

Sarah J. Carrier

North Carolina State University
Department of Elementary Education
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Raleigh, NC 27695-7801
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EDUCATION

University of Florida

Ph.D. Science Education 1999
Major concentration: Environmental Education
Dissertation: *The Influence of Outdoor School Yard Experiences on Elementary Students' Environmental Knowledge, Attitudes, Behaviors, and Comfort Levels*

M.A. Science Education 1992

University of Central Florida

B.S. Elementary Education 1988

PROFESSIONAL EXPERIENCE

Associate Professor, Science Education

Department of Elementary Education, North Carolina State University 2013- Present
Director of Graduate Programs

Assistant Professor, Science Education

August, 2007 – 2013
Department of Elementary Education, North Carolina State University
Raleigh, NC

Assistant Professor, Science Education

August, 2005-August, 2007
Department of Curriculum and Teaching, Auburn University, Auburn, AL

Adjunct Assistant Professor, Science Education

January, 2000-August, 2005
School of Teaching and Learning, University of Florida, Gainesville, FL

PUBLICATIONS

Book Chapters

Carrier, S.J., & Stevenson, K.T. (2017). Children experiencing the outdoors: A natural setting for learning. In Eija Kimonen and Raimo Nevalainen (Eds.) *Reframing school education: A comparative view*. Rotterdam, the Netherlands: Sense Publishers.

Carrier, S.J., & Thomas, A. (2012). Potato problem solving: A 5E model addresses misconceptions about thermal insulation. In Eric Brunzell (Ed.) *Integrating Engineering and Science in Your Classroom*. Arlington, VA: NSTA Press.

Eick, C., Carrier, S., Keasel, D., & Perez, K. (2010). Summer methods in summer camps: Teaching Projects WILD, WET, and Learning Tree at an outdoor environmental education center. In A.M. Bodzin, B.S. Klein, & S.

Weaver (Eds.), *The Inclusion of Environmental Education in Science Teacher Education* (pp. 173-189). New York: Springer.

Journal Articles

- Adams, E. L., **Carrier, S. J.**, Minogue, J., Porter, S. R, McEachin, A., Walkowiak, T. A., & Zulli, R.A. (2017). The development and validation of the Instructional Practices Log in Science (IPL-S). *International Journal of Science Education*. (in press)
- Thomson, M.M., & DiFrancesca, D., **Carrier, S.**, Lee, C. &, Walkowiak, T. (2016). Changes in teaching efficacy beliefs among elementary preservice teachers from a STEM-focused program: Case study analysis. *Teacher Development*. <http://dx.doi.org/10.1080/13664530.2016.1204355>
- Carrier, S.J.**, Faulkner, V.N., & Bottomley, L. (2016). Walking the walk: An integrated STEM project for elementary teachers. *Journal of Interdisciplinary Teacher Leadership*, 1(1), 25-29.
- Tugurian, L.P., & **Carrier, S.J.** (2016). Children's environmental identity and the elementary science classroom. *Journal of Environmental Education*. <http://www.tandfonline.com/doi/full/10.1080/00958964.2016.1191415>
- Sondel, B., Koch, J., Walkowiak, T., & **Carrier, S.** (2016). Toward a theory of teacher education for justice-oriented STEM. *Catalyst*. (in press)
- Stevenson, K.T., **Carrier, S.J.**, Peterson, M.N. (2014). Evaluating strategies for inclusion of environmental literacy in the elementary school classroom. *Electronic Journal of Science Education*. 18(8), 1-17.
- Stevenson, K. T., Peterson, M. N., Bondell, H. D., Moore, S. E., & **Carrier, S. J.** (2014). Overcoming skepticism with education: Interacting influences of worldview and climate change knowledge on perceived climate change risk among adolescents. *Climatic Change*. doi:10.1007/s10584-014-1228-7
- Stevenson, K.T., Peterson, M.N., **Carrier, S.**, Strnad, R., Bondell, H.D., Kirby-Hathaway, T., & Moore, S.E. (2014). Role of significant life experiences in building environmental knowledge and behavior among middle school students. *Journal of Environmental Education*, 43(3), 163-177.
- Carrier, S.J.**, Thomson, M.M., & Tugurian, L.P. (2014). Elementary science education in classrooms and outdoors: Stakeholder views, gender, ethnicity, and testing. *International Journal of Science Education*, 36(13), 2195-2220.
- Albert, J. L., Blanchard, M. R., Kier, M. W., **Carrier, S. J.**, & Gardner, G. E. (2014). Supporting teachers' technology integration: A descriptive analysis of social and teaching presence in technical support sessions. *Journal of Technology and Teacher Education*, 22(2), 137-165.
- McIntyre, E., Walkowiak, T., Thomson, M., **Carrier, S.**, Lee, C., Grieve, E., Lowe, R., Maher, M., Difrancesca, D. (2013). A STEM-focused elementary teacher preparation program: Student and alumni perceptions. *Teacher Education and Practice*, 26(4), 670-687.
- Carrier, S.J.** & Rex, E. (2013). Learning the ropes about electricity. *Science and Children*, 50(7), 36-39.
- Carrier, S.J.**, Tugurian, L.P. & Thomson, M.M. (2013). Elementary science indoors and out: Teachers, time, and testing. *Research in Science Education*, 43(5), 2059-2083.
- Carrier, S.** (2013). Elementary preservice teachers' science vocabulary: Knowledge and application. *Journal of Science Teacher Education*, 24(2), 405-425.
- Carrier, S.** (2012). Climate change education in elementary school. *Journal for Activist Science & Technology Education*, 4(1), 40-44.

- Carrier, S.,** Scott, C., & Hall, D. (2012). Soundsational science. *Science Activities*, 49(1), 1-6.
- Carrier, S.,** Wiebe, E. N., Gray, P., & Teachout, D. (2011). BioMusic in the classroom: Interdisciplinary elementary science and music curriculum development. *School Science and Mathematics*, 111(8), 425-434.
- Carrier, S.** (2011). Effective strategies for teaching science vocabulary. LEARN North Carolina: UNC-Chapel Hill, NC. <http://www.learnnc.org/lp/pages/7079>.
- Carrier, S.** (2011). Implementing and integrating effective teaching strategies including features of lesson study in an elementary science methods course. *The Teacher Educator*, 46(2), 145-160.
Identified by Routledge Education for [Class of 2012](#) - a collection of the most downloaded articles from all Routledge Education journals.
- Carrier, S. &** Thomas, A. (2010). Potato problem solving. *Science & Children*, 47(7), 33-37.
- Carrier, S.** (Fall, 2009). Survey of elementary teachers' views on science teaching and its implications for self-efficacy and teacher attrition, *Florida Association of Science Teachers (FAST) journal*, 26(1), 22-23.
- Carrier, S.** (2009). The effects of outdoor science lessons with elementary school students on preservice teachers' self-efficacy. *Journal of Elementary Science Education*, 21(2), 35-48.
- Carrier, S.** (2009). Environmental education in the schoolyard: Learning styles and gender. *Journal of Environmental Education*, 40(3), 2-12.
- Carrier, S. &** Thomas, A. (2008). Button basics. *Science and Children*, 45(5), 21-23.
- Carrier, S.** (2007). Gender differences in attitudes towards environmental science. *School Science and Mathematics*, 107(7), 271-278.
- Carrier, S. J.** (2006). The road to stress-free science fairs: A long-term approach to learning inquiry takes the stress out of science fairs. *Science and Children*, 44(1), 36-39.
- Pringle, R.M & **Carrier Martin, S.** (2005). The potential of upcoming high-stakes testing on the teaching of science in elementary classrooms. *Research in Science Education*, 35: 347-361.
- Martin, S.C. &** Pringle, R.M. (Spring, 2005). Testing in science: Teachers' views and the influence on their practices in elementary classrooms. *Florida Educational Leadership*, 5(2), 59-64.
- Martin, S.C.** (Fall, 2003). The influence of outdoor schoolyard experiences on students' environmental knowledge, attitudes, behaviors, and comfort levels. *Journal of Elementary Science Education*, 15(2), p. 51-56.
- Pringle, R.M., **Martin, S.C.**, & Jones, G. (Fall, 2001) College of Education and P.K. Yonge Developmental Research School: Collaborators in science education. *National Association of Laboratory Schools Journal*. p. 1-3.
- Curriculum materials**
- Kowolenko, C., **Carrier, S.**, Wiebe, E., Gray, P. & Teachout, D. (June,2010). Biomusic module-Grades 2/3. Greensboro, NC: UNC-Greensboro.
- Hall, D., Patillo, C., Kowolenko, C., **Carrier, S.**, Wiebe, E., Gray, P.& Teachout, D. (July, 2010). Biomusic module-Grades 4/5. Greensboro, NC: UNC-Greensboro.
- Wiebe, E., **Carrier, S.**, Kowolenko, C., Gray, P., & Teachout, D. (July, 2010). Biomusic concepts resource guide. Greensboro, NC: UNC-Greensboro

MANUSCRIPTS IN REVIEW

Carrier, S.J., Whitehead, A.N., Walkowiak, T.A., Luginbuhl, S.C., & Thomson, M.M. (2016) The development of elementary teacher identities as teachers of science. *International Journal of Science Education* (under review)

BOOK REVIEWS

DeRosa, D.A., & Abruscato, J.A. (2015). *Teaching children science: A discovery approach*. Upper Saddle River, NJ: Pearson.

Reviewed-2016

Rennie, L., Venville, G., & Wallace, J. (Eds.). (2012). *Integrating science, technology, engineering, and mathematics: Issues, reflections, and ways forward*. New York, NY: Routledge.

Reviewed-2013

INTERNATIONAL AND NATIONAL CONFERENCE PRESENTATIONS

Carrier, S.J., Whitehead, A.N., Wakowiak, T.A., Luginbuhl, S.C., & Thomson, M.M. (2016). *Examining the development of elementary teachers' science teacher identities*. National Association for Research in Science Teaching (NARST), April 14-17, Baltimore, MD.

Carrier, S.J., Whitehead, A.N., Luginbuhl, S.C., & Thomson, M.M. (2016). *Exploring science teacher identity development of elementary teachers*. Association for Science Teacher Education (ASTE), January 7-9, 2016, Reno, NV.

Luginbuhl, S. & **Carrier, S.J.** (2015). *The influence of an outdoor science professional development program on participants' views of the outdoors as a learning environment*. North American Association for Environmental Education (NAAEE), October 15-18, San Diego, CA.

Carrier, S.J., DiFrancesca, D., & Greive, E.L. (2015). *Examining the relationship of beginning elementary teachers' beliefs and practice*. Paper presented at: National Association for Research in Science Teaching International Conference (NARST). April 11-15, 2015, Chicago, IL.

Greive, E.L., & **Carrier, S.J.** (2015). *The use of the science instructional log to understand elementary science instruction*. Paper presented at: National Association for Research in Science Teaching International Conference (NARST). April 11-15, 2015, Chicago, IL.

Carrier, S.J., DiFrancesca, D., Greive, B., Thomson, M.M. (2015). *STEM-Focused teacher preparation: Discovering a relationship between beginning teachers' beliefs, teaching goals, and enacted practice*. Association for Science Teacher Education (ASTE). January 7-10, 2015. Portland, OR.

Carrier, S.J., Stevenson, K.T., Peterson, M.N. (2015). *Supporting environmental literacy in elementary classrooms: Obstacles and solutions*. Association for Science Teacher Education (ASTE). January 7-10, 2015. Portland, OR.

Greive, E. L., **Carrier, S. J.**, Minogue, J., Walkowiak, T. A., & Zulli, R. A. (2014, April). *The development of a science instructional log to measure science instructional practices in elementary classrooms*. Paper presented at the Annual Meeting of the American Education Research Association, Philadelphia, PA.

Tugurian, L., & **Carrier, S.** (2014). *Finding a place for the outdoors in elementary school science*. National Association for Research in Science Teaching International Conference (NARST). March 29-April 2, 2014, Pittsburgh, PA.

Carrier, S. & Tugurian, L. (2014). *Elementary Education in the Outdoors: Addressing gender, ethnicity, and testing*. National Association for Research in Science Teaching International Conference (NARST). March 29-April 2, 2014, Pittsburgh, PA.

- Carrier, S. J.** (symposium organizer and presider) (2013). Anderson, C.W., McGinnis, J.R., Walsh, E., Golden, B. (presenters). *Symposium on climate change: Policies and implications*. National Association for Research in Science Teaching (NARST), March 29-April 2, 2014, Pittsburgh, PA.
- Carrier, S.J.,** Faulkner, V.N., & Bottomley, L. (2014). *Introducing true integration of STEM with elementary preservice teachers*. Association for Science Teacher Education (ASTE), January 15-18, San Antonio, TX.
- Carrier, S.J.** (2013) *Climate change and policy implications*. North American Association for Environmental Education (NAAEE), October 8-13, Baltimore, MD.
- Carrier, S.J.** & Tugurian, L.P. (2013) *Two elementary schools' efforts toward outdoor instruction*. North American Association for Environmental Education (NAAEE), October 8-13, Baltimore, MD.
- Thomson, M.M., Difrancesca, D., McIntyre, E., Porter, S., **Carrier, S.**, Lowe, R. (2013). *Beliefs and knowledge: Exploring relationships between science and mathematics teaching self-efficacy beliefs, PCK and domain knowledge among preservice teachers*. American Educational Research Association (AERA), April 27-May 1, San Francisco, CA.
- Carrier, S.J.,** Thomson, M.M., & Tugurian, L.P. (2013) *Elementary science teaching: A mixed-methods analysis of teaching and learning science and environmental science*. National Association for Research in Science Teaching (NARST), April 5-9, Rio Mar, PR.
- Carrier, S.J.,** & Difrancesca, D. (2013). *Elementary preservice teachers' developing identities as science teachers during STEM-focused teacher preparation*. National Association for Research in Science Teaching (NARST), April 5-9, Rio Mar, PR.
- Carrier, S. J.** (symposium organizer and presider) (2013). Anderson, C.W., McGinnis, J.R., Walsh, E., Golden, B. (presenters). *Symposium on climate change: Policies and implications*. National Association for Research in Science Teaching (NARST), April 5-9, Rio Mar, PR.
- McIntyre, E., Fleener, J., Maher, M., **Carrier, S.** Walkowiak, T., & Faulkner, V. (2013). *STEM-Focused elementary teacher preparation: Program features and research on teacher development and effectiveness*. American Association of Colleges for Teacher Education (AACTE). February 28-March 2, 2013. Orlando, FL.
- Carrier, S.J.,** Difrancesca, D., & McIntyre, E. (2013). *The relationship of elementary preservice teachers' memories of science and science teaching with their developing identities as teachers of science*. Association for Science Teacher Education (ASTE), January 9-12, 2013, Charleston, SC.
- Carrier, S.J.** (2012). *Place based practices in school yard settings*. National Science Teachers' Association (NSTA), March 29-April 1, 2012, Indianapolis, IN.
- Carrier, S. J.** (symposium organizer and presider) (2012). Anderson, C.W., McGinnis, J.R., Phillipson-Mower, T., & Walsh, E. (presenters). *Science education and climate change: Policy in K-12 education in diverse global contexts*. National Association for Research in Science Teaching (NARST), March 25-28, 2012. Indianapolis, IN.
- Carrier, S.J.,** Pop, M. & Tugurian, L. (2012). *Reflections on outdoor experiences: An analysis of the views expressed by students, parents, and educators*. Association for Science Teacher Education (ASTE). January 4-7, 2012.
- Carrier, S.J.,** Pop, M., & Tugurian, L. (2011). *Elementary science: Indoor and outdoor learning*. North American Association for Environmental Education (NAAEE). October 12-15, 2011. Raleigh, NC.
- Carrier, S. J.** (2011). *Communicating science: Sharing words and strategies with preservice teachers*. American Educational Research Association. (AERA). April 8-12, 2011. New Orleans, LA.

- Carrier, S.** (2011), *Elementary preservice teachers' knowledge and application of science vocabulary*. National Association for Research in Science Teaching (NARST), April 3-6, 2011. Orlando, FL.
- Carrier, S.,** Wiebe, E., Gray, P., & Teachout, D. (2010). *BioMusic: Science and music interdisciplinary curriculum development for the elementary classroom*. National Association for Research in Science Teaching (NARST). March 21-24. Philadelphia, PA.
- Carrier, S.,** Wiebe, E., Gray, P., & Teachout, D. (2010). *Universal BEATS (UBEATS): Connecting science and music in the natural world*. Association for Science Teacher Education (ASTE). January 14-16, 2010. Sacramento, CA.
- Kamen, M., Rogers, M., Pongsnaon, K., Akerson, V., Minogue, J., **Carrier, S.,** Demir, A., Czerniak, C. Alozie, N., & Kim, J. (2009). *Symposium: Reflective practices and professional development through Japanese lesson study*. Symposium for National Association for Research in Science Teaching (NARST). April 17-21. Garden Grove, CA.
- McIntyre, E., Jeffries, M., **Carrier, S.,** & Wiseman, A. (2009). *Enhanced lesson study in teacher education: Focusing on technique in college and elementary classrooms*. American Association of Colleges for Teacher Education (AACTE). February 6-9, 2009. Chicago, IL.
- Carrier, S.** (2009). *Preservice teachers' outdoor science activities with elementary school students impacting their confidence in teaching science*. Association for Science Teacher Education (ASTE). January 7-10, 2009. Hartford, CT.
- Carrier, S.,** Wiebe, E., Gray, P., & Teachout, D. (2009). *Universal BEATS—Interdisciplinary teams: development and implementation of elementary school curriculum connecting science and music*. Association for Science Teacher Education (ASTE). January 7-10, 2009. Hartford, CT.
- Teachout, D., **Carrier, S.,** Gray, P., & Wiebe, E. (2008). *Universal BEATS: Universal BioMusic Education Achievement Tier in Science*. National Science Foundation (NSF) DR K-12 PI Meeting: Transforming STEM Education Through Research. November 12-14, 2008. Washington, DC.
- Carrier, S.,** Wiebe, E., Gray, P., & Teachout, D. (2008). *Bringing music into the elementary science classroom*. National Science Teachers Association (NSTA) conference. October 30-November 2, 2008 Charlotte, NC.
- Carrier, S.** (2008). *Gender differences in elementary school students' environmental education*. National Association for Research in Science Teaching (NARST). March 30-April 2, 2008. Baltimore, MD.
- Carrier, S.** (2008). *Schoolyard science meeting the needs of boys and girls*. Association for Science Teacher Education (ASTE). January 10-12, 2008. St. Louis, MO.
- Carrier, S.** (2007). *The role of gender in environmental education in the schoolyard*. National Association for Research in Science Teaching (NARST). April 15-18, 2007. New Orleans, LA.
- Carrier, S.** (2007). *The importance of using accurate terminology in the elementary science classroom*. Association for Science Teacher Education (ASTE). January, 2007. Clearwater, FL.
- Carrier, S.** (2006). *Science fairs for learning*. International Consortium for Research in Mathematics and Science Education (ICRSME). March 9-11, 2006. Nassau, Bahamas.
- Carrier, S.J.,** & Pringle, R.M. (2006). *The impact of high-stakes science testing in elementary schools in Florida*. International Consortium for Research in Mathematics and Science Education, (ICRSME). March, 9-11, 2006. Nassau, Bahamas.
- Carrier, S.,** & Dresden, J. (2006). *From project approach to inquiry*. Eastern Education Research Association, (EERA). February 23-24, 2006. Hilton Head, S.C.

Carrier, S.J., & Pringle, R.M. (2006). *The impact of high-stakes testing in science in elementary classrooms*. Association of Science Teacher Education (ASTE). January 12-14, 2006. Portland, OR.

Pringle, R. & **Martin, S.** (2003). *The tests are coming*. National Association of Research in Science Teachers (NARST). March, 2003. Philadelphia, PA.

Pringle, R. & **Martin, S.** (2003). *Teaching, testing, and learning: The impact of upcoming science testing on the teaching of science in elementary classrooms*. Association for Education of Teachers of Science (AETS). January-February, 2003. St. Louis, MO.

Martin, S., Pringle, R., Jones, G. (2001). *Collaboration between University of Florida and P.K. Yonge Laboratory School*. National Association of Laboratory Schools (NALS). February 16, 2001. Gainesville, FL.

REGIONAL CONFERENCE PRESENTATIONS

Carrier, S.J., & Grifenhagen, J. (2016, October) *Supporting elementary students' science vocabulary growth*. North Carolina Science Teachers' Association (NCSTA), October 20-21, Greensboro, NC.

Luginbuhl, S. & **Carrier, S.J.** (2016, September). *Assessing the influence and sustainability of an outdoor-focused science professional development program in elementary schools*. Environmental Educators of North Carolina (EENC), September 23-25, 2016, Black Mountain, NC

Adams, E. L., **Walkowiak, T. A.,** Carrier, S. J., & Minogue, J. (2016, February). *Understanding opportunity to learn in elementary mathematics and science classrooms: The validation of instructional logs*. Paper presented at the 39 annual conference of the Eastern Educational Research Association, Hilton Head, SC.

Luginbuhl, S. & **Carrier, S.J.** (2015). *Professional development in an outdoor setting: How an experiential science program affected participants' views of the outdoors as a learning environment*. North Carolina Science Teachers' Association, November 12-13, Winston Salem, NC.

Luginbuhl, S. & **Carrier, S.J.** (2015). *The influence of an experiential outdoor professional development program on participants' view of the outdoors as a learning environment*. Environmental Educators of North Carolina, September 25-27, 2015, Columbia, NC.

Carrier, S.J. (2014). *Model of elementary integration of STEM*. North Carolina Science Teachers' Association, PDI Institute. November 6-7. Winston Salem, NC.

Carrier, S.J. (2014). *Teaching science outdoors: Issues and trends*. Southeastern Environmental Education Alliance. September 19-21. Asheboro, NC.

Tugurian, L.P., & **Carrier, S.J.** (2014). *Children's environmental identity in the context of elementary school science*. Southeastern Environmental Education Alliance. September 19-21. Asheboro, NC.

Stevenson, K.T., & **Carrier, S.J.** (2014). *What can we learn from significant life experience research?* Southeastern Environmental Education Alliance. September 19-21. Asheboro, NC.

Bottomley, L., **Carrier, S.,** & Faulkner, V. (2013). STEM in K-2: Designing a project-based unit. *Scaling STEM: Strategies That Engage Minds*. March 11-2, 2013. Durham, NC.

Carrier, S., Tugurian, L., & Pop, M. (2011). *Elementary science: Indoor and outdoor voices*. North Carolina Science Teacher Association (NCSTA). November 10-11, 2011. Winston-Salem, NC.

Carrier, S. (2011). *Elementary science: Indoor and outdoor challenges*. Mid Atlantic Association for Science Teacher Education (MA-ASTE). September 29-October 1, 2011. Olive Hill, KY.

Carrier, S. (2011). *Introducing lesson study practices early in a teacher education experience*. North Carolina

Association for College Teacher Education (NCACTE). September 22-23, 2011.

Tugurian, L. & **Carrier, S.** (2011). *Why learning outside in nature is good for your students: What the research says*. 2011 N.C. Outdoor Classroom Symposium Green and Growing! North Carolina Botanical Garden, Chapel Hill, NC

Carrier, S., & Rutherford, H. (2010). *Effective science vocabulary instruction*. North Carolina Science Teacher Association (NCSTA). November 11-12, 2010. Greensboro, NC

Carrier, S., Wiebe, E., Gray, P., Scott, C., Teachout, D. (2010). *Revealing science and music for elementary students*, North Carolina Science Teacher Association (NCSTA). November 11-12, 2010. Greensboro, NC

Carrier, S. & Tugurian, L. (2010). *Elementary students' science learning: Indoor and outdoor experience*. Mid Atlantic Association for Science Teachers Education (MAASTE). September 23-26, Johnson City, TN.

Gray, P., Wiebe, E., Teachout, D., **Carrier, S.**, & Scott, C. (2010). *Biomusic in elementary school*. NCDPI Raising Achievement/Closing Gaps Conference. March, 2010. Greensboro, NC.

Carrier, S., Wiebe, E., Gray, P. & Teachout, D. (2009). *UBEATS – Music and science – Physical and biological connections in the elementary science classroom*. North Carolina Science Teachers Association (NCSTA). November 19-20, 2009. Greensboro, NC.

Teachout, D., Scott, C., Blanton, C., Gray, P., **Carrier, S.**, & Wiebe, E. (2009). *The Universal BEATS Project: A Convergence of Research, Teacher Education, Science, and Music*. North Carolina Music Educators Association Conference. November 8, 2009. Winston-Salem, NC.

Carrier, S., Gray, P., Teachout, D., & Wiebe, E. (2009). *BioMusic: Music-making as an information highway to the world*. Carolina State of the Arts conference. March 5-7, 2009. Raleigh, NC.

Carrier, S. (2006). *Environmental science for preservice teachers*. Southeastern Association for Science Teacher Education (SASTE). October, 2006. Macon, GA.

Pringle, R. & **Carrier-Martin, S.** (2005). *Teachers' views and the impact of standardized testing in science on their practices in elementary classrooms*. Southeastern Association of Science Teacher Education (SASTE). October, 2005. Athens, GA.

Martin, S. & Russell, J. (2004). *Science Buddies*. Florida Association of Science Teachers (FAST). October, 2004. Orlando, FL.

Pringle, R., Mayne, D. & **Martin, S.** (2003). *Learning to teach elementary science: An exploratory study of preservice elementary teachers*. Southeastern Association Education of Teachers of Science (SAETS). October, 2003. Greenville, SC.

Martin, S. (2000). *Schoolyard research: Environmental knowledge, attitudes, behaviors, and comfort levels*. Florida Association of Science Teachers (FAST). October, 2000. Miami, FL.

Rice, J. & **Martin, S. C.** (1996). *Students as consumers, collaborators, and producers on the World Wide Web*. Critical Issues in Education. October, 1996. Gainesville, FL.

Martin, S. C. & Shaeffer, J. (1995). *Schoolyard ecosystems and your School Improvement Plan*. Crown Region Center for Excellence. Sharing Best Practices. November, 1995. Gainesville, FL.

Foti, S. & **Martin, S.C.** (1994). *Classroom Hydroponics-Integrating the curriculum with technology*. Crown Region Center for Excellence. Sharing Best Practices. October, 1994. Gainesville, FL

COURSES

Teaching Science in the Primary Grades (ELM 320)	Undergraduate
Methods of Teaching Elementary School Science (ELM 520)	Masters
Informal Science (EMS 594, 794)	Masters, Doctoral
Internship in Elementary Education (ELM 654)	Masters
Special Topics (Poe Health Center) (ECI 290)	Undergraduate
Introduction to Elementary Education in a Global Society (ELM 250)	Undergraduate
Science and Mathematics Methods (Auburn University)	Undergraduate

Undergraduate Mentor

Undergraduate research project mentor 2015-2016:

Claire McIntyre
Alexandra Toti

Supervision of honors credit:

Leanne Stolfus – 2015

Senior Capstone project mentor:

Megan Horst – 2014

Supervision of honors credit:

Ashten Morgan – 2014

Supervision of honors credit:

Caroline Miller – 2012

SERVICE

Provided consulting feedback for Zainab Jaafar Auda from University of Basrah in Iraq regarding English lesson plan on planetary seasons. November, 2016

National Science Foundation (NSF) review panel. ITEST Arlington, VA September, 2016

NSF Graduate Research Fellowship Mentor October, 2015, 2016

In the March 3, 2016 meeting, the North Carolina State Board of Education granted APPROVAL through the 2016-17 academic year for NC State's blueprint proposal submitted on September 15, 2015. This grants NC State's Elementary program's MED teacher preparation as Elementary Science Specialists Sarah J. Carrier and James Minogue 2015-2016

National Science Foundation (NSF) review panel. DRK-12 Arlington, VA February, 2016

Graduate student recruitment UNC October, 2015

Entomology graduate student outreach 2015

Science Olympiad. Conn Elementary School. Raleigh, NC 2015

Outside Content Reviewer (OC) for North Carolina science assessments Center for Urban Affairs and Community Service. NCSU	October 2014 – present
National Science Foundation (NSF) review panel. AISL Science Learning + Planning Arlington, VA	August, 2014
Presidential Awards for Excellence in Mathematics and Science (PAEMST), Review of applications for elementary science teaching awards, North Carolina Department of Public Instruction (DPI), Raleigh NC	May, 2014
<i>Physical Science Explorations</i> – Bringing science to 1 st grade students at North Ridge Elementary School, Raleigh, NC – Elizabeth Chapman, teacher	May 22, 2014
Hilburn Academy STEAM Expo, Raleigh, NC	March 26, 2104
Science Fair Judge AB Combs, Raleigh, NC	February 3, 2014
<i>Classification systems</i> – Bringing science to 5 th grader students at A.B. Combs Elementary School Raleigh, NC – Megan Horst, teacher	October 8, 2013
Presidential Awards for Excellence in Mathematics and Science (PAEMST), Review of applications for elementary science teaching awards, North Carolina Department of Public Instruction (DPI), Raleigh NC	May, 2012
Education Policy Institute of Carolina – UNC-GA Teacher Quality Research Group. Dr. Gary Henry, Dr. Charles Thompson, Dr. Meghan Manfra, Sarah Carrier and Beth Grieve Review and develop observation instrument for preservice teachers.	October, 2011 - Summer, 2012
<i>Tiny Science</i> - Room of hands-on investigations for Math and Science night. 300 parents, teachers, and students. Stough Elementary School, Raleigh, NC	October 27, 2011
Invited attendee, <i>Catalyzing Research in Science Education Policy</i> conference Arlie Conference Center, Warrenton, VA, National Science Foundation supported Award No. 095372. Principal Investigators: Nancy W. Brickhouse, James Earl Davis, & Stephen P. Norris. PI Nancy Brickhouse described the project: “We have gathered a carefully selected group of people who come from the worlds of science, science education, education policy and policy making. The intent was to begin a conversation around issues of science education policy.	June 8-10, 2010
Presidential Awards for Excellence in Mathematics and Science (PAEMST), Review of applications for elementary science teaching awards, North Carolina Department of Public Instruction	May, 2010
Associate Editor, <i>Electronic Journal of Science Education</i>	2011 – Present
Reviewer, <i>Early Childhood Research Quarterly</i> .	2010 – Present
Reviewer and Editorial Board, <i>International Journal of Environmental and Science Education</i> .	2010 – Present
Reviewer, <i>The Teacher Educator</i>	2009 – Present
Reviewer, <i>Electronic Journal of Science Education</i>	2009-2011
Reviewer, <i>The Science Education Review (SER)</i>	2007 – Present
Reviewer, <i>International Journal of Science Education (IJSE)</i> .	2009 – Present

Reviewer second edition chapters of <i>So You Want to Be a Teacher? Teaching and Learning in the 21st Century</i> . Janice Koch. Boston, MA: Houghton Mifflin.	July, 2009
Science fair judge, A.B. Combs Elementary, Raleigh, NC	February 7, 2012
Science fair judge, Centennial Middle School, Raleigh, NC	February 8, 2011
Science fair judge, Olds Elementary School, Raleigh, NC	January 27-28, 2011
Science fair judge, Bugg Elementary School, Raleigh, NC	February 15, 2010
Science fair judge, Bugg Elementary School, Raleigh, NC	February 10, 2009
Science fair judge, Olds Elementary School, Raleigh, NC	January 24-25, 2008
External Policy and Relations Committee, National Association for Research in Science Teaching (NARST).	2012 - Present
Co-coordinator for Policy Strand 15. National Association for Research in Science Teaching (NARST).	2008 – 2012
Gray, P., Teachout, D., Carrier, S., & Wiebe, E. Scott, C., Hall, D., Patillo, C., Blanton, C., <i>Universal BioMusic Education Achievement Tier in Science (UBEATS)</i> summer institute for elementary school teachers and students. Greensboro, NC. July 19-25, 2009	
Reviewer, National Association for Research in Science Teaching (NARST) conference	2006 – Present
Reviewer, Pearson, Merrill, Prentice Hall, <i>Exploring Mathematics and Science</i>	September, 2006
Reviewer, <i>Electronic Journal of Science Education (EJSE)</i> Associate Editor EJSE	2006 – Present 2011-Present
Reviewer, Association for Science Teacher Education (ASTE)	2006 – Present
Review panel, National Science Foundation (NSF) - Instructional Materials Division (IMD) Arlington, VA	May 3-5, 2006
Reviewer, North American Association for Environmental Education (NAAEE) conference	2006
Pringle, R., & Martin, S. (2005). <i>Reclaiming academic freedom through classroom assessment in science</i> , Professional development workshop at Florida Council on Elementary Education Orlando, FL.	September, 2005
Co-Presenter, Schoolyard Ecology for Elementary School Teachers (SYEFEST) Leadership training workshop for 50 ecologists, Ecological Society of America Conference. Providence, RI.	October, 1996
Consultant for Schoolyard Ecosystem Design for teachers from Lake Butler, Florida.	January, 1996
GLOBE (Global Learning and Observations to Benefit the Environment), Project Coordinator, Norton Elementary School.	1995-2005
Florida's lead teacher for Schoolyard Ecology for Elementary School Teachers (SYEFEST) Ecological Society of America (ESA) conference, Stone Mountain, Georgia.	October, 1996

Florida's Lead Teacher, SYEFEST (Schoolyard Ecology for Elementary School Teachers), Coordinated and conducted workshops for Florida elementary school teachers with Florida's Lead Ecologist-Dr. Don W. Hall	Summer, 1994
SYEFEST (Schoolyard Ecology for Elementary School Teachers) Planning conference, National Science Foundation grant to Institute of Ecosystem Studies, Alan Berkowitz, Project coordinator.	March, 1994
Florida's Lead Teacher with Florida's Lead Ecologist, Dr. Don W. Hall, to coordinate and conduct workshops for Florida teachers, Gainesville, Florida.	1994-96
Presented Professional Growth Program for Elementary Educators, <i>Wildlife Habitats in the Schoolyard</i> , University of Florida in conjunction with P.K. Yonge Developmental Research School and the School Board of Alachua County,	January 1993
<i>Creating a Schoolyard Ecosystem</i> workshop. Co presenter with Dr. Linda Cronin-Jones, Dr. Joe Schaeffer, University of Florida,	January, 1993
<i>Portfolio Assessment Committee</i> , Representative for elementary science for designing portfolio assessment guidelines for the state of Florida through the University of Florida Office of Instructional Resources.	1993-1994
Activities Integrating Math & Science (AIMS) workshop for teachers at Norton Elementary School, Gainesville, Florida.	1993
<i>Curriculum Writing Project for Schoolyard Ecosystems</i> , Developed curriculum for the State of Florida. North Central Region in accordance with Florida Department of Education's <i>Florida's Fragile Environment</i> .	August, 1992
Ecological Society of America (ESA), Ecology in Education Workshop, Selected as teacher representative on four person team from the state of Florida to attend workshop, National Science Foundation funded-Ecological Society of America grant to enhance ecology education in K-12, Tuscaloosa, Alabama.	April, 1992
Consultant for behavioral objectives to accompany Florida Entomological Society/ University of Florida, Department of Entomology poster distributed to Florida schools: <i>Insects: Friend or Foe</i> .	1991
Coordinator and Instructor AIMS (Activities Integrating Math and Science) Workshop Duval County School System, Jacksonville, Florida.	June, 1991
Coordinator and Instructor AIMS (Activities Integrating Math and Science) Workshop, Talbot Elementary School Faculty, Gainesville, Florida.	February, 1991
<i>University Service</i>	
NC State Grievance Committee	2014-2018
NC State Sustainability Committee	2016-2018
<i>College and Department Service</i>	
College of Education Dean's Search Committee Result-Dean Mary Ann Danowitz	2015-2016
Search Committee, Elementary Learning Science/Mathematics Education TELS Result-Hiring Dr. Jonee Wilson	2015-2016

Faculty Mentor, Undergraduate Research Claire McIntyre and Alex Toti	2016
Graduate Program Coordinator – Elementary Education	2015-Present
College Leadership Committee (5 year review Dean Fleener)	November, 2014-Present
Director of Graduate Programs Department of Elementary Education Graduate Studies Committee	2013-Present
College of Education STEM Department Head Search Committee	2013
Department of Elementary Education Social Studies Search Committee - Chair Result-Hiring Dr. Beth Sondel	2012-2013
MAT Governance Committee 2.0	2012- 2013
Scholarship review committee	2010-Present
NCSU College of Education Professional Education Committee (PEC) – Co-chair.	2008- 2015
College of Education Dean’s Search Committee	2009-2010
NCSU College of Education Professional Dispositions Review Panel development.	2009

HONORS AND AWARDS

<i>BRIDGES</i> an intensive professional development program for women in higher education who seek to gain or strengthen their academic leadership capabilities. It is designed to help women identify, understand, and move into leadership roles in the academy.	2016
<i>Thank a Teacher</i> , NC State University	2013,2014
<i>Teacher of the Year</i> , Norton Elementary School Alachua County Teacher Recognition Program, Gainesville, Florida. 1994	
<i>Program of Quality</i> for ‘The Schoolyard Ecosystem’ Natural Selections: Sharing Success in Environmental Education, Florida Department of Education. 1994	
<i>Demonstration Site</i> , Save our State Environmental Education Trust Fund for the Florida Advisory Council on Environmental Education for Norton Elementary Schoolyard Ecosystem Site. 1993	
Entomological Society of America’s first President’s Award for <i>Outstanding Achievement in Primary Teaching Using Insects as Educational Materials</i> presented at the Entomological Society of America Conference, Baltimore, MD. December, 1992	
<i>Distinguished Achievement Award for Teaching</i> . Presented by the University of Florida Department of Entomology and Nematology, Gainesville, Florida. April, 1992	

GRANT PROJECTS

Under Review

National Science Foundation, ECR. *Elementary Science learning environments: Examining science specialist models for improving student science learning*. This study is designed to examine the associations between exposure to a science specialist (SS) and student outcomes, accounting for student characteristics, including SES, free and reduced lunch, and additional student demographics. Study design will collect science academic and attitude quantitative data in the matched schools and collect qualitative interview data with principal and teacher interviews and classroom observations and focus groups with SS teachers and traditional classroom teachers. The study includes an examination of SS models. PI-Sarah Carrier, Co-PIs Kristen Hellier (Wake County Public School System), Sara Weiss, and Malinda Faber (Friday Institute) \$1,314,012.

Funded

North Carolina Sea Grant *Fostering climate literacy and coastal hazard resilience in coastal communities through K-12 education (2016-2018)*. Project goals are to implement a year-long CL curriculum designed for intergenerational transfer of CL and concern for climate-related coastal hazards by coupling existing Sea Grant funded Project WILD CL activities with a service-learning project partnering with community organizations focused on healthy coastal and marine ecosystems. Project will train 30 NC middle school science teachers to implement this curriculum through in-person workshops, continued engagement through an online collaborative community linked to social media, and direct support from NCSU undergraduates. Our goals are to evaluate change in CL and concern for climate-related coastal hazards among teachers, students, and parents. We will disseminate results through various media and educators outlets, including the Project WILD network. PI –Nils Peterson. CoPIs- Kathryn Stevenson, Susan Moore, Sarah Carrier, Renee Strnad. \$100,000.

Muddy Sneakers program evaluation. This project will rigorously evaluate the *Muddy Sneakers* program, an informal environmental science extension for schools currently focused in Western North Carolina, using evaluation data to support expansion. This project will produce evaluation instruments that will allow for ongoing evaluation and improvement of *Muddy Sneakers* and similar programs. PI – Kathryn Stevenson. Co PIs from NCSU: Howard Bondell, Sarah Carrier, Susan Moore, John Nietfeld, Nils Peterson, Renee Strnad. \$65,731

NC State Graduate Student Recruitment Grant for Department of Elementary Education. Recruitment grant for elementary Master's program. Funding has supported work on new brochure for Master's program with support from MBA graduate student, advertisements in *The Carolinian* newspaper and on WUNC radio, job/graduation fair at Shaw University. \$1300.

North Carolina SeaGrant *Building Ocean and Climate Literacy in North Carolina through a Project WET Climate Literacy Module*. (2014-2016). This project will create, test, and train teachers on a climate literacy module for Project WET, and existing curriculum that has yet to include climate literacy modules. NCSU is working with NCCU, a public Historically Black College and University and engaging minority undergraduate students in summer internships. The project goals are to develop the curriculum, train 20 teachers in using the curriculum, measure the climate literacy of their students, and disseminate the product through education outlets. PI – Nils Peterson. Co PIs from NCSU: Sarah J. Carrier, Susan Moore, Renee Strnad, Kathryn Stevenson. Co-PI from NCCU: Laurell Malone. \$34,399

2013-2014 *Researching identities related to science teaching*, ELM department funding for research assistant. Review literature related to teacher identities in science. \$1400.

Research and Innovation Seed Funding Program (RISF) *Environmental Literacy for Teachers and Students*
Funded by the Office of Research, Innovation, and Economic Development. The one-year grant July 2013-June 2014 is designed to determine the level of environmental literacy of elementary teachers in NC with the ultimate goal of advancing students' knowledge and awareness of the state's environment and environmental sciences. The project will collect survey data to determine the current knowledge of elementary educators throughout the state in order to develop a comprehensive roadmap that will pull together key stakeholders in formal (school-based) contexts. This work will support the pursuit of future funding to enhance elementary educators' environmental literacy. The data will inform the state's science and environmental science preparation for young students as the state transitions to Next Generation Science Standards (NGSS) and implements NC's Environmental Literacy Plan. Sarah Carrier is PI with co-PIs Nils Peterson (CNR) and Susan Moore (CNR). \$14,838

2012-2013 *Qualitative data analysis of preservice teachers' memories and identities in elementary science*, ELM department funding for research assistant. Analyses and coding of common themes from interview data. Research revealed connections with pre-service teachers' identification of memories of elementary science instruction with potential personal identities as teachers of science. \$1400.

Developing Diverse Departments (D3) External Grant Mentoring Mini-Grant. This project supported Dr. Richard Duschl, a national leader in science education from The Pennsylvania State University, to visit North Carolina State University on May 10-11, 2012. Dr. Duschl presented his work on national policies and *Taking Science to School* to NCSU's Department of Elementary Education in support of elementary science education. Dr. Duschl served as a mentor for Sarah Carrier and advised the STEM-focused Elementary Education department and the research team for NSF-funded research study, *Accomplished Elementary Teachers of Mathematics and Science (ATOMS)* for which Sarah Carrier is co-PI. D3 award (\$1200). Additional funding for the D3 project \$454

NSF-DRK-12 Project ATOMS (Accomplished Elementary Teachers of Mathematics and Science). This 5 year project (2011-2016) is designed to examine our innovative Science, Technology, Engineering, and Mathematics (STEM)-focused ELM program at NCSU. In this study we are examining five dimensions of teacher preparation: mathematics and science content knowledge, pedagogical content knowledge for mathematics and science, knowledge of teaching, a sense of self-efficacy, and beliefs about mathematics and science instruction. Value added data of student achievement will help us further understand the effectiveness of NCSU graduates. This five-year project (currently in the second year) will provide insight into elementary teacher preparation in STEM areas and information about the critical link between teacher preparation, practice, and student achievement. Principal Investigator is Temple Walkowiak (ELM Mathematics). Co-PIs include: Jayne Fleener (Dean of NCSU College of Education), Sarah Carrier (ELM Science Education), Margareta Thomson (ELM Educational Psychology), Michael Maher (Assistant Dean College of Education), Steve Porter (CICE), and Ellen McIntyre (Dean of UNC-C College of Education \$3,100,000

Extension Seed Grant entitled *Enhancing Science Teaching in Elementary Schools: Bringing Rainforest Research to Classrooms*. This project addressed the goals of creating educational innovation and driving innovation in energy and the environment by providing practicing elementary teachers and teacher candidates (NC State students) with current research data about the rainforest and its relation to climate change and strategies that scientists use for the study of tropical rainforests on March 17, 2012. This project combined content knowledge with pedagogical strategies to help both groups learn about and participate in science inquiry. The project reached 24 practicing teachers and 3 MAT preservice teachers who will implement instructional units in their elementary classrooms on the topic during the 2012-2013 academic year. Many submitted their resulting lesson plans for publication on LearnNC curriculum source. This project extended the generous in-kind grant of **\$3120** from the Department of Elementary Education that provided Carrier, PI of this project, travel expenses to participate in tree canopy research in the Amazon rainforest in Iquitos, Peru in July, 2011. PI is Sarah Carrier (Science Education). \$9,270 Project #261105

Faculty Research and Professional Development (FRPD). *Elementary Students' Science Learning: Indoor and Outdoor Experiences*. This grant funds a research study that I developed to document science instruction and learning at two schools in Durham, NC. The development included original design of the study, presented my research ideas to ELM faculty for feedback, revised the design, presented and established a relationship with Durham County's science supervisor and two school principals. I secured approval from IRB and Durham Public Schools' research office. \$8000.

2010-2011. ELM department funding research and participant compensation support for: *Elementary Students' Science Learning: Indoor and Outdoor Experiences* included supplemental funds for a course release for Spring, 2011, Graduate student support plan (GSSP), incentives for teachers participants, and translation services. **(\$11,000)**. August 2010 – June 2011

Co-PI on a NSF-HER/DRL DRK-12 grant entitled *Universal BEATS: Modules to Help Educators Develop Universal BioMusic Education Achievement Tier in Science*. This project's product has been instructional materials for grades 2-5 that will support science instruction through music, linking physical and life sciences. My role was mentoring teacher participants, reviewing and revising curriculum materials. PI is Patricia Gray (Music

Education, UNC-G). Other co-PIs include Eric Weibe (Science Education) and David Teachout (Music Education, UNC-G). Value of the grant: \$333,000 (\$153,000 for the NCSU sub-award) over 30 months.

Not Funded

IES Partnership *Examining Science Specialist Models for Improving Elementary Student Outcomes in Science: A Research and Practitioner Partnership* The proposed partnership between a large school district and an elementary science education research team will address the national need to further attend to and understand elementary science education. Working together, partners in this project will establish initial research that examines the influence of a science specialist (SS) position on elementary science learning, providing baseline data for future research that can respond to this critical need for improved elementary science education. PI-Sarah Carrier, Co-PIs Kristen Hellier (Wake County Public School System), Sara Weiss, (Friday Institute) \$331,821. While not funded, the overall rating was 2.46 and the proposal was discussed by the full panel. NCSU has had 9 proposals submitted to IES over the past few years and this was one of only 2 that made it to the full panel for consideration.

National Science Foundation, *Cracking the Code to Climate Literacy: Coupled Outdoor and Data-rich Education for Middle School Students*. The project team will develop a new middle school climate science curriculum based on CODE to test this blended learning pedagogy. CODE will contain six modules, each with three tiered, hierarchical activities to be taught indoors (classrooms), outdoors, and online. Susan Moore PI, M.Nils Peterson, Co-PI, Sarah J. Carrier, Co-PI, Karen McNeal \$228748

NCSU Research and Innovation Seed Funding Program *Preparing Elementary Teachers to Support Academic Vocabulary in Science*. The proposed interdisciplinary research will examine focused vocabulary instruction on preservice teachers' vocabulary knowledge and teaching practices, addressing a critical need for all elementary students, including English language learners. PI – Dr. Jill Grifenhagen, College of Education; Co-PI – Dr. Sarah J. Carrier, College of Education; Consultant – Dr. Nils Peterson, College of Natural Resources. Requested - \$21,983, Matching - \$5922, Total - \$27903

National Science Foundation, ECR. *Elementary Science learning environments: Examining science specialist models for improving student science learning*. This study is designed to examine the associations between exposure to a science specialist (SS) and student outcomes, accounting for student characteristics, including SES, free and reduced lunch, and additional student demographics. The study was designed to collect science academic and attitude quantitative data in the matched schools and collect qualitative interview data with principal and teacher interviews and classroom observations and focus groups with SS teachers and traditional classroom teachers. The study includes an examination of SS models. PI-Sarah Carrier, Co-PIs Kristen Hellier (Wake County Public School System), Sara Weiss, (Friday Institute) \$498,907. While not funded, the proposal was ranked “Competitive” and will be revised and resubmitted in Sept. 2016.

NCSU Research and Innovation Seed Funding Program *NC State Water Education Collaborative: Leveraging Technology to Broaden STEM Participation Through New Research, Education, and Public Engagement Networks* With a propensity for innovation in geovisualization, and expertise in natural resources, K-20 STEM education, citizen science, and behavioral change, NC State is poised to become a global leader in the areas of immersive virtual environments and data science related to water education. Requested funding will seed new and transformative collaborations geared toward addressing complex research, education, and community engagement goals focused on the interdisciplinary theme of water education. A two-day workshop involving investigators, water experts, STEM educators, and graduate students will connect stakeholders around this theme. Outcomes from this newly formed international network of experts include: 1. White paper briefs identifying key research, education, and engagement agenda; 2. External funding targets and submission schedules; 3. Strengthened relationship with key external partnerships; and 4. A project website for disseminating network activities and milestones. PI-Kyle S. Bunds Co-PIs Michael A. Evans, Eric Money, Jonathan Casper, Gail Jones, Sarah Carrier, Melissa McHale, Francis de los Reyes III. \$30,789

NSF-AGS grant proposal entitled Consortium on Climate Change Education in the SouthEast. Dr. Fred Semazzi, MEAS Department, NCSU – PI; Dr. Gail Jones, Co-PI; Dr. Sharon Shulze, Co-PI; Dr. Sarah Carrier, Senior

Personnel; Dr. Meghan Manfra, Senior Personnel. This strategic planning initiative was designed to lay the foundation for the development of comprehensive educational programs on climate change in formal (school-based) and informal contexts in the southeast. Its goals were to bring together multidisciplinary teams of climate change scientists (NCSU PAMS, NCCO), experts in climate sensitive sectors and social-economic adaptation to climate change (NCSU CEng, NCSU CNR, NCSU CVM & CHASS), experts in the learning sciences (CEdu), and practitioners from informal and formal learning venues (The Science House, NC Museum of Natural Sciences, WECCO, COSEE). Grant requested: \$999,686.

Co-PI (lead PI for NCSU subaward) for National Oceanic and Atmospheric Association (NOAA) grant entitled *Climate Literacy for Elementary Educators of North Carolina (CLEEN)*. Working with North Carolina A&T University, we submitted a pre-proposal on 9.8.10 that was accepted. Grant request: \$1,493,224 (\$475,278 for NCSU subaward).

COMMITTEE MEMBERSHIPS

Doctoral Committee Chair

Sarah Luginbuhl, Science Education (SED) NCSU	2012-present
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Doctoral Committee Co-Chair

Linda P. Tugurian, Science Education (SED) NCSU Co-chair, Dr. Eric Wiebe Graduated May, 2015	2012-2015
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MEd Committee Co-Chair

Heather Rutherford, Science Education (SED) NCSU Co-chair, Dr. Eric Wiebe Graduated May 10, 2014	2007-2014
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Graduates

Huei-Chen Lao Chair, Dr. Meg Blanchard Defended October 25, 2016	2012-2016
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Lindsay Patterson Chair, Dr. Eric Wiebe Defended November 2, 2015	2011-2015
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Elysa Corin Chair, Dr. Gail Jones Defended March 23, 2015	2012-2015
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Tammy Lee Chair, Dr. Gail Jones Defended March 19, 2015	2011-2015
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Linda Tugurian, Science Education (SED) NCSU Co-chairs, Dr. Sarah Carrier & Dr. Eric Wiebe Defended March 13, 2014	2009-2014
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Kathryn Tate Stevenson, College of Natural Resources Chair, Dr. Nils Peterson	2012-2014
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Defended May 12, 2014

Meredith Kier
Chair, Dr. Meg Blanchard
Defended March 20, 2013
2011-2013

Catherine LeProvost, NCSU
Co-Chairs, Dr. Meg Blanchard & Dr. W. Gregory Cope
Defended March 29, 2011
2009-2011

Beth Folta, NCSU
Chair, Dr. Len Annetta
Defended December 8, 2010
2007-2010

Graduate Committee Membership

Doctoral Committee

Daniell Lawson, CNR	2016-present
Dorothy Holley, CNT	2016-present
Emily Cayton, SED	2016-present
Stephanie Ninich, ELM	2016-present
Kylie Swanson Hoyle, SED	2014-present
Mariana Perez, SED	2014-present
Catherine Chestnut, SED	2015-present
Courtney Behrle, SED	2014-present
Kathleen Gray, SED	2014-present
Megan Leagon, SED	2012-present
Diane Johnson, SED	2012-present
Sam Wheeler, SED	2011-present
Wayne Sheffield, SED	2013-present

Masters Advising

Rachel Szczytko, CNR	2016-present
Caroline Chelemer	
Nicole Nance – Weekly meetings in Spring 2016	
Natalie Mayur	
Catherine Tracarella	
Kelly Gess	
Kelsey Griffin	

Graduates

Melissa Costanzo
Marina Wagemaker
Kathryn Cobb
Rachel Dale
Heather Callaghan
Kelly Carroll
Anna Gaines
Candice Medlin
Elnor Patterson
Balir Rice
Vanessa Rossitz

Kerry Shearer
Jennifer Smith
Kristine Vondervor
Brittany Seperak Laube
Tammy Argueta
Jennifer Cunningham
Latoria Felder
Irving Glenn
Sara Ireland
Hannah Jenette
Courtney Nelson
Douglas Price
Amber Creech Wise
Allaina Pawlowski
Kayla Cline
Jessica Dierk
Morgan Wigal
Rebecca Scotton
Kim Kyungah
Alexandra Navarre
Dawn Russo
Lisa Stallings

PROFESSIONAL MEMBERSHIPS

National Association for Research in Science Teaching (NARST)
NARST External Policy and Relations Committee 2013-2015
Strand 15 Coordinator –Policy, 2009-2013
Association of Science Teacher Education (ASTE)
ASTE Equity Committee
Mid Atlantic Association of Science Teacher Education (MAASTE)
American Educational Research Association (AERA)
North American Association for Environmental Education (NAAEE)
National Science Teachers' Association (NSTA)
North Carolina Science Teachers' Association (NCSTA)
American Association of Colleges for Teacher Education (AACTE)