

# Julie P. Martin, Ph.D.

## Curriculum Vita

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### PROFESSIONAL EXPERIENCE

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#### **Program Director for Engineering Education**

Directorate for Engineering, Division of Engineering Education and Centers  
National Science Foundation (NSF), 2017-present

#### **Associate Professor of Engineering and Science Education**

Clemson University, 2016-present

**Assistant Professor of Engineering and Science Education**, courtesy joint appointment in  
Department of Materials Science and Engineering  
Clemson University, 2008-2016

#### **American Association for the Advancement of Science (AAAS) Science & Technology Policy Fellow**

National Science Foundation, 2012-2013

#### **Director of Undergraduate Student Recruitment and Retention for the Cullen College of Engineering; Instructional and Research Assistant Professor**

University of Houston, 2004-2008

#### **Visiting Assistant Professor of Engineering Fundamentals, Visiting Assistant Professor of Materials Science and Engineering**

Virginia Polytechnic Institute and State University (Virginia Tech), 2003-2004

#### **Postdoctoral Fellow**

Department of Bioengineering  
Clemson University, 2002-2003

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### ACADEMIC BACKGROUND

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- Ph.D. in Materials Science and Engineering (MSE), Virginia Polytechnic Institute and State University, 2001.
- B.S. in Materials Science and Engineering with minor in Religious Studies, summa cum laude, North Carolina State University (NCSU), 1996.

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### RESEARCH FUNDING

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- Principal Investigator for NSF Early Career Development (CAREER) grant: CAREER: Influence of Social Capital on Under-Represented Engineering Students' Academic and Career Decisions, \$415,430, 2010-2015 (EEC-0950710).

- Principal Investigator for NSF Who's Not at the Table? Building Research Capacity for Underserved Communities in Engineering, \$195,010 (lead institution on collaborative proposal; total award amount \$216,166), 2015-2019 (EEC-1463808).
- Principal Investigator for NSF Exploring Non-Normative Forms of Capital, Wealth and Knowledge Used by Engineering Students, \$141,456, 2015-2018 (EEC-1463808).
- Principal Investigator for NSF Developing Engineer of 2020 Traits: How do Non-Curricular Activities Impact African American Students? \$278,700 (lead institution on collaborative proposal with Stephanie Adams of Virginia Tech; total award amount \$362,819), 2012-2017 (EEC-1159813).
- Principal Investigator for NSF Systematic Review of Studies to Improve Success in STEM Degree Programs of Hispanic Students Matriculating through Two-year Institutions, PI, \$93,255 (collaborative project with Jeff Froyd of Texas A&M University/Ohio State University, lead institution, and Maura Borrego of University of Texas; total award amount \$281,730), 2014-2017 (DUE-1446323).
- Co-Principal Investigator for NSF International Research Experiences for Students: Call Me GLOBE-Under-Represented Undergraduate Bioengineering Research in Singapore, \$219,984, 2015-2018 (OISE-1460110).
- Co-Principal Investigator for NSF Research Experiences for Undergraduates (REU) site: Interfaces and Surfaces: Exploring and Experiencing Science (I SEE Science), \$299,864, 2011-2013.
- Co-Principal Investigator for U.S. Department of Education Graduate Assistance in Areas of National Need (GAANN): Graduate Training in Engineering and Managing Resilient and Sustainable Infrastructure, \$749,995, 2012-2015.
- Principal Investigator for Engineering Information Foundation grant: Development and National Dissemination of Adaptable Research-Based Materials for Recruiting and Retaining First Generation College Students in Engineering, \$24,950, 2008-2009.
- Principal Investigator for NSF REU site: Nanotechnology at the University of Houston, \$318,688, 2007-2008 (EEC-0647775).
- Principal Investigator for NSF Research Experiences for Teachers (RET) site at the University of Houston: Innovations in Nanotechnology, \$497,997, 2008 (EEC-0742296).
- Principal Investigator for Texas Engineering and Technical Consortium (TETC) Innovative Strategies grant: Retention of Female Undergraduate ECE Students at the University of Houston, \$79,176, 2005-2008.
- Principal Investigator for Engineering Information Foundation grant: Developing Programmatic and Pedagogical Support Mechanisms for Diverse Women in Engineering at

an Urban University: An In-depth Look at Antecedents and Moderators for Their Success, \$20,650, 2007-2008.

- Co-Principal Investigator for TETC Best Practices grant: Undergraduate Recruiting and Retention of ECE Students at the University of Houston, \$372,561, 2005-2008.
- External Evaluator for five NSF-funded projects.
- Planning Committee, PEER Collaborative National Networking Workshop, Athens, GA, (2011); NSF Award EEC-1129455, PI Alice Pawley, Purdue University.
- Advisory Board, PECASE/CAREER: Engineering Design Across Navajo Culture, Community, and Society (2014-2017), NSF Award EEC-1351728, PI Shawn Jordan, Arizona State University
- Advisory Board, PECASE/CAREER: Learning from Small Numbers: Using Personal Narratives by Underrepresented Undergraduate Students to Promote Institutional Change in Engineering Education (2010-2016), NSF Award EEC-1055900, PI Alice Pawley, Purdue University
- Advisory Board, Understanding and Diversifying Transfer Student Pathways to Engineering Degrees (2014-2017), NSF Award EEC-1428502, PI David Knight, Virginia Tech.
- Consultant, The Effects of Social Capital and Cultural Models on the Retention and Degree Attainment of Women and Minority Engineering Undergraduates (2014-2017), NSF Award EHR-1432297, PI Gladis Kersaint, University of Connecticut.

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## SCHOLARLY WORK

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### Peer Reviewed Publications and Conference Proceedings

#### *Book Chapters*

- Corkin, D., Yu, S. L., & **Martin, J.** (2016). STEM motivation and persistence among underrepresented minority students: Two social cognitive perspectives. In P. Schutz & J. Decuir-Gunby (Eds.), *Race and ethnicity in the study of motivation in education* (pp. 67-81). New York: Routledge.
- **Trenor, J. M.**, & Madubike, C. M. (2008). Recruiting women for programs in engineering. In B. Lauren (Ed.), *The college admissions officer's guide* (pp. 257-265). Washington, DC: American Association of Collegiate Registrars and Admissions Officers.

#### *Refereed Journal Publications*

\* denotes current or former graduate student; \*\* denotes undergraduate researcher

- **Martin, J.P.**, Choe, N. Foster, M., Halter, J., Borrego, M., Froyd, J.E., and Winterer, E. (2018) Interventions supporting baccalaureate achievement of Latinx STEM students matriculating at 2-year institutions: A systematic review. *Journal of Research in Science Teaching*, early view. 10.1002/tea.21485.
- Dika, S. L., & **Martin, J. P.** (2017). Bridge to persistence: Interactions with educators as social capital for Latina/o engineering majors. *Journal of Hispanic Higher Education* 17(3), 202-215.
- Simmons, D. R.,\* & **Martin, J. P.** (2017). Shaping autonomous decision makers: Familial influences on persisting first generation college engineering undergraduates. *Journal of Women and Minorities in Science and Engineering*, 23(1), 53-71.
- Casco, M., Alexis, F., Zhang, G., & **Martin, J.** (2017) Cross-cultural and global interdependency development in STEM undergraduate students: Results from Singapore study abroad program. *Education*, 137(3), 249-256.
- **Martin, J. P.** (2015). The invisible hand of social capital: Narratives of first generation college students in engineering. *International Journal of Engineering Education*, 31(4), 1170-1181.
- **Martin, J. P.**, Brown, S., Miller, M. K.,\* & Stefl, S.\* (2015). Characterizing engineering student social capital in relation to demographics. *International Journal of Engineering Education*, 31(4), 914-926.
- Simmons, D. R.,\* & **Martin, J. P.** (2014) Developing effective engineering fictive kin to support first generation college students. *Journal of Women and Minorities in Science and Engineering*, 20(3), 279-292.
- Economy, D. R., Sharp, J. L., **Martin, J. P.**, & Kennedy, M. S. (2014). The admission process for summer undergraduate research: Factors associated with student decision making for NSF REU sites. *International Journal of Engineering Education*, 30(6), 1395-1404.
- Brown, S., Bornasal, F., Brooks, S., & **Martin, J.** (2015). Civil engineering faculty incorporation of sustainability in courses and relation to sustainability beliefs. *Journal of Professional Issues in Engineering Education Practice*, (141)2. <https://doi.org/10.1061>
- **Martin, J. P.**, Miller, M.K.,\* & Simmons, D. R.\* (2014). Exploring the theoretical social capital "deficit" of first generation college students: Implications for engineering education. *International Journal of Engineering Education*, 30(4), 822-836.
- Brown, S., Street, D., & **Martin, J. P.** (2014). Engineering student social capital in an interactive learning environment. *International Journal of Engineering Education*, 30(4), 813-821.

- Miller, M. K.,\* **Martin, J. P.**, & Orr, M. K. (2014). Toward determining changes in engineering-related social capital: Resource composition as students make decisions about college. *Journal of Education and Training*, 1(2). <https://doi.org/10.5296/jet.v1i2.5158>.
- **Martin, J. P.**, Simmons, D. R.,\* & Yu, S. L. (2014). Family roles in engineering students' academic and career choices: Does parental education attainment matter? *International Journal of Engineering Education*, 30(1), 136-149.
- **Martin, J. P.**, Simmons, D. R.,\* & Yu, S. L. (2013). The role of social capital in the experiences of Hispanic women majoring in engineering. *Journal of Engineering Education*, 102(2), 247-243.
- Adams, R. S., Dias de Figueiredo, A., Evangelou, D., English, L. D., Mousoulides, N., Pawley, A. L., Schifellite, C., Stevens, R., Svinicki, M., **Trenor, J. M.**, & Wilson, D. (2011). Multiple perspectives for engaging future engineers. *Journal of Engineering Education Centennial Issue*, 100(1), 48-88. (invited piece, authors in alphabetical order)
- **Trenor, J. M.**, Yu, S. L., Waight, C. L., Zerda, K. S., & Sha, T.-L. (2008). The relations of ethnicity to female engineering students' educational experiences and college and career plans in an ethnically diverse learning environment. *Journal of Engineering Education*, 97(4), 449-465.
- **Martin, J. P.**, & Burg, K. J. L. (2003). Textiles in biomedical engineering devices. *American Association of Textile Colorists and Chemists Review*, 3(11).
- **Martin, J. P.**, McCartney, S. R., & Kander, R. G. (2003). An investigation of the microstructure of a cryogenically mechanically alloyed polycarbonate-poly(aryl ether ether ketone) system. *Journal of Materials Science*, 38(2), 195-200.
- **Martin, J. P.**, & Kander, R. G. (2003). Mechanical properties of a cryogenically mechanically alloyed polycarbonate-poly(aryl ether ether ketone) system. *Journal of Applied Polymer Science*, 88(5), 1196-2012.
- Cornélis, H., Kander, R. G., & **Martin, J. P.** (1996). Solvent-induced crystallization of amorphous poly(ether ether ketone) by acetone. *Polymer*, 37(20), 4573-4578.

#### *Journal Papers in Review*

- **Martin, J.P.**, and Garza, C.\*\*. Centering the marginalized student's voice through autoethnography: Implications for engineering education research. *Journal of Research in Science Teaching*, in review.
- Garrett, S., **Martin, J. P.**, & Adams, S. G. Further together: The benefits of institutional partnerships for African American engineering majors. *Journal of College Student Development*, in review.

- Winterer, E.R., Froyd, J.E., Borrego, M., **Martin, J.P.**, Foster, M.J. Factors influencing the academic success of Latinx STEM majors matriculating at 2-year and transferring to 4-year institutions: A systematic review of the literature. *Studies in Science*, in review.

*Peer Reviewed Conference Proceedings*

- Anderson, R. K., & **Martin, J. P.** (2017). A real report from the trenches of a PhD dissertation: Exploring the inherent "messiness" of engineering education research through an audit trail. *Proceedings of the 2016 American Society for Engineering Education Annual Conference and Exhibition*. Columbus, OH: ASEE.
- **Martin, J. P.**, Revelo Alonso, R., Stefl, S.,\* Garrett, S.,\* & Adams, S. (2016). Ethnic student organizations in engineering: Implications for practice from two studies. *Proceedings of the 2016 American Society for Engineering Education Annual Conference and Exhibition*. New Orleans, LA: ASEE.
- **Martin, J. P.**, & Newton, S.\*\* (2016). Uncovering forms of wealth and capital using asset frameworks in engineering education. *Proceedings of the 2016 American Society for Engineering Education Annual Conference and Exhibition*. New Orleans, LA: ASEE.
- **Martin, J. P.**, Pfirman, A. L.,\* Anderson, R. K.,\* Stefl, S. K.,\* Paige, F.,\* & Cain, L. W.\* (2015). A series of singular testimonies: A new way to explore unearned advantages and unearned disadvantages. *Proceedings of the 2015 American Society for Engineering Education Annual Conference and Exhibition*. Seattle, WA: ASEE (*Educational Research and Methods Division Best Diversity Paper Award*).
- **Martin, J. P.**, Garrett, S. A.,\* Adams, S. G., & Hamilton, J.\*\* (2015). A qualitative look at African American students' perceptions of developing Engineer of 2020 traits through non-curricular activities. *Proceedings of the 2015 American Society for Engineering Education Annual Conference and Exhibition*. Seattle, WA: ASEE.
- Smith, C. A. S., Wao, H., **Martin, J. P.**, MacDonald, G. T., Lee, R. S., & Kersaint, G. (2015). Designing a survey for engineering undergraduates using free listing—An anthropological structured technique. *Proceedings of the 2015 American Society for Engineering Education Annual Conference and Exhibition*. Seattle, WA: ASEE.
- Froyd, J. E., **Martin, J. P.**, Borrego, M. J., Choe, H. S., & Foster, M. J. (2015). What have we learned from a systematic review of literature on Hispanic transfer students in engineering? *Proceedings of the 2015 American Society for Engineering Education Annual Conference and Exhibition*. Seattle, WA: ASEE.
- Pfirman, A. L.,\* Miller, M. K.,\* Santana Alvarez, G. A,\*\* & **Martin, J. P.** (2014). First generation college students' access to engineering social capital: Towards developing a richer understanding of important alters. *Proceedings of the 2014 IEE Frontiers in Education Conference*. Madrid, Spain: IEEE.

- Simmons, D. R.,\* Young, G., Adams, S. G., & **Martin, J. P.** (2013). Non-curricular activities help African American students and alumni develop Engineer of 2020 traits: A quantitative look. *Proceedings of the 2014 American Society for Engineering Education Annual Conference and Exhibition*. Indianapolis, IN: ASEE.
- Economy, D. R., **Martin, J. P.**, & Kennedy, M. S. (2013). Factors influencing student selection of REU sites. *Proceedings of the 2013 Frontiers in Education Conference*. Oklahoma City, OK: ASEE.
- **Martin, J. P.**, Miller, M. K.,\* & Kennedy, M. (2012). Graduate students: Influential agents of social capital for engineering undergraduate researchers. *Proceedings of the 2012 American Society for Engineering Education Annual Conference and Exhibition*. San Antonio, TX: ASEE.
- **Martin, J. P.**, Gipson, K.,\* & Miller, M. K.\* (2011). Developing a survey instrument to characterize social capital resources impacting undergraduates' decisions to enter and persist in engineering. *Proceedings of the 2011 Frontiers in Education Conference*. Rapid City, SD: ASEE.
- Simmons, D. R.,\* & **Martin, J. P.** (2011). Implications of Black Greek letter membership on the development of the Engineer of 2020. *Proceedings of the 2011 Frontiers in Education Conference*. Rapid City, SD: ASEE.
- **Trenor, J. M.** (2011). Influence of social capital on under-represented engineering students' academic and career decisions. *Proceedings of the 2011 American Society for Engineering Education Annual Conference and Exhibition*. Vancouver, Canada: ASEE.
- **Trenor, J. M.**, Miller, M.,\* & Gipson, K.\* (2011). Utilization of a think-aloud protocol to cognitively validate a survey instrument identifying social capital resources of engineering undergraduates. *Proceedings of the 2011 American Society for Engineering Education Annual Conference and Exhibition*. Vancouver, Canada: ASEE.
- **Trenor, J. M.**, Simmons, D. R. G.,\* & Archer, E. A.\*\* (2010). The role of African American fraternities and sororities in engineering students' educational experiences at a predominantly white institution. *Proceedings of the 2010 Frontiers in Education Conference*. Arlington, VA: IEEE.
- Grant, D. S.,\* & **Trenor, J. M.** (2010). Use of the critical incident technique for qualitative research in engineering education: An example from a grounded theory study. *Proceedings of the 2010 American Society for Engineering Education Annual Conference and Exhibition*. Louisville, KY: ASEE.
- Yu, S. L., Corkin, D., & **Trenor, J. M.** (2010). The role of motivation in choice of engineering among ethnically diverse adolescents. *Paper presented at the 2010 Annual Meeting of the American Educational Research Association*, Denver, CO.

- Smith, J. L.,\*\* & **Trenor, J. M.** (2010). Commuter students' educational experiences and sense of belonging in the undergraduate engineering community: A phenomenological study. *Proceedings of the American Society for Engineering Education Southeastern Section Conference*. Blacksburg, VA: ASEE.
- **Trenor, J. M.**, & Grant, D.S.\* (2009). Work in Progress—A research-based tool kit for communicating unique messages about engineering to first generation college students. *Proceedings of the 2009 Frontiers in Education Conference*. San Antonio, TX: IEEE.
- **Trenor, J. M.** (2009). A phenomenological inquiry of the major choice processes of an overlooked demographic: First generation college students in engineering. *Proceedings of the 2009 Research in Engineering Education Symposium*. Cairns, Australia: Curran Associates, Inc.
- Pierrakos, O., & **Trenor, J. M.** (2009). A mixed-methods approach to investigating students' learning and skill gains during a summer undergraduate research experience. *Proceedings of the 2009 American Society for Engineering Education Annual Conference and Exhibition*. Austin, TX: ASEE.
- **Trenor, J. M.**, Yu, S. L., Grant, D.,\* & Salem, H. (2009). Participation in a research experience for teachers program: Impact on perceptions and efficacy to teach engineering. *Proceedings of the 2009 American Society for Engineering Education Annual Conference and Exhibition*. Austin, TX: ASEE.
- **Trenor, J. M.**, Yu, S. L., Waight, C. L., & Zerda, K. S. (2008). Social capital and influences for selecting engineering: Insights from two case studies. *Proceedings of the 2008 Frontiers in Education Conference*. Saratoga Springs, NY: IEEE.
- Fernandez, M. J.,\*\* **Trenor, J. M.**, Zerda, K. S., & Cortes, C. (2008). First generation college students in engineering: A qualitative investigation of barriers to academic plans. *Proceedings of the 2008 Frontiers in Education Conference*. Saratoga Springs, NY: ASEE.
- **Trenor, J. M.**, & Pierrakos, O. (2008). Utilizing a social cognitive theoretical framework to investigate the influences of a summer undergraduate research experience on participants' academic and career plans. *Proceedings of the 2008 American Society for Engineering Education Annual Conference and Exhibition*. Pittsburgh, PA: ASEE.
- **Trenor, J. M.**, Lange, S. E., Bower, C., & Matt, C. D. (2008). Developing a strong brand identity for your organization: Lessons learned from the WEPAN branding initiative. *Proceedings of the 2008 WEPAN National Conference*. St. Louis, MO: WEPAN.
- **Trenor, J. M.**, Yu, S. L., Sha, T.-L., Waight, C. L., & Zerda, K. S. (2007). Investigating the relations of ethnicity to female students' perceptions and intention to major in engineering using social cognitive theory. *Proceedings of the 2007 Frontiers in Education Conference*. Milwaukee, WI: IEEE (*Honorable Mention for Benjamin S. Dasher Best Paper Award, out of approximately 450 papers*).



- **Trenor, J. M.**, & Zerda, K. S. (2007). One size does not fit all: Engineering effective WIE programs at urban universities, community colleges, and minority serving institutions. *Proceedings of the 2007 WEPAN National Conference*. Lake Buena Vista, FL: WEPAN.
- **Trenor, J. M.**, Madubike, C. M.,\* & Claydon, F. J. (2006). Establishing a women in engineering program at an urban university. *Proceedings of the 2006 WEPAN National Conference*. Pittsburgh, PA: WEPAN.
- **Trenor, J. M.**, Ruchhoeft, J., Long, S., & Claydon, F. (2006). Improving K-12 teaching through the Research Experiences for Teacher program at the University of Houston. *Proceedings of the 2006 Annual American Society for Engineering Education Annual Conference and Exhibition*. Chicago, IL: ASEE.
- Shattuck, D. P., Barr, B. J., Ruchhoeft, J. L., **Trenor, J. M.**, Long, S. A., & Claydon, F. C. (2005). Collaborative learning as a tool for retention of engineering students: An update on the success of engineering "Redshirt" camps and collaborative learning workshops at the University of Houston Cullen College of Engineering. *Proceedings of the 2005 Annual American Society for Engineering Education Annual Conference and Exhibition*. Portland, OR: ASEE.
- Glover, J. R., Ruchhoeft, J. L., **Trenor, J. M.**, Long, S. A., & Claydon, F. C. (2005). Girls Reaching and Demonstrating Excellence (G.R.A.D.E.) camps: An innovative recruiting strategy at the University of Houston to increase female representation in engineering. *Proceedings of the 2005 Annual American Society of Engineering Education Annual Conference and Exhibition*. Portland, OR: ASEE.

*Conference Presentations and Workshops* (does not include presentations that accompanied those published in conference proceedings, listed above)

- Jordan, S., **Martin, J.P.**, Stefl, S.K., and Foster, C. (2018): A hero's journey to asset-based engineering education. Engineering AfterNext Conference, West Lafayette, IN. This was an interactive session using Improv and Theatre of the Oppressed techniques to reimagine the role of the system of engineering education to be asset-based.
- Lee, W. C., Lutz, B., Stefl, S. K.,\* & **Martin, J. P.** (2017). Workshop: Digging into the discomfort, challenges and barriers to incorporating diversity education into engineering curricula. WEPAN Change Leader Forum, Westminster, CO.
- **Martin, J. P.**, Lee, W. C., Stefl, S. K.,\* & Riley, D. M. (2016) Workshop: Society's "macro-narratives" about diversity in engineering: A critical dialogue. WEPAN Change Leader Forum, Broomfield, CO.
- **Martin, J. P.**, & Stefl, S. K.\* (2015). Special session: Developing an asset-based lexicon for valuing difference and re-envisioning the culture of engineering education. WEPAN Change Leader Forum, Broomfield, CO.

- Garrett, S.,\* **Martin, J. P.**, & Adams, S. (2015). Developing engineering skills via non-curricular experiences: A qualitative exploration of African American students. National Conference on Race and Ethnicity, San Francisco, CA.
- Garrett, S.,\* **Martin, J. P.**, Stefl, S.,\* & Adams, S. (2015). African American engineering students' opportunities for developmental experiences through non-curricular activities. Paper presented at the American Educational Research Association Conference, Washington, DC.
- **Martin, J.**, & Berry, T. (2014). Workshop: Developing a research-based action plan for your work with girls and women. WEPAN Change Leader Forum, Minneapolis, MN.
- **Martin, J. P.** (2012). Workshop: Applying research and theory to your outreach, recruitment and retention activities for girls & women in engineering. WEPAN National Conference, Columbus, OH.
- Douglas, E. P., & **Martin, J. P.** (2011). A dialogue on phenomenology. Paper presented at the Seventh International Congress of Qualitative Inquiry, Urbana-Champaign, IL.
- **Trenor, J. M.**, & Grant, D.\* (2009). Workshop: Social capital and engineering talent development. WEPAN National Conference, Austin, TX.
- Lee, W.,\*\* & **Trenor, J. M.** (2009). Research-based outreach materials to increase participation of first generation college Latino students in engineering. Poster presented at the First Triennial Conference on Latino Education and Integration, Athens, GA.
- Lee, W.\*\* & **Trenor, J.M.** (2009). First generation college students in engineering: Research-based outreach and recruitment materials. Poster presented at the South Carolina Louis Stokes Alliance for Minority Participation Conference, Columbia, SC.
- Fleming,\*\* B. & **Trenor, J.M.** (2009) Family roles of students in engineering. Poster presented at the South Carolina Louis Stokes Alliance for Minority Participation Conference, Columbia, SC (*First Place Winner of best poster for the state of SC*).
- Yu, S. L., **Trenor, J. M.**, Waight, C. L., & Zerda, K. S. (2009). Ethnic identity, belonging, and achievement goals among women in engineering. Paper presented at the 2009 American Psychological Association Convention, Toronto, Canada.
- **Trenor, J. M.**, Zerda, K. S., Jones, R.D.,\*\* & Hawthorne, A. (2008). Evolving communication strategies for recruitment and retention programs serving the millennial generation. Paper presented at the Texas Engineering and Technical Consortium Best Practices Conference, Austin, TX.
- **Trenor, J. M.**, Claydon, F. C., Long, S. A., & Jones, R. D. \*\* (2007). Retaining female engineering students by creating an effective women-in-engineering program. Paper presented at the Texas Engineering and Technical Consortium Best Practices Conference, Austin, TX.

- **Trenor, J. M.,** Edwards, S. L., & Matt, D. (2007). Reinvigorating the WEPAN “brand”: An update on the communications advisory committee’s progress. WEPAN National Conference, Lake Buena Vista, FL.

*Selected Invited Presentations and Workshops*

- **Martin, J. P.** (2017). “Just a Black girl from the ghetto”: Giving voice to a student’s journey to engineering through autoethnography. Virginia Tech Department of Engineering Education, Blacksburg, VA (invited).
- **Martin, J. P.** (2017). “We were guinea pigs”: Giving voice to a student’s journey to engineering through autoethnography. Arizona State University Polytechnic School, Mesa, AZ (invited).
- **Martin, J. P.,** Stefl, S.K, & Slaton, A. (2017) A guide to organizing and hosting inclusive events. ASEE Minorities in Engineering (MIND) Division and WEPAN (invited national webinar).
- **Martin, J. P.,** & Ingram, E. (2017). Building strategic networks: Mentors and more. ASEE Webinar Series (invited national webinar).
- **Martin, J. P.** (2017). Low income STEM undergraduates: Supporting success via S-STEM. Capacity Building through Competitive S-STEM Proposals Workshop, Rice University, Houston, TX (invited).
- **Martin, J. P.** (2016). Supporting success of low income undergraduates in STEM. Plenary for American Associate of Colleges and Universities STEM Central Building by Knowledge Exchange Workshop, Chicago, IL (invited plenary).
- **Martin, J. P.** (2015). Advice for writing a winning NSF CAREER proposal. Clemson University College of Engineering and Science Seminar Series, Clemson, SC (invited).
- **Martin, J. P.** (2014). It takes a village to raise an engineer. Clemson University Science on Tap, Clemson, SC (invited).
- **Martin, J. P.** (2014). Cultivating your professional network for graduate school and beyond. Symposium for the Introduction to Research in Physics and Astronomy, Clemson University, Clemson, SC (invited keynote).
- **Martin, J. P.** (2014). Social factors influencing the recruitment, retention and career development of engineering students. Clemson University College of Engineering and Science Research Symposium. Clemson, SC.
- **Martin, J. P.** (2014). Preparing your student for STEM success. Clemson University College of Engineering and Science STEM Day. Clemson, SC (invited).

- **Martin, J. P.** (2014). Advice for writing a winning NSF CAREER proposal. Clemson University College of Engineering and Science Seminar Series, Clemson, SC (invited).
- **Martin, J. P.** (2014). Creating a strong CV for a future in academia. Panelist for Clemson University Graduate School professional development series, Clemson, SC (invited).
- **Martin, J. P.** (2012). The role of African American fraternities and sororities on engineering students' educational experiences. Clemson University Women's Studies Forum, Clemson, SC (invited).
- **Martin, J. P.** (2011). "Changing the Conversation": Applying the National Academy of Engineering's public messaging campaign to the work of the Center for STEM Education for Girls. STEM Consortium Meeting, Nashville, TN (invited).
- **Martin, J. P.** (2011). Leadership panel discussion. Emerging Leaders Alliance Conference hosted by the American Association of Mining, Metallurgical and Petroleum Engineers (AIME), Arlington, VA (invited panelist).
- **Martin, J. P.** (2011). Engineering education research panel discussion. Student Constituent Committee Special Session at the American Society for Engineering Education Annual Conference and Exhibition, Vancouver, Canada (invited panelist).
- **Trenor, J. M.** (2011). A new paradigm for understanding recruitment and retention of under-represented students in engineering. Texas A&M University Dwight Look College of Engineering; Engineering Student Scholarships and Academic Programs, College Station, TX (invited).
- **Trenor, J. M.** (2010). Influence of social capital on under-represented engineering students' academic and career decisions. Purdue Department of Engineering Education, West Lafayette, IN (invited).
- **Trenor, J. M.** (2010). Finding the sweet spot for engineering diversity organizations and corporation partners. 2010 American Society for Engineering Education Annual Conference and Exhibition, Louisville, KY (invited panelist).
- Adams, R., Paretto, M., Atman, C., & **Trenor, J.** (2010) PhD consortium in engineering education. Workshop presented at the 2010 American Society for Engineering Education Annual Conference and Exhibition, Louisville, KY.
- **Trenor, J. M.** (2010). Breakfast with champions: What would it take to diversify the field of engineering? Discussion leader for Educational Research and Methods Division special session at the 2010 American Society for Engineering Education Annual Conference and Exhibition, Louisville, KY (invited).
- **Trenor, J. M.** (2010). Family roles in engineering students' academic and career choices: Does parental education attainment matter? Clemson University Women's Studies Forum, Clemson, SC.

- **Trenor, J. M.** (2010). Recruiting and retaining underrepresented students in engineering: Paradigms, pathways, and practices. An interactive workshop for attendees at the National Science Foundation Awardees Conference, Reston, VA (invited).
- **Trenor, J. M.** (2009). Social factors affecting the recruitment and retention of under-represented students in engineering: Paradigms, pathways, and practice. South Dakota School of Mines and Technology, Provost's Advisory Council on Faculty Development Speaker Series, Rapid City, SD (invited).
- **Trenor, J. M.** (2009). Social capital: Building and using your professional network to achieve your career goals. EmpowHER Conference for Women in STEM Fields, University of South Carolina, Columbia, SC (invited).
- **Trenor, J. M.** (2009). Influence of social capital on under-represented engineering students' academic and career decisions. Presentation to School of Materials Science and Engineering External Advisory Board Clemson, SC.
- **Trenor, J. M.** (2009). Characteristics of rigorous engineering education research. School of Materials Science and Engineering Graduate Seminar Series, Clemson, SC.
- **Trenor, J. M.** (2009). The relations of ethnicity to female engineering students' educational experiences and college and career plans in an ethnically diverse learning environment. Joint Clemson/Virginia Tech Engineering and Science Education Seminar Series, Clemson, SC.
- **Trenor, J. M.** (2008). The millennial generation in the classroom and workplace. An interactive workshop for the NASA Administrators Fellowship Program, Baltimore, MD (invited).
- **Trenor, J. M.** (2008). Enhancing recruitment and retention efforts through a project-based freshman course. North Carolina State University College of Engineering, Office of Academic Affairs Raleigh, NC (invited).
- **Trenor, J. M.** (2007). Creating a more diverse engineering workforce: Recruiting and retaining under-represented persons in engineering majors and careers. An interactive workshop for the NASA Administrators Fellowship Program, Cleveland, OH (invited)
- **Trenor, J. M.** (2007). The power of external mentors for women pursuing academic careers in engineering and science: Stories of MentorNet ACE and its protégés and mentors. Panel discussion, 2007 WEPAN National Conference, Lake Buena Vista, FL (invited).
- **Trenor, J. M.** (2007). Advancing the engineering pipeline at UTEP: What you can do to help recruit and retain undergraduates. An interactive workshop for the University of Texas-El Paso College of Engineering, El Paso, TX (invited).
- **Trenor, J. M.** (2007). Advancing the pipeline of women in engineering: What you can do to help recruit and retain female undergraduates. National Engineers' Week Foundation

Global Marathon: For, By, and About Women in Engineering, Houston, TX (national webinar).

- **Trenor, J. M.** (2006). Women and minorities: Climbing the ladder of science success. The Science Café, Houston, TX (invited panelist).

#### *Webinars and Websites*

- **Inclusive Engineering:** This new website represents the efforts to making engineering and engineering education a space that welcomes and values contributions by individuals from all identities and social groups. Our vision is to address historical injustices, acknowledge the intersectional nature of human experience, join with those who usher in asset-minded framing of educational practices and research, and empower others to invest and engage in authentic, inclusive work. <https://inclusiveengineering.org/>
- **“A Guide to Organizing and Hosting Inclusive Events”** This national, invited webinar was hosted by the American Society for Engineering Education (ASEE) Minorities in Engineering Division (MIND) and powered by Women in Engineering ProActive Network (WEPAN). The webinar offers suggestions for setting meeting “norms”, making events fully accessible to persons with disabilities, budgetary necessities, and promoting networking and full participation. <https://www.wepan.org/general/custom.asp?page=aseemindhie>
- **“Building strategic networks: Mentors and more.”** This national, invited webinar was hosted by the ASEE as part of the Engineer Your Career Webinar Series for students and new professionals. The webinar explores personal vs. professional identity, how to establish and build social capital, and how to identify and nurture networks to advance one’s career. [https://www.asee.org/public/on\\_demand\\_webinars](https://www.asee.org/public/on_demand_webinars)

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## NATIONAL LEADERSHIP IN ENGINEERING EDUCATION

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### **WEPAN President, Board Member and Committee Chair (2006-2010; 2016-2017)**

Women in Engineering ProActive Network (WEPAN) is a national not-for-profit organization consisting of more than 650 members from 200 engineering schools, corporations, and non-profit organizations. WEPAN’s core purpose is to propel higher education to increase the number and advance the prominence of diverse communities of women in engineering.

- Led diverse leadership team of government, non-profit, academic, and private sector leaders composing the WEPAN Board of Directors in planning and implementing a new strategic plan while serving as WEPAN President-Elect, President, and Past President (2008-2011).
- Represented WEPAN nationally at professional society conferences and policy activities, including the White House Council on Women and Girls meeting, the Educate to Innovate briefing, and the “Diversity and Inclusion Fuels Innovation in STEM” Capitol Hill Day.

- Selected as a notable guest at the White House Champions of Change for Women & Girls in Science, Technology, Engineering, and Math (STEM) (December 2011).
- Collaborated with National Association of Multicultural Engineering Program Advocates (NAMEPA) to host the joint 2010 National Conference “Gateway to Diversity: Getting Results through Strategic Communications.” Led programming direction through conference themes, including National Policies to Enhance Gender Equity, Institutional and Organizational Change, Gender Equity in the Classroom and Workplace, Research and Assessments, Strategically Building Internal and External Support for Gender Equity, and Innovative and Effective Recruitment and Retention Strategies.
- Served on Board of Directors (2016-2018), Director of Communications (2007-2008) and Chair of Communications Committee (2006-2007).
  - Led committee and advertising consultants in developing branding strategy to re-invigorate WEPAN’s brand, including market research, renaming, and logo development.
    - Met WEPAN’s organizational objectives and produced rebranding deliverables while taking into account the diverse needs and viewpoints of the WEPAN membership (e.g., women-in-engineering program practitioners, corporate and government partners, non-profit directors, and engineering faculty).
    - Successfully considered the impact of the WEPAN brand on other organizations with similar missions, on the ability to mobilize advocates, and on public perception.
  - Led committee in developing integrated multimedia plan to promote WEPAN and its objectives to target audiences, developing brand message and strategy, developing position papers for advocating WEPAN’s position on critical issues, and guiding the development of promotional pieces.
  - Worked with industry leaders as a member of WEPAN’s Corporate Advisory Council.
  - Received WEPAN Distinguished Service Award for providing leadership that significantly advanced the mission of the organization (2012).

#### **American Society for Engineering Education (ASEE) Leadership Positions (2008-2017)**

- ASEE Diversity Committee Delegate (2016-2017) member of Long Range Initiatives sub-committee. The sub-committee is charged with being thought leaders, envisioning nationwide, global efforts to influence diversity. The sub-committee focuses on policy, advocacy, and highly visible statements.

- Appointed by Executive Director Norman Fortenberry to ASEE Executive Working Group on Access and Affordability (2014-2015).
  - Working group produced a white paper for the ASEE board of directors emphasizing key considerations in access and affordability of engineering education and making recommendations for how the organization could contribute to lowering barriers for access and affordability.
- Educational Research and Methods Division (ERM) Board-level Positions
  - ERM Director At-Large (2015-2017). Led the addition of a diversity and inclusion statement to ERM bylaws as the ERM delegate to the ASEE Diversity Committee. Inaugural Chair of the ERM Diversity and Inclusion Committee.
  - Chaired ERM Program for 2014 ASEE National Conference (2013-2015). Managed abstract and manuscript submission and review processes, organized and coordinated presentation session scheduling for accepted papers. Organized 2015 Distinguished Lecture.
  - Chaired ASEE ERM Nominating Committee (2011-2012). Recruited nominations from national pool of eligible faculty for board positions. Led committee in developing a new electronic voting system.
  - Chaired ERM Apprentice Faculty Grant Committee (2008-2011). Built community capacity in engineering education through mentoring for faculty who demonstrate strong potential to undertake significant research. Led efforts to expand the award eligibility requirements from graduate students and non-tenure track faculty to any engineering education researcher at an “apprentice” stage of their career. Recruited candidates nationally, organized the application review process, recruited and paired mentors with winners, hosted conference welcome events, and presented awards at the annual ERM banquet.

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## GOVERNMENT & POLICY EXPERIENCE IN ENGINEERING EDUCATION

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### **Program Director for Engineering Education, National Science Foundation**

Director for Engineering (ENG), Division of Engineering Education and Centers (EEC)

- Managing Engineering Education portfolio of  $\approx$  225 current awards with a \$20M annual budget.
- Soliciting, receiving, and managing the review of proposals, and making funding recommendations consistent with maintaining a balanced portfolio. Prioritizing awards based on budgetary constraints. Managing administrative functions for active awards, including annual and final reporting, personnel changes, and no-cost extensions.



- Serving as program director for Revolutionizing Engineering Departments (RED) program. Overseeing 19 grants, funded at \$2M each to support teams that serve as national exemplars of organizational culture change. Wrote and published FY2019 solicitation, which includes an additional track (Adaptation and Implementation).
- Co-authored the 5-Year Federal STEM Education Strategic Plan for 2018-2023 with members of an interagency working group, including the Office of Science of Science and Technology Policy and 15 federal agencies. Wrote content for 3 subgroups: organizational, Diversity & Inclusion, Strategic Partnerships.
- Serving as the NSF point person for education and workforce development for EEC's 24 Engineering Research Centers, funded at \$10M each.
- Working collaboratively across directorates on: Cultivating Culture of Ethics in STEM, Improving Undergraduate Education in STEM, Cyber-learning, Emerging Frontiers in Research and Innovation, and other programs.
- Supervising and mentoring three AAAS Science and Technology Policy fellows.
- Performing service for Foundation-wide activities.
- Conducting outreach for NSF in the academic research community through office hours with individual PIs, conference presentations, webinars, and site visits.

**AAAS Science and Technology Policy Fellow at the National Science Foundation  
(September 2012-August 2013)**

Division of Human Resources Management (HRM), Workforce Planning & Analysis Branch (WPAB)

- Contributed to an intra-agency working group to create and implement a Diversity and Inclusion Action Plan based on NSF's Diversity and Inclusion Strategic Plan.
  - Met regularly with NSF's Chief Human Capital Officer, Division Director for HRM, Branch Chief of the HRM WPAB, and Director of the Office of Diversity and Inclusion, among others.
  - Participated in weekly working group with colleagues in the WPAB.
- Contributed to diversity workforce analysis and planning, particularly as they relate to the unique challenges of the NSF science and engineering workforce. Worked with WPAB colleagues, WPAB Branch Chief, and NSF contractors.

Directorate for Education and Human Resources (EHR), Office of the Assistant Director

- Acted as the NSF point person for an interagency group consisting of personnel from the U.S. Office of Personnel Management and White House Office of Science & Technology Policy to host an event called "Leading Through Role Modeling: Training the Federal Workforce to Engage Girls in STEM."

- Participated in White House Council on Women and Girls meeting, representing NSF.
- Developed a plan to enhance NSF's panel review process through implicit bias awareness training for program directors and panelists.

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## COLLEGE-LEVEL ADMINISTRATIVE EXPERIENCE

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### **Director of Undergraduate Student Recruitment and Retention, University of Houston (UH) Cullen College of Engineering (2004-2008)**

The University of Houston is an urban, primarily commuter school with an ethnically and socioeconomically diverse student body of traditional and non-traditional students, many of whom are either first- or second-generation Americans and/or first-generation college students.

- Led college-wide undergraduate recruiting efforts at UH.
  - Directed college-wide recruitment of high school students, including the development of program content and overseeing all planning and implementation, evaluation, and assessment of recruiting practices.
  - Oversaw development of print materials for prospective student recruitment as well as print and web-based content for women-in-engineering program.
  - Worked closely with the Honors College and University Admissions Office to recruit high-achieving students, including National Merit Scholars.
  - Administered Engineering Merit Scholarships.
- Founding director of nationally recognized women-in-engineering program at UH. This program was the recipient of the national 2008 WEPAN Women in Engineering Initiative Award for an innovative initiative providing community, professional, and personal development opportunities for women engineering students on a commuter campus.
- Collaborated closely with the director of Program for the Mastery of Engineering Studies (PROMES) to provide a welcoming learning environment to support the needs of undergraduate students and enable their academic and personal success. Specific initiatives included:
  - collaborative learning workshops supporting primarily freshman and sophomore level math, science, and engineering courses, facilitated by upper-division students;
  - "STEP Forward" summer camp for rising 12th graders; and
  - support of student chapters of professional engineering societies.
- Delivered workshops and interactive experiences to Houston-area middle, high school, and community college students. Worked closely with teachers, counselors, and community

college personnel to expose their students to engineering educational opportunities and careers.

- Taught and mentored participants in the UH Girls Reaching and Demonstrating Excellence (GRADE) Camp, a weeklong summer day camp designed to introduce high school girls to engineering.
- Taught and mentored participants in the UH “Redshirt Camp,” an interactive pre-semester workshop for sophomore engineering students that used collaborative learning pedagogy to teach critical engineering concepts.
- Served as higher education liaison for the Alief School District Pre-Engineering Advisory board, 2005-2007.
  - Alief, an extremely ethnically and culturally diverse independent school district in Houston, Texas, has 45,000 students representing virtually every culture of the modern world. More than 80 languages and dialects are spoken among its students. Ethnic demographics in 2009 were 11% White (non-Hispanic), 27% Black (non-Hispanic), 21% Asian, and 40% Hispanic.
- Established and led an Engineering Education Discussion Group of approximately 20 UH faculty and staff to discuss current issues in engineering education and pedagogy.
- Served as faculty advisor for UH Society of Women Engineers (SWE) Student Chapter (2006-2008).
- Served as faculty advisor for UH Phi Sigma Rho Engineering Sorority (2005-2008).
- Served on the SWE National Conference Program Board as the higher education representative (2006-2008).

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## TEACHING EXPERIENCE

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### Clemson University Graduate Courses

- Developed Current Topics in STEM Education Policy (ESED 8790) for Department of Engineering & Science Education’s Ph.D. and graduate certificate program: Fall 2015, Fall 2016.
  - This course provides a foundation for doctoral STEM students to critically analyze current topics (and pertinent historical precedence) in U.S. policy affecting STEM education at multiple levels of the educational system, particularly as it pertains to issues of diversity and inclusion.
- Developed Preparing for the Professoriate (ESED 888/8880) for the Department of Engineering & Science Education’s Ph.D. and graduate certificate program: Spring 2010,

Spring 2011, Fall 2011, Spring 2012, Fall 2013, Fall 2014, Spring 2015, Fall 2015, Fall 2016, Spring 2017.

- This course, intended for doctoral STEM students who are seeking (or considering) a future career in academe, provides an overview of pertinent topics related to obtaining a faculty positions in STEM disciplines. Specifically, the course is designed to mentor students in the preparation of a professional portfolio; applying for, interviewing, and negotiating a position; developing a network of mentors in their discipline; and becoming familiar with federal funding agencies.

### **Clemson University Undergraduate Courses**

- Taught Introduction to Materials Science and Engineering (MSE 2100): Spring 2014, Spring 2015.
  - MSE 2100 is a sophomore-level, large-enrollment course (90-100 students) that is required for students majoring in Industrial Engineering, Mechanical Engineering, and Bioengineering Engineering, as well as Materials Science and Engineering.
  - Taught MSE 2100 in the traditional lecture hall format in 2014. In 2015, I moved the course—which had always been taught as a lecture course in an auditorium—to a SCALE-UP classroom. These classrooms contain round tables that seat eight students each and are designed to facilitate active and collaborative learning.
- Taught Engineering Discipline and Skills (CES 101 and 102) in the General Engineering Program: Fall 2008, Fall 2009, Spring 2009, Fall 2010.
  - Developed a section specifically for transfer students (Fall 2010) incorporating Flaga’s dimensions of transition for community college students: learning resources, connecting, familiarity, negotiating, and integrating.
- Co-taught Creative Inquiry (MSE 490) for Department of Materials Science and Engineering.
  - Mentored a team of five undergraduates in a project entitled “Assessing Society Based Outreach to University Level and Middle School Students.”

### **University of Houston Undergraduate Courses**

- Developed and piloted curriculum for multidisciplinary, project-based freshman Honors course (ENGI 1100) in 2005.
  - Course content centered around five themes: engineering problem solving, design, communication, engineering ethics, career choices and development.
- Led expansion of ENGI 1100 curriculum to four sections in Fall 2006, served as course coordinator from 2006-2008.
- Received Outstanding Lecturer Award in 2006 for ENGI 1100 curriculum development.

- Received a \$5,000 internal grant with a colleague to incorporate student response systems (“clickers”) in ENGI 1100; the first use of clickers in engineering courses at UH.
- Taught Introduction to Electrical and Computer Engineering (ECE 1100) from 2004-2005.
  - Collaborated with other faculty and professionals to integrate enhanced interpersonal and technical communication skills, engineering design, and teamwork training into the curriculum.

### Virginia Tech Undergraduate Courses

- Taught Introduction to Polymer Engineering in Department of Materials Science and Engineering (MSE 4554; senior level course): Spring 2004.
  - Developed course syllabus, lectures, and assignments.
  - Established service learning component for this course, incorporating educational outreach to local high schools.
- Taught Introduction to Polymer Engineering Laboratory (MSE 4564; senior level course): Spring 2004.
  - Developed course syllabus and laboratory experiments.
- Taught six sections of first-year engineering course, Engineering Exploration (EF 2984) in Department of Engineering Education: Fall 2003, Spring 2004
- Recognized on College of Engineering Faculty Dean’s List for Teaching, Fall 2003 and Spring 2004, based on student teaching evaluations.

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### AWARDS

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- Betty Vetter Award for Research, a national research award given by WEPAN. This award national award recognizes “outstanding achievements in research related to women in engineering” and was given for my work that “has made significant contributes to understanding intersectional experiences of women in engineering” (2017).
- Excellence in Mentoring Award; Clemson University Graduate Student Government. Selected from 50 nominations university-wide (2016).  
Distinguished Service Award, American Society for Engineering Education Educational Research and Methods Division (2016).
- Best Diversity Paper, Educational Research Methods Division, Annual American Society of Engineering Education Annual Conference and Exhibition (2015).
- Science and Technology Policy Fellowship, American Association for the Advancement of Science (2012-2013).

- Distinguished Service Award, Women in Engineering ProActive Network, (2012). The Distinguished Service Award recognizes a WEPAN member whose individual service has made a significant impact to the organization.
- Selected as a Notable Guest at the White House Champions of Change for Women & Girls in Science, Technology, Engineering and Math (2011).
- Thomas C. Evans Instructional Paper Award. Awarded by the ASEE-Southeastern Section for the best paper published in 2009. (2010).
- Honorable Mention, Benjamin S. Dasher Best Paper Award, ASEE Educational Research and Methods Division (2007; one of three honorable mentions out of 450 papers).
- Apprentice Faculty Grant Award recipient, ASEE Educational Research and Methods Division (2007).
- Distinguished Alumni Career Award, Duke Talent Identification Program (2007).
- Outstanding Lecturer Award, Cullen College of Engineering (2006).

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## PROFESSIONAL TRAINING

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- American Council on Education Regional Women's Leadership Forum. Selected as one of 12 faculty from Clemson to participate in an intensive three-day leadership program for mid-level women administrators with high potential for advancement in higher education administration (2016).
- Negotiation and Leadership, Harvard Program on Negotiation Executive Education. Certificate of completion (2012).
- AAAS Science and Technology Policy Fellow Orientation. Two weeks of interactive sessions on topics including the federal budget; the lawmaking process and path of legislation; science policy and the judiciary, legislative and executive branches; diplomacy, policy, and agency cooperation (2012).
- Symposium for Chief Staff Executives and Chief Elected Officers (Leadership, Organizational Development and Strategic Planning Training), American Society of Association Executives and the Center for Association Leadership (2008 and 2010).
- National Teaching Effectiveness Institute, Clemson's College of Engineering and Science. Nominee (2009).
- Conducting Rigorous Research in Engineering Education Workshop. (2007).