S. [G], Billington, B. [G], & Roehrig, G.H. (2010, January). Inquiring into Pre-service Teachers' Understanding of Inquiry. *Association for Science Teacher Education*, Sacramento, CA.
92. Guzey, S. [F], Nyachwaya, J. [G], Roehrig, G.H, Moore, T., Plumb, S. [G], & Imbertson, P. (2010, January). A Neen Dush: Harvesting the Wind in the Reservation: A Curriculum Implementation. *Association for Science Teacher Education*, Sacramento, CA.
93. Roehrig, G.H, Dubosarsky, M. [G], Mogush-Mason, A. [G], Murphy, B., & Carlson, S. (2010, January). A Neen Dush: A Science and Mathematics Professional Development Program for Head Start Teachers on the White Earth. *Association for Science Teacher Education*, Sacramento, CA.
94. Roehrig, G.H, Carlson, S., Moore, T.J., Bowman, N. & Miller, B.G. [G] (2009, October). Reach for the Sky, an American Indian Community-wide STEM Program. *National Indian Education Association*, Milwaukee, WI.
95. Dubosarsky, M. [G], Mason, A. [G], Roehrig, G.H., & Carlson, S. (2009, October). Ah neen dush: Harnessing collective wisdom to create culturally relevant science and mathematics experiences for Head Start children on the White Earth reservation. *National Indian Education Association*, Milwaukee, WI.
96. Guzey, S. [G], Moore, T.J., & Roehrig, G.H. (2009, June). Bridge Design on the Reservation: A Study of Curriculum Implementation with American Indian Youth. *American Society of Engineering Education*, Austin, TX.
97. Donna, J.D. [G], & Roehrig, G.H. (2009, April). Knowing I'm not alone: The exploring the role of social affordances within an online induction environment. *American Educational Research Association*, San Diego, CA.

98. Donna, J.D. [G], & Roehrig, G.H. (2009, March). Understanding the affordances of an online induction program for beginning science teachers. *National Association for Science Teachers*, New Orleans, LA.

99. Miller, B. G. [G], Donna, J. D. [G], Roehrig, G. H., Moore, T. J., & Carlson, S. (2009, March). Reaching for the sky: STEM outreach and indigenous knowledge. *National Science Teachers Association*, New Orleans, LA.

100. Roehrig, G.H., Moore, T.J., Carlson, S., Miller, B.G. [G], Guzey, S. [G], & Donna, J.D. [G] (2009, March). Reach for the Sky: Improving STEM Learning for Anishanabe Students. *National Association of Research in Science Teaching*, Orange Grove, CA.

101. Roehrig, G.H., Stang, R.A. [G], Kirchhoff, A. [G], & Luft, J.A. (2009, January). Promoting Inquiry-based Classroom Practices: Targeted Professional Development for Beginning Secondary Science Teachers. *Association for Science Teacher Education*, Hartford, CT.

102. Roehrig, G.H, Moore, T.J., Carlson, S., Guzey, S.S. [G], Miller, B.G. [G], & Donna, J.D. [G] (2009, January). Reach for the Sky. *Association for Science Teacher Education*, Hartford, CT.

103. Guzey, S.S. [G], Roehrig, G.H., Donna, J.D. [G], & Groos D. [G] (2009, January). Teaching Science with Technology: Case Studies of Science Teachers' Development of Technological Pedagogical Content Knowledge (TPCK). *Association for Science Teacher Education*, Hartford, CT.

104. Luft, J.A., Adams, K. [G], Wong, S. [G], Ortega, I. [G], Firestone, J. [G], Bang, E.J. [G], Neakrase, J. [G], & Roehrig, G.H. (2009, January). The First Two Years: Knowledge, Beliefs, and Practices of Beginning Secondary Science Teachers in Different Induction Programs. *Association for Science Teacher Education*, Hartford, CT.

105. Miller, B.G. [G] & Roehrig, G. H. (2009, January). Science Goes South: The results of a Research Experience for Teachers (RET) program in Chile. *Association for Science Teacher Education*, Hartford, CT.

106. Neakrase, J. [G], Luft, J.A. & Roehrig, G.H. (2008, April). Beginning Physics Teachers' Understanding of the Nature of Science. *American Educational Research Association*, New York, NY.

107. Luft, J.A. & Roehrig, G.H. (2008, April). Knowledge, Beliefs, and Practices of First-Year Secondary Science Teachers. *American Educational Research Association*, New York, NY.

108. Donna, J.D. [G], & Roehrig, G.H. (2008, April). Understanding the Affordances of an Online Induction Program for Beginning Science Teachers. *National Association of Research in Science Teaching*, Baltimore, MD.

109. Luft, J.A., Roehrig, G. H., Neakrase, J. [G], Firestone, J. [G], Kirchhoff, A. [G], Guzey, S. [G], Nam, Y. [G], Kern, A. L. [G], Materassi, I. [G], Adams, K. [G], Bang,

E.J. [G], & Sande, M. [G] (2008, April). Symposium: Exploring the First Year of Teaching in Secondary Science Classrooms. *National Association of Research in Science Teaching*, Baltimore, MD.

110. Luft, J.A., Roehrig, G. H., Adams, K. [G], Guzey, S. [G], Hick, S.H. [G], & Firestone, J. [G] (2008, April). Building a Continuum of Practice: First Year Secondary Science Teachers. *National Association of Research in Science Teaching*, Baltimore, MD.

111. Donna, J. D. [G], Roehrig, G.H., Struss, H. [G], McDonald, E. [G], Bang, E.J. [G], & Luft, J. A. (2008, January). Online Induction: Working to meet the needs of beginning science teachers. *Association for Science Teacher Education*, St. Louis, MO.

112. Fletcher, S. S. [G], Roehrig, G. H., Tobin, K., Bell, R.,& Beeth, M. (2008, January). Lost in the crevasse : Perspectives on the relationship between theory and practice in science education. *Association for Science Teacher Education*, St. Louis, MO.

113. Guzey, S.S. [G], Roehrig, G.H., & Luft, J. A. (2008, January). The influences on inquiry-based teaching: Pedagogical content knowledge, teaching beliefs, and teaching experience. *Association for Science Teacher Education*, St. Louis, MO.

114. Kirchhoff, A. L. [G], Nam, Y. [G], Roehrig, G.H., & Luft, J. A. (2008, January). Nature of Science, Pedagogical Content Knowledge, and Beliefs: Influences on classroom teaching for beginning teachers. *Association for Science Teacher Education*, St. Louis, MO.

115. Hick, S. R. [G], Roehrig, G.H., & Luft, J. A. (2008, January). Portrait of a New Reformer: A Case study of a new science teacher with reform-based teaching practices. *Association for Science Teacher Education*, St. Louis, MO.

116. Struss, H. [G], Donna, J.D. [G], & Roehrig, G.H. (2007, October). Evaluating an online new teacher mentorship program. *American Evaluation Association International Conference*, Baltimore, MD.

117. Donna, J.D. [G], & Roehrig, G.H. (2007, August). Supporting Novice Science Teachers through Online Induction: Lessons Learned from the Pilot Year. *Distance Teaching and Learning Conference,* Madison, WI.

118. Hick, S. [G], Roehrig, G, and Luft, J. (2007, April). How do they do it? Lesson-planning strategies of reform-based and non-reform-based new science teachers. *National Association of Research in Science Teaching*, New Orleans, LA.

119. Kowalski, S. [G], Roehrig, G.H., & Luft, J.A. (2007, April). Jack and Jill Teach Science: Transformation and Reproduction of Scientific Discourse in High School Classrooms. *American Educational Research Association*, Chicago, IL.

120. Uysal, S. [G], Kendir, S. [G], Lewis, E.B. [G], Bang, E.J. [G], Schleigh, S. [G], Neakrase, J. [G], Luft, J.A., & Roehrig, G.H. (2007, April). Beginning Biology Teachers' Perception of PCK and Their Application of PCK in Their Classes. *American Educational Research Association*, Chicago, IL.

121. Roehrig, G.H., & Luft, J.A. (2007, April). A Closer Look at Promising Research, Longitudinal Studies: Teachers' Knowledge in Different Induction Programs. *American Educational Research Association*, Chicago, IL.

122. Donna, J.D. [G], & Roehrig, G.H. (2007, January). Online Mentoring and Support for Beginning Secondary Science Teachers. *Association for Science Teacher Education*, Clearwater, FL.

123. Hick, S.R. [G], Roehrig, G.H., & Luft, J.A. (2007, January). Who Can Do it? New Science Teachers with Reform-based Teaching Practices. *Association for Science Teacher Education*, Clearwater, FL.

124. Flynn, L.M. [G], Roehrig, G.H., Upadhyay, B., & Long, J. (2007, January). Integrating Technology into a K-12 M.Ed. Science Initial Licensure Program: Modeling Student's Competencies to Use and Teach with Technology Over the Course of the Program. *Association for Science Teacher Education*, Clearwater, FL.

125. Kowalski, S.M. [G], & Roehrig, G.H. (2007, January). The Persistence of Traditional Teaching: A Case Study. *Association for Science Teacher Education*, Clearwater, FL.

126. Sande, M.E. [G], Kern, A.L. [G], & Roehrig, G.H. (2007, January). A Teacher's Tale of Implementing Inquiry. *Association for Science Teacher Education*, Clearwater, FL.

127. Stang, R.A. [G], & Roehrig, G.H. (2007, January). First-Year Biology Teachers' Knowledge of Aspects of Evolutionary Biology. *Association for Science Teacher Education*, Clearwater, FL.

128. Yore, L.D., Anthony, R., Anderson, J.O., Shymansky, J.A., Annetta, L., Czerniak, C. M., Beltykova, S., Roehrig, G.H., Kuerbis, P., Mooney, L., & Revak, M. (2007, January). Making Sense of Professional Development, Teacher Enhancement, and Local Systemic Projects: Issues Arising from Complex Long-Term, Mixed Methods, Multiple Measures and Multiple Traits Data Sets. *Association for Science Teacher Education*, Clearwater, FL.

129. Luft, J. A., & Roehrig, G. H. (2006, October). Supporting New Secondary Science Teachers: The Design of Discipline Focused Induction Programs. *School Science and Mathematics Association*, Missoula, MA.

130. Kern, A.L. [G], Roehrig, G.H., & Luft, J.A. (2006, May). Examination of a Science Teacher Intern Program. *STEM Education Institute, Alternative Teacher Certification for Teachers Conference*, Arlington, VA.
131. Luft, J.A., & Roehrig, G.H. (2006, April). Beginning Secondary Science Teachers in Different Induction Programs: Findings from the Pilot Year. *National Association for Research in Science Teaching*, Dallas, TX.
132. Brown, M. [G], Luft, J.A., Roehrig, G.H., & Fletcher, S. [G] (2006, April). Predominant Paradigms of Beginning Secondary Science Teachers: The Development of a Nature of Science Rubric. *National Association for Research in Science Teaching*, Dallas, TX.
133. Roehrig, G.H., Kruse, R.A., & Kern, A. L. [G] (2006, April). Teacher and School Characteristics and their Influence on the Implementation of a Reform-Based Chemistry Curriculum. *National Association for Research in Science Teaching*, San Francisco, CA.
134. Roehrig, G.H, & Luft, J.A. (2006, February). Designing induction programs to meet the needs of secondary teachers: The case of science teachers. *Symposium on Teacher Induction*, San Jose, CA.
135. Brown, M. [G], Luft, J.A., & Roehrig, G.H. (2006, January). Beginning Science Teachers' Perspectives on the Nature of Science: The Development of a Nature of Science Rubric. *Association for Science Teacher Education*, Portland, OR.
136. Davis, G., Tommet, T., Erickson, C., Roehrig, G.H., & Simpson, P. (2006, January). Pathways to a Collaborative Network. *Association for Science Teacher Education*, Portland, OR.
137. Fletcher, S. [G], Brown, M. [G], Kern, A.L. [G], Crawford, H. [G], Luft, J.A., & Roehrig, G.H. (2006, January). Preliminary Findings from a multi-year Secondary Science Teacher Induction Study. *Association for Science Teacher Education*, Portland, OR.
138. Kern, A. L. [G], Roehrig, G. H., Fisher, K., Sande, M. [G], & Kowalski, S. [G] (2006, January). Lessons Learned during the First Year of a Science Intern-teaching Program. *Association for Science Teacher Education*, Portland, OR.
139. Roehrig, G.H., & Luft, J.A. (2005, July) Beginning secondary science teachers: Factors impacting nature of science instruction. *International History and Philosophy of Science Teaching*, Leeds, UK.
140. Roehrig, G.H., Garrow, S. [F], & Kern, A. [G] (2005, April). Exploring the implementation of a reform-based curriculum. *National Association for Research in Science Teaching*, Dallas, TX.
141. Luft, J.A., & Roehrig, G.H. (2005, April). Capturing Science Teacher Beliefs Through an Interview Process. *National Association for Research in Science Teaching*, Dallas, TX.

142. Lee, E. [G], Puthoff, E. [G], Luft, J.A., & Roehrig, G.H. (2005, April). Capturing the pedagogical content knowledge of beginning secondary science teachers: Year 1. *National Association for Research in Science Teaching*, Dallas, TX.
143. Fletcher,S. [G], Luft J.A., & Roehirg,G.H. (2005, January). Teach / Reteach: The impact of a 2 X 3 day teaching experience on pre-service science teacher reflection. *Association for the Education of Teachers in Science*, Colorado Springs, CO.
144. Roehrig, G. H., & Luft, J. A. (2004, April). The Induction Experience of Beginning Science Teachers from Different Teacher Preparation Programs. *American Educational Research Association*, San Diego, CA
145. Roehrig, G. H., Luft, J.A., & Patterson, N.C. (2004, April) The Impact of a Science-Focused Induction Program on Secondary Science Teachers. *American Educational Research Association*, San Diego, CA,
146. Austin, B.A. [G], Roehrig, G. H., & Marshall, J.A. (2004, April). Views Of Inclusion, Culture, and Equity" (VOICE), an instrument to measure teachers' views of equity. *American Educational Research Association*, San Diego, CA.
147. Roehrig, G.H., Austin, B.A. [G], Hancock, E., & Slater, T. (2004, April).The Impact of Undergraduate Research Experiences on Scientific Literacy. *National Association for Research in Science Teaching*, Vancouver, BC.
148. Slater, T., Bailey, J., Austin, B.A. [G], Hancock, E., & Roehrig, G.H. (2004, April). Assessing Summer Undergraduate Research Students' Levels of Engagement in the Scientific Enterprise. *National Association for Research in Science Teaching*, Vancouver, BC.
149. Washburne, J., Austin, B.A. [G], Williams, S., Hancock, E., Roehrig, G.H., & Slater, T. (2004, April). Diverging Outcomes: Students' and Faculty Mentors' Perceptions of Undergraduate Research Experiences. *National Association for Research in Science Teaching*, Vancouver, BC.
150. Hancock, E., Austin, B.A. [G], Roehrig, G.H., & Slater. T. (2004, April) Understanding the Impact of Undergraduate Research from the Perspective of Program Intentions. *National Association for Research in Science Teaching*, Vancouver, BC.
151. Luft, J.A., Fletcher, S. [G], Lee, E. [G], & Roehrig, G.H. (2004, April). Developing content knowledge? Beginning biology teachers in a science-focused induction program. *National Association for Research in Science Teaching*, Vancouver, BC.
152. Roehrig, G.H., Kruse, R.A., Kern, A.R. [G], & Thompson, N. [G] (2004, April) The Role of Reform-based Curricula in Changing Teachers' Classroom Practices. *National Association for Research in Science Teaching*, Vancouver, BC.

153. Roehrig, G.H., & Kruse, R.A. (2004, January) The Role of Knowledge and Beliefs in Implementing Inquiry-based Instruction in High School Chemistry Classrooms. *Association for the Education of Teachers in Science*, Nashville, TN.

154. Luft, J. A., Roehrig, G. H., Brooks, T. [G], & Austin, B. A. [G] (2003, March). Exploring the beliefs of secondary science teachers through interview maps. *National Association for Research in Science Teaching*, Philadelphia, PA.

155. Roehrig, G. H., Luft, J. A., & Austin, B. A. [G] (2003, March) Does One Size Fit All?: The Induction Experience of Beginning Science Teachers. *National Association for Research in Science Teaching*, Philadelphia, PA.

156. Austin, B. A. [G], Luft, J. A., Roehrig, G. H., & Fortney, B. [G] (2003, March). Juggling inequity: Dialogues with beginning science teachers working in culturally diverse classrooms. *National Association for Research in Science Teaching*, Philadelphia, PA.

157. Roehrig, G. H., Luft, J. A., Austin, B. A, & Fortney, B. (2002, February). Teach-Reteach: An Early Field-based Experience Designed to Develop Reform-based Teaching Practices. *Association for the Education of Teachers in Science*, St. Louis, MO.

158. Austin, B. A., Fife, D., Roehrig, G. H., & Luft, J. A. (2002, February). What if Science Teachers Designed Professional Development? A Glimpse at the Creation of a Week-Long, Inquiry-Based Workshop. *Association for the Education of Teachers in Science*, St. Louis, MO.

159. Luft, J. A., Austin, B. A., & Roehrig, G. H. (2002, February). Learning to Teach in Culturally Diverse Environments: The Experiences, Beliefs, and Practices of Beginning Secondary Science Teachers. *Association for the Education of Teachers in Science*, St. Louis, MO.

160. Roehrig, G. H., & Luft, J. A. (2002, March). The transition from pre-service to induction: Meeting the needs of all beginning secondary science teachers. *National Association for Research in Science Teaching*, New Orleans, LA.

161. Luft, J. A., &Roehrig, G. H. (2002, March). The intersection of intentions and reality: Beginning science teachers in culturally diverse schools. *National Association for Research in Science Teaching*, New Orleans, LA.

162. Roehrig, G. H., & Luft, J. A. (2002, January). How do pre-service teacher ideas about teaching science change over the course of a secondary science methods class? *Association for the Education of Teachers in Science*, Charlotte, NC.

163. Roehrig, G. H., & Luft, J. A. (2001, November). Beginning secondary science teachers' conceptions of the nature of science and teaching

beliefs, and their impact on classroom practice. *International History, Philosophy and Science Teaching Conference*, Denver, CO.

164. Luft, J. A., Roehrig, G. H., & Patterson, N. C. (2001, April). Contrasting induction programs: a comparison of different support programs for beginning secondary science teachers. *American Educational Research Association*, Seattle, WA.

165. Roehrig, G. H., Luft, J. A., Patterson, N. C., & Uyeda, S. (2001, March). Beginning science teachers' implementation of inquiry-based lessons. *National Association for Research in Science Teaching*, St. Louis, MO.

166. Luft, J. A., Roehrig, G. H., Patterson, N. C., & Uyeda, S. (2001, March). Beginning science teachers' practices and beliefs: A comparison of different support programs. *National Association for Research in Science Teaching*, St. Louis, MO.

167. Turner, J. A., Kurdziel, J. P., Roehrig, G. H., & Luft, J. A. (2001, March). Voices of Graduate Teaching Assistants in Undergraduate Science Courses. *National Association for Research in Science Teaching*, St. Louis, MO.

168. Kurdziel, J. P., Turner, J. A., Roehrig, G. H., & Luft, J. A. (2001, March). Growing a garden without water: Graduate teaching assistants in introductory science labs at a Research I institution. *National Association for Research in Science Teaching*, St. Louis, MO.

169. Roehrig, G. H., & Luft, J. A. (2001, January) Constraints to the Implementation of Constructivist Science Lessons. *Association for the Education of Teachers in Science*, Costa Mesa, CA.

170. Fletcher, S., Roehrig, G. H., and Patterson, N. C. (2000, April). The gallery guide: Induction programs for secondary science teachers. *National Association for Research in Science Teaching*, New Orleans, LA.

171. Roehrig, G. H., Fletcher, S., and Luft, J. A. (2000, April). Sketches of Induction Secondary Science Teachers in a Professional Development Program. *National Association for Research in Science Teaching*, New Orleans, LA.

Workshops presented at National Meetings

[G] Graduate student author
[F] Former graduate student author

1. Clough, M., Olson, J., Berg, C., Roehrig, G.H., Tillotson, J., & Kruse, J. (January, 2014).Developing and maintaining high quality secondary science teacher education programs: Strategies for overcoming institutional constraints. *Association for Science Teacher Education*, San Antonio, TX.
2. Roehrig, G. H., Moore, T., Guzey, S. S.[F], Tank, K. M.[G], & Billington, B.[F] (2013, January). Integrating Engineering into Science Methods Courses. *Association for Science Teacher Education*, Charleston, SC.

3. Kern, A. L. [F], Hougham, R. J., Roehrig, G. H., & Bhattacharya, D. [G] (March, 2012). Research-based Science Instruction for Climate Change: A Place-based Culturally Responsive Approach. Presented as part of the Research Dissemination Conference: Looking Toward the New Framework for the Next Generation Science Standards at the *National Science Teacher Association*, Indianapolis, IN

4. Roehrig, G. H., Moore, T. J., Tank, K. M. [G], Wang, H-H, [F] & Guzey, S. [F] (March, 2012). An Investigation of Different Models of Integrating Engineering into Science Classrooms. *National Science Teacher Association*, Indianapolis, IN

5. Dubinsky, J., Roehrig, G.H., & Jeddeloh, K. (2011, January). The Role of Neuroscience in Inservice and Preservice Teacher Professional Development. *Association for Science Teacher Education*, Minneapolis, MN.

6. Miller, B.G. [G], Guzey, S.S. [G], Moore, T.J., & Roehrig, G.H. (2008, October). Model-eliciting activities: The contextualization of mathematics and science. *School Science and Mathematics*, Raleigh, NC.

Posters Presented at Professional Meetings
International and National (Refereed)

[G] Graduate student author
[F] Former graduate student author

1. Liu, S. [G], Roehrig, G.H., Varma, K., & Bhattacharya, D. [G] (2013, April). The Role of Scientific Reasoning in Teachers' Attitudes and Knowledge About Climate Change. *American Educational Research Association*, San Francisco, CA.

2. Nyachwaya, J.M. [F], Roehrig, G.H., & Sande, M.E. [F] (2013, April). Pedagogical Content Knowledge and the Gas Laws: A Multiple Case Study. *National Association of Research in Science Teaching*, Rio Grande, Puerto Rico.

3. Varma, K., Ross, P. [G], Huffman, D.W., Roehrig, G.H., Chen, Y.-C., McGuire, L., & Lawrenz, F. (2013, April). Unpacking the Elements of Scientific Reasoning, *National Association of Research in Science Teaching*, Rio Grande, Puerto Rico.

4. Bhattacharya, D. [G], Roehrig, G.H., Karahan, E. [G], & Liu, S. [G] (2012, December). Assessing In-service Secondary School Science Teachers knowledge base about global climate change. *American Geophysical Union*, San Francisco, CA.

5. Roehrig, G. H. (2012, March). CYCLES: Teachers Discovering Climate Change from a Native Perspective. Poster presented in the Poster Symposium - Climate Change Education for the Twenty-First Century at the International Conference of the *National Association of Research in Science Teaching* , Indianapolis, IN

6. Nam, Y. [F], Roehrig, G. H., & Finley, F. N. (2012, March). Earth Science Teachers' Knowledge of the Water System and Its Reflections in Their Lesson Plans, *National Association of Research in Science Teaching*, Indianapolis, IN

7. Nam, Y. [F], Roehrig, G., Campbell, K. M., Dalbotten, D. M., Varma, K., Bhattacharya, D. [G], Karahan, E. [G], Wang, J. [G], & Liu, S [G]. (2012, January) Understanding Global Climate Change in Geological Time Scales. Poster

presented in the interactive poster set, "Sharing Efforts Resulting from NASA Faculty Institutes" at the International Conference of *Association for Science Teacher Education* , Clearwater, FL.

Regional, State and Local Presentations (Refereed)

1. Roehrig, G.H., Andzenge, S., Karahan, E., & McFadden, J. (October, 2015). Service Learning in High School Environmental Science Classrooms. Paper presentation (accepted) at the annual regional meeting of the National Science Teacher Association, Kansas City, MO.
2. Donna, J.D. [F], & Roehrig, G.H. (2009, October). Project TIN: Supporting Beginning Educators with Technology. *National Science Teacher Association Regional Meeting*, Minneapolis, MN.
3. Roehrig, G. H., & Kruse, R. A. [P] (2003, October). Inquiry Teaching in High School Chemistry Classrooms: The Role of Knowledge and Beliefs. *American Chemical Society Regional Meeting*, Long Beach, CA.
4. Roehrig, G. H., Patterson, N. C., & Luft, J. A. (2000, December). Project ASIST: An induction program for science teachers. *National Science Teachers Association Regional Meeting*, Phoenix, AZ.
5. Roehrig, G.H, Edwards, M., Potter, T., & Amaro, W. (1998, December). Science Inquiry for High School Chemistry. *National Science Teachers Association Regional Meeting*, Albuquerque, NM.
6. Roehrig, G.H, & Edwards, M. (1998, April). Water Quality Simulations for High School Chemistry. *American Chemical Society Regional Meeting*, Tucson, AZ.

TEACHING AND CURRICULUM DEVELOPMENT

University of Minnesota

Courses, seminars, and instructional units taught

PhD courses

[a] Co-taught with Dr. Tamara Moore
[b] Developed as part of the Austin-Hormel Partnership
[c] Developed as part of the NSF Reach for the Sky program

[a] CI 8573 Nature of Inquiry in STEM Education

CI 8133 Research Methods in Curriculum and Instruction

CI 8132 Curriculum and Instruction Core: Teaching Theory and Research

CI 8570 Advanced Topics in Science Education
STEM Teacher Professional Development

CI 8161 Research Experience I

[a] CI 8570 Advanced Topics in Science Education
Nature of Scientific and Mathematical Inquiry
Cross-listed with MthE 8591

CI 8570 Advanced Topics in Science Education

Recent Research in Science Education

M.Ed. courses

[a,b] CI 5540 Special Topics Science Education
Technology Integration in STEM
Crosslisted with MthE 5100

[a,b] CI 5540 Special Topics Science Education
STEM Integration in Science
Crosslisted with MthE 5100

[a,c] CI 5540 Special Topics Science Education
Integrating Technology to Improve Science Teaching

CI 5534 Studies in Science Education (on-line)

CI 5539 Surviving the First Two Years (on-line)

CI 5532 Secondary Science Methods

CI 5150 Middle School Science for Elementary Teachers

Curriculum and Program Development

STEM Education PhD. Chaired the development of the new integrated STEM education PhD program. New students were admitted starting in Fall 2013.

Science Education M.Ed. New History and Nature of Science course (CI5541) requirement adopted for licensure students starting in summer 2013.

Science Education M.Ed. New methods course sequence including a new course CI5530 (Scientific Inquiry) adopted for licensure students starting in summer 2010.

CI 5539 – online induction program designed to support M.Ed. science education ILP students during their first years of teaching – developed in 2005-2006.

Collaborative Efforts and Activities

CI 5540 - Ecology & Earth Systems Dynamics for Educators – co-developed with Jeff Corney (College of Biological Sciences), taught in Summer 2012

CI 5540 - Neuroscience for Educators – co-developed with Jan Dubinsky (Department of Neuroscience), taught in Summer 2008 - 2012

MthE 5100/CI 5540 – *STEM Integration in Mathematics and Science* – co-developed with Tamara Moore for the Austin M.Ed. cohort program, Summer 2010 and Fall 2010

MthE 8591/CI 8570 – *Nature of Scientific and Mathematical Inquiry* – new cross-listed PhD course created with Tamara Moore for PhD students interested in multi-disciplinary issues of inquiry, taught Spring 2008.

Professional Development Workshops and Institutes

STEM Integration for Secondary Science Teachers
Bemidji Public Schools (Dec 6, 2012)

Elementary Engineering: EiE

Lino Lakes Elementary School (August 29, 2011)

Integrating Engineering into the Science Classroom
Farmington Public Schools (Oct 20, 2010)

Elementary Engineering: EiE
White Bear Lakes Schools (Nov 1,3,10,15, 2010)

STEM Integration for Secondary Science Teachers
Alworth Memorial Foundation, Duluth MN (Oct 8, 2010)

Levy for Learning Workshop (STEM Integration)
North St. Paul Public Schools (July 26 – 30, 2010)

Inquiry in the Physical Science Classroom
North St. Paul MN (Sept 3, 2009)

Educational research for Engineering Faculty
Valparaiso Universitty (Aug 4-5, 2008)

Living By Chemistry Curriculum Workshops
(One week in summer plus five follow-up days)
San Diego City Schools – 40 teachers (2003-2004).

Mathematics and Science Teacher Partnership Workshops

Five-days with accompanying Professional Learning Communities

Nature of Science and Engineering, 8th Grade Earth Science
18 teachers from 12 schools (2013 – 2014)

Nature of Science and Engineering, 9th Grade Physical Science
48 teachers from 13 schools (2012 – 2013)

Nature of Science and Engineering, Life Science, Grades 7-12
119 teachers from 48 schools (2011 – 2012)

Nature of Science and Engineering, Grades 3-6
137 teachers from 17 schools (2011 – 2012)

Nature of Science and Engineering, Grades 3-6
220 teachers from 36 schools (2010 – 2011)

STEM Integration, Grades 7-12
79 teachers from 10 metro schools (2009 – 2010)

Improving Teacher Quality Institutes

Two-week Institutes focused on teaching physical science

Nature of Science and Engineering for High School Chemistry
In partnership with St. Paul Public Schools – 20 teachers (Summer 2013)

Nature of Science and Engineering for High School Physics
In partnership with St. Paul Public Schools – 23 teachers (Summer 2012)

Nature of Science and Engineering for Middle School Physical Science
In partnership with St. Paul Public Schools – 20 teachers (Summer 2011)

BrainU Institutes

Two-week Institutes focused on teaching neuroscience

SEDAPA Cohort 1
25 teachers (Summer 2009)

SEDAPA Cohort 2
21 teachers (Summer 2010)

SEPA Cohort 1 – Year 1
In partnership with St. Paul Public Schools and Anoka-Hennepin School District
23 teachers (Summer 2010)

SEPA Cohort 1 – Year 2
In partnership with St. Paul Public Schools and Anoka-Hennepin School District
23 teachers (Summer 2011)

SEPA Cohort 2 – Year 1
In partnership with St. Paul Public Schools and Anoka-Hennepin School District
22 teachers (Summer 2011)

SEPA Cohort 2 – Year 2
In partnership with St. Paul Public Schools and Anoka-Hennepin School District
22 teachers (Summer 2012)

NASA Cycles Institutes

One-week Institute with five follow-up academic year workshops focused on Climate Change Education

Year 1 – Cedar Creek Ecosystem Reserve
In partnership with Cass Lake, Fond du Lac, Red Lake, and White Earth Reservations
19 teachers (2011-2012)

Year 2 – Itasca Biological Field Station
In partnership with Cass Lake, Fond du Lac, Red Lake, and White Earth Reservations
17 teachers (2012-2013)

Year 3 – Cloquet Forestry Center

In partnership with Cass Lake, Fond du Lac, Red Lake, and White Earth Reservations
16 teachers (Summer 2013)

Head Start Workshops

30 professional development workshops over three years

In partnership with White Earth Reservation Head Start Classrooms
38 teachers (2008 – 2011)

Faculty Development Activities regarding teaching

Digital Media Center Fellowship (2007-2008)

NextGen Digital Media Center Program (2004-2005)

San Diego State University

Courses, seminars, and instructional units taught

CHEM 105 *Preparatory Chemistry*

NS 412 *Processes and Inquiry in the Physical Sciences*

University of Arizona

Courses, seminars, and instructional units taught

TTE 510 *Advanced Science Methods*

TTE 338h *Teaching Secondary Education – Science*

ADVISING AND MENTORING

University of Minnesota

Graduate Student Activities

Master's Theses Directed

Narmin Ghalichi	Educational Ideology as Decisive Factor in Limiting Out-of-Discipline Middle School Science Teaching	Oct 2014
Justin McFadden	Why Can't Teachers Work in the Cloud: An Examination of Science Teacher Online Professional Development Using Ning	June 2012
Engin Karahan	Enhancing High School Students' Environmental Awareness and Activism by Using the Theoretical Frameworks of Constructionism and Social Constructivism	June 2012
Ben Tierney	Thinking Systemically: Collaborative Explorations of the Water Cycle	Aug 2010
Herb Struss	Comparing Inquiry Science Instruction Within Two High School Biology Classrooms	Aug 2009
Rebecca Stang	Contexts Eliciting Reform-Based Practices for Beginning Secondary Science Teachers	May 2008
Selcen Guzey	The Effectiveness of pedagogical content knowledge in inquiry-based instruction.	May 2007
Penny Frahm	Community Partnerships Serving Science	May 2007
Rachelle Haroldson	Gender Differences in Achievement and Attitude in High School Chemistry	May 2005

Doctoral Dissertations Directed

29. Laura Fox	Perceptions of Undergraduate Physical Chemistry Instructors: Lessons from a Nationwide Survey, Assessment Analysis, and Reflections on	May 2016

	Teaching and Learning	
28. Devarati Bhattacharya*	Conceptualizing In-service Secondary School Teachers' Knowledge Base for Promoting Understanding about the Science of Global Climate Change	June 2015
27. Justin McFadden	Teachers as Designers: The Iterative Process of Curriculum Design Focused on STEM Integration	May 2015
26. J. McClelland	Reconstructing Student Conceptions of Climate Change: An Inquiry Approach	May 2015
25. Engin Karahan	Case Studies of Secondary Science Teachers Designing Socioscientific Issues Based Instructions and Their Students' Understanding of Science and Socioscientific Reasoning	May 2015
24. Joshua Ellis	Develop, Discuss, and Decide: How New Science Teachers Use Technologies to Advance Their Practice	May 2015
23. Emily Dare	Understanding Middle School Students' Perceptions of Physics Using Girl-Friendly and Integrated STEM Strategies: A Gender Study	May 2015
22. Mary Hoelscher	LGBTQ Inclusion in Educator Preparation: Getting Ready for Gender and Sexual Diversity in Secondary School Settings	Sept 2014
21. Eric McDonald	Learning to teach as situated learning: An examination of student teachers as legitimate peripheral participants in cooperating teachers' classrooms	May 2014
20. Scot Hovan	Contributing to Meaning Making: Facilitating Discourse in the High School Physics Classroom	May 2014
19. Ben Tierney	Climate Cases: Learning About Student Conceptualizations of Global Climate Change	May 2013
18. Abdi Warfa	Student Conceptions of Ionic Compounds in Solution and the Influences of Sociochemical Norms on Individual Learning	May 2013
17. Jennifer Kersten	Integration of Engineering Education by High School Teachers to Meet Standards in the Physics	May 2013
16. Barbara Billington	Classroom Analysis of TPA Task 2: Instructing and Engaging Students: What Evidence Does the Teacher Performance Assessment Reveal about Science Education Teacher Candidates'	Aug 2012

	Understanding of Inquiry-based Instruction?	
15. Thor Benson	Pedagogical Awareness of Technology Integration into Secondary Science Teaching	July 2012
14. Rachelle Haroldson	Student Perceptions of Formative Assessment in the Chemistry Classroom	May 2012
13. James Nyachwaya	College Students' Understanding of the Particulate Nature of Matter	May 2012
12. Hui-Hui Wang	A New Era of Science Education: Science Teachers' Perceptions and Classroom Practices of Science, Technology, Engineering, and Mathematics (STEM) Integration	Dec 2011
11. Younkyeong Nam	Earth science teachers' knowledge of the water system and its reflections in their lesson plans	June 2011
10. Brant Miller	Snow snakes as a means to science agency: Empowering American Indian students through a culturally relevant STEM curriculum	Dec 2010
9. Karen Bengston	Elementary teachers' perceptions of environmental education	Dec 2010
8. Thomas Meagher	Working With "Rookies": A Case Study of Science Teachers Mentors	May 2010
7. Selcen Guzey	Science, Technology, and Pedagogy: Exploring Secondary Science Teachers' Effective Uses of Technology	May 2010
6. Jonathan Keiser	Identifying Variations in Thinking about the Nature of Science: A Phenomenographic Approach	Mar 2010
5. Mary Sande	Pedagogical Content Knowledge and the Gas Laws: A Multiple Case Study	Jan 2010
4. Allison Kirchhoff	The Career Paths of Mathematics and Science Teachers in High Need Schools	Sept 2009
3. Joel Donna*	Surviving and Thriving as a New Science Teacher: Exploring the Role of Comprehensive Online Induction	May 2009
2. Sarah Hick	Who Can Do It? New Science Teachers with Reform-Based Teaching Strategies	June2008
1. Anne Kern*	Novice Teachers' Action: Exploring secondary science teachers' actions through practical reasoning	Nov 2007

*DDF awardees

Doctoral Students Advised (current)

Jonathan Andicoechea

Tasneem Anwar

Bonnie Boyd

Char Ellingson

Narmin Ghalichi

David Groos

Hallie Kamesch

David Kimori

Michael Enah Kuo

Felicia Leammukda

Illana Livstrom

Wendy Niesl

Robert Palmer

Elisabeth Ring

Lynne Shenk

Preethi Titi

Jeanna Wieselmann

Paula Woods

*DDF awardee

Doctoral Committees Served on

Karen Appledoorn (Science Education)	Spring 2005
Nathan Wood (Science Education)	Summer 2006
Susan Kowalski (Science Education)	Summer 2007
Heidi Hansen (Mathematics Education)	Summer 2010
Deborah Monson (Mathematics Education)	Spring 2011
Micah Stohlman (Mathematics Education)	Spring 2012
Mark Ryan (Science Education)	Summer 2012
Kawin Chaumklang (Science Education)	Summer 2012
Kristie Tank (Science Education)	Summer 2014
Shiyu Liu (Educational Psychology)	Summer 2014

Lisa Ortman (Literacy Education) Summer 2015

Nancy Albrecht December 2015

Joel Light May 2016

Doctoral Committees (current)

Jeremy Wang (Educational Psychology)

Miranda Straub (Science Education)

Brad Johnson (Science Education)

Joel Lightfoot (Science Education)

Karl Jung (STEM Education)

Hadi Bunyamin (STEM Education)

Mohammed Rizkallah (STEM Education)

Young-Hoon Ham (Family Education)

Bonnie Gidzak (History of Science)

Brent Ruter (Organizational, Leadership, Policy, and Development)

John Oughton (Science Education)

Professional Student Activities

As of January 2015, active M.Ed. Advises total 30 M.Ed. ILP students and 1 M.Ed. professional studies students

2014 12 M.Ed. advisees completed
2013 8 M.Ed. advisees completed
2012 12 M.Ed. advisees completed
2011 17 M.Ed. advisees completed
2010 17 M.Ed. advisees completed
2009 19 M.Ed. advisees completed

* College records do not provide accurate or complete M.Ed. records prior to 2009 – however, advising loads and completion rates have been consistent since joining the faculty in 2004.

Post-doctoral fellows supervised

Rebecca Kruse, San Diego State University 2002 - 2004

Other Mentoring Activities

Faculty Mentor

Sue Staats
Curriculum and Instruction (Mentor) 2015 - present

Julie Brown
Curriculum and Instruction (Dossier Mentor) 2014 - present

Rajeev Muthyala
Chemistry Education, University of Minnesota Rochester 2009 - 2014

Charles Miller

Curriculum and Instruction (Dossier Mentor) 2008-2011

San Diego State University

Graduate Student Activities

Master's Theses Directed

Shauna Garrow	The impact of teacher classroom practices on student achievement during the implementation of a reform-based chemistry curriculum	Dec 2005
Hailey Russell	Improving the Freshman General Chemistry Laboratory Experience	May 2005

SERVICE AND PUBLIC OUTREACH

Service To The Discipline/Profession/Interdisciplinary Area(s)

Editorships/Journal Reviewer Experience

Associate Editor, Journal of Research in Science Teaching, 2015 - 2020

Editorial Board, Journal of Science Teacher Education, 2013 - 2016

Editorial Board, Journal of Research in Science Teaching, 2007 - 2010

Journal Reviewer, Journal of Science Education and Technology, 2002 - present

Journal Reviewer, International Journal of Science Education, 2006 - present

Journal Reviewer, Journal of Research in Science Teaching, 2004 - present

Journal Reviewer, Journal of Teacher Education, 2008 - present

Journal Reviewer, Teaching and Teacher Education, 2009 - present

Journal Reviewer, Instructional Science, 2008

Journal Reviewer, Journal of Chemical Education, 2002 – 2005

Committee memberships

Association for Science Teacher Education

President-Elect	2016
Publication Committee, Chair	2013 - 2016
Awards Committee	2012 - 2013
Long-term Conference Planning Committee	2010 - 2012
Professional Development Committee	2010 - 2011
Publication Committee	2004 - 2007

National Association of Research in Science Teaching

Publications committee, Chair	2013 - 2016
Publication Committee	2008 - 2011

Review panels for external funding agencies, foundations, etc.

National Science Foundation	2004 - present
National Institutes of Health	2009

Program review experience

Middle Tennessee State University

External Review of Ph.D. in Mathematics and Science Education	2008

Northern Iowa University

External Review of Teacher Education Program	2013

Organization of conferences, workshops, panels, symposia

P-12 STEM Education Colloquium, Organizing Committee	2011, 2012
National ASTE conference, Conference Co-chair	2011

Service To The University/College/Department

University of Minnesota

University-wide service

Academic Technology Advisory Committee (2010-2012)

Co-chair Graduate School DDF Committee (2011-2015)

Graduate School GSF and DDF Committee (2009 - 2011)

Graduate School Thesis Grant Committee (2007 – 2010)

P-16 Council – member of the Science Instruction working group (2008-2009)

P-16 Council – co-chair of the professional development sub-group (2008-2009)

Chair of the APLU Science and Math Teacher Imperative Leadership Collaborative (2009-2011)

Collegiate Service and Intercollegiate Service

College Curriculum Council (2015 -)

Faculty Finance Committee (2013-2015)

College Governing Council (2007-2009)

College Research Committee (2005 – 2007)

College Consultative Committee (2006-2007)

College STEM Block Co-chair (2007-2009)

College Native American Block member (2007-2009)

Department/Unit Service

Director of Graduate Studies (2015 -)

Department Advisory Committee (2014-2016)

Personnel Committee (2014-2017)

Mathematics Education Search Committee (2014-2015)

Biology Teaching and Learning Committee (2014-2015)

STEM Education Search Chair (2013-2014)

Program Area Coordinator (2004 – 2006, 2011-2015)

Graduate and Professional Studies Committee Co-Chair (2011-2013)

2020 Vision Committee (spring 2010)

Graduate Research Taskforce Chair (2009-2010)

Technology Committee Chair (2007-2009)

Graduate Studies Committee (2007-2010)

Research Committee Chair (2005-2006)

Research Committee (2004-2005)

Steering Committee (2005-2006; 2007-2009)

English Education Search Committee (2004-2005)

Public And Other Service

National service activities

Next Generation Science Standards (NGSS) Critical Stakeholder (2012-2013)
Provide feedback and direction for the NGSS writing team on drafts of standards documents

State service activities

Minnesota NGSS Committee (2012-2013)
Minnesota was selected a lead state for the development of the NGSS and a state level committee was appointed to review standards and determine action and response for the state.

Minnesota Math and Science Resource Teacher Center Design Team (2010-2011).
Statewide committee charged with designing a virtual teacher resource center to disseminate the new STEM education frameworks and best practices.

Minnesota State Science Standards Committee (2008-2009).
This 30-person state committee was responsible for re-drafting the state science standards.

Minnesota Teacher Support Group (2007 – 2008)
Collaborative effort of CEHD, MDE and Education Minnesota to draft mentoring standards for MN and actively promote legislative action on these standards.

Board of Teaching Assessment Reviewer (October 2009 – May 2010)

Community service activities

STEM Community Advisory Board (South Washington County Schools) (2010-2014)

Columbia Heights After-School Advisory Board (2009-2013)

American Indian Science and Engineering Society Science Fair Judge March 2009

Presentation to Metro Area Curriculum Leaders on new science standards, Capitol View Center, August 31, 2009

Presentation to District 287 Curriculum Committee on new science standards, Plymouth, MN, October 23, 2009

Field Day Facilitator workshop (University of Minnesota, Department of Natural Resources) (June 2005)

Research advisory boards

Advisory board member for Back to the Earth, University of Idaho funded by NSF Innovative Technology Experiences for Students and Teachers (2012 – 2015)

Advisory board member for Virginia Initiative for Science Teaching and Achievement funded by U.S. Department of Education through the Investing in Innovation (i3) program (2011 – 2012)

Advisory board member for National Statistics Teaching and Practice Survey: Instrument Development NSF / DUE-0808862 (2008-2011).