

# Nadia Kellam

Arizona State University  
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## 1. EDUCATION

- Ph.D. University of South Carolina, Mechanical Engineering, 2006.  
Dissertation: Embracing Complexity in Engineering Education
- M.E. University of South Carolina, Mechanical Engineering, 2004.
- B.S. University of South Carolina, Mechanical Engineering, 2002.
- B.S. College of Charleston, Physics, Math (Minor), 2002.

## 2. PROFESSIONAL POSITIONS HELD

- 2014-present Associate Professor, Arizona State University
- 2012-2014 Associate Professor, University of Georgia
- 2006-2012 Assistant Professor, University of Georgia

## 3. SUMMARY OF PUBLICATIONS

Key: †ASU Postdoctoral Researcher, bold font Graduate Student, \*Corresponding Author.

### a. Book Chapters Prior to ASU: 2

- 1) Hill, R. B., Kellam, N. N., & Gattie, D. K. (2008). Chapter 6: Essential Mathematics and Science Content as a Base for Understanding and Teaching Engineering Principles. In R. L. Custer & T. L. Erekson (Eds.), *Engineering and Technology Education* (Vol. 57, pp. 103-132). Ann Arbor: McGraw Hill.
- 2) Russell, J. A., Peters, W. H., Kellam (Craig), N. N., & Coull, B. C. (2005). "2.2: Systems and Ecosystems". In M. A. Abraham (Ed.), *Sustainability Science and Engineering*, Volume 1: Defining Principles. New York: Elsevier.

### b. Peer-Reviewed Journal Publications from ASU: 5

- 1) Walther, J., Sochacka, N., Benson, L., **Bumbaco, A.**, Kellam, N., Pawley, A., & **Philips, C.** (2017) Qualitative research quality – a collaborative inquiry from multiple methodological perspectives. *Journal of Engineering Education*, 106(3), 398-430.

- 2) **Cruz, J. & \*Kellam, N.** (2017). Restructuring Structural Narrative Analysis Using Campbell's Monomyth to Understand Participant Narratives. *Narrative Inquiry*, 27(1), 169-186.
- 3) **Guyotte, K.,** Sochacka, N., Costantino, T., Kellam, N., & Walther, J. (2015). Collaborative Creativity in STEAM: Narratives of Art Education Students' Experiences in Transdisciplinary Spaces. *International Journal of Education & the Arts*, 16(15), 1-38.  
[Dr. Guyotte was a Doctoral Candidate mentored and funded by Drs. Kellam, Costantino, and Walther]
- 4) **Guyotte, K.,** Sochacka, N., Costantino, T., Walther, J., & Kellam, N. (2014). STEAM as Social Practice: Cultivating Creativity in Transdisciplinary Spaces. *Art Education*, 26(6), 12-19.
- 5) Costantino, T., **Guyotte, K.,** Kellam, N. & Walther J., (2014). Seeing Experiences of Interdisciplinarity through Student Artwork: Exploring Different Approaches to Analysis. *International Review of Qualitative Research*, 7(2), 217-35.

**c. Peer-Reviewed Journal Publications Prior to ASU: 11**

- 1) Walther, J., Sochacka, N., & Kellam, N. (2013). Quality in interpretive engineering education research: Reflections on an Example Study. *Journal of Engineering Education*, 102(4), 626-59.
- 2) Kellam, N. N., Walther, J., Costantino, T., & Cramond, B. (2013). Integrating the Engineering Curriculum through the Synthesis and Design Studio. *Advances in Engineering Education*, 3(3), 1-33.
- 3) Gattie, D. K., Kellam, N. N., Schramski, J. R., & Walther, J. (2011). Engineering Education as a Complex System, *European Journal of Engineering Education*, 36(6), 521-35.
- 4) Walther, J., Kellam, N. N., Sochacka, N., & Radcliffe, D., (2011). Engineering competence? An interpretive investigation of engineering students' professional formation, *Journal of Engineering Education*, 100(4), 703-40.
- 5) Costantino, T., Kellam, N. N., Cramond, B., & Crowder, I. (2010). An interdisciplinary design studio: How can art and engineering collaborate to increase students' creativity. *Art Education*, 63(2), 49-53.
- 6) Schramski, J. R., Patten, B. C., Kazanci, C., Gattie, D. K., & Kellam, N. N. (2009). The Reynolds transport theorem: Application to ecological compartment modeling and case study of ecosystem energetics. *Ecological Modelling*, 220(22), 3225-32.
- 7) **Kelley, T. & Kellam, N. N.** (2009). A theoretical framework to guide the re-engineering of technology education. *Journal of Technology Education*, 20(2), 36-48.  
[Dr. Kelley was a Doctoral Candidate mentored by Dr. Kellam]
- 8) Kellam, N. N., Maher, M. A., & Peters, W. H. (2008). The faculty perspective on holistic and systems thinking in American and Australian Mechanical Engineering programmes. *European Journal of Engineering Education*, 33(1), 45-57.

- 9) Gattie, D. K., Kellam, N. N., & Turk, H. J. (2007). Informing Ecological Engineering through Ecological Network Analysis, Ecological Modelling, and Concepts of Systems and Engineering Ecology. *Ecological Modelling*, 208(1), 25-40.
- 10) Kellam, N. N., Maher, M., Russell, J., Addison, V., & Peters, W. H. (2007). Benchmarking the Integration of Complex Systems Study in Mechanical Engineering Programs in the Southeastern United States. *The International Journal of Mechanical Engineering Education*, 35(3), 256-70.
- 11) Donath, L., Spray, R., Thompson, N. S., Alford, E. M., Kellam, N. N., & Matthews, M. A. (2005). Characterizing Discourse among Undergraduate Researchers in an Inquiry-Based Community of Practice. *Journal of Engineering Education*, 94(4), 403-17.

**d. Manuscripts Submitted/ In Revision from ASU: 4**

- 1) †Boklage, A., †Coley, B., & \*Kellam, N. Arriving at the Finish: An exploration of the emotional trajectory of engineering undergraduates. Under review with Journal of Engineering Education.
- 2) †Coley, B., †Boklage, & \*Kellam, N. “I’m Happy Here, but I’d be More Sane There”: Exploring the Emotional Experience of Underrepresented Engineering Students during their Inaugural Year. Under review with Journal of Engineering Education.
- 3) **Cruz, J.** & \*Kellam, N. “Beginning an Engineer’s Journey: A Narrative Examination of How, When, and Why Students Choose the Engineering Major.” Under review with Journal of Engineering Education.
- 4) Kellam, N., †Boklage, A., & †Coley, B. Understanding the Identity Formation of Engineering Students Through Examining Critical Incidents Throughout the Years. Under review with Journal of Engineering Education.

**e. Manuscripts in Preparation from ASU: 4**

- 1) †Boklage, A., †Coley, B., & Kellam, N. “A Long Way Coming”—Understanding Engineering Educators’ Transformations to Student-Centered Teaching through the Hero’s Journey. (90% completed). To be submitted to the Journal of Engineering Education.
- 2) Kellam, N., †Boklage, A., & †Coley, B. Story of Change— Using experience-based critical event narrative analysis to understand an engineering program’s culture. (90% completed). To be submitted to the proposed Journal of Qualitative Engineering Education Research.
- 3) Kellam, N., **Wilson, K.**, Walther, J., & **Cruz, J.** Exploring Emotional Trajectories of Engineering Students: A Narrative Research Approach. (95% completed). To be submitted to International Journal of Engineering Education.

- 4) †Coley, B., †Boklage, A., & Kellam, N. Uncovering the Role of Emotion in Learning through Engineering Students' Narratives. (79% completed). To be submitted to the Journal of Engineering Education.

**f. Peer-Reviewed Conference Proceedings from ASU: 11**

- 1) Kellam, N., †Coley, B., & †Boklage, A. (2017). "A Long Way Coming"—Understanding Engineering Educators' Transformations to Student-Centred Teaching through the Hero's Journey. *Proceedings of the 7th Research in Engineering Education Symposium (REES)*, Bogota, Columbia.
- 2) Kellam, N., †Coley, B., & †Boklage, A. (2017). Story of change—Using experience-based critical event narrative analysis to understand an engineering program's culture. *Proceedings of the 7th Research in Engineering Education Symposium (REES)*, Bogota, Columbia.
- 3) \*Bekki, J. M., Ayela-Uwangué, A., Brunhaver, S., Kellam, N. N., & Lande, M. (2017). I Want to Try That Too! Development of a Conceptual Framework for Interventions that Encourage Pedagogical Risk-Taking Among Faculty. *Proceedings of the Educational Research Methods Division of the American Society for Engineering Education (ASEE) Intl. Mtg.*, Columbus, OH.
- 4) Lord, S., Berger, E., Ingram, E., Kellam, N., Rover, D., Salzman, N., & Sweeney, J. (2017). Talking about a Revolution: Overview of NSF RED Projects. *Proceedings of the Educational Research Methods Division of the American Society for Engineering Education (ASEE) Intl. Mtg.*, Columbus, OH.
- 5) Kellam, N. N., †Boklage, A., †Coley, B., & Walther, J. (2017). Connected Ways of Knowing: Uncovering the Role of Emotion in Engineering Student Learning. *Proceedings of the NSF Grantees Poster Session of the American Society for Engineering Education (ASEE) Intl. Mtg.*, Columbus, OH.
- 6) Lord, S., Camacho, M., Kellam, N., & Williams, J. (2017). Institutional Mentoring to Incite a Revolution through NSF's RED Program. *Proceedings of the Diversity Committee of the American Society for Engineering Education (ASEE) Intl. Mtg.*, Columbus, OH.
- 7) Kellam, N., †Boklage, A., & †Coley, B. A Narrative Inquiry Approach to Understand Engineering Students' Identity Formation, (2016), *Proceedings of the Educational Research Methods Division of the American Society for Engineering Education (ASEE) Intl. Mtg.*, New Orleans, LA.
- 8) McKenna, A., Kellam, N., Lande, M., Brunhaver, S., Jordan, S., Bekki, J., Carberry, A., & London, J. (2016). Instigating a Revolution of Additive Innovation: An Educational Ecosystem of Making and Risk Taking, *Proceedings of the NSF Grantees Poster Session of the American Society for Engineering Education (ASEE) Intl. Mtg.*, New Orleans, LA.
- 9) Lande, M. & Kellam, N. (2015). Folk Tales: Storytelling within Design Thinking Activities. *Mudd Design Workshop IX: Design Thinking in Design Education*, Claremont, CA.

- 10) \*Kellam, N., **Gerow, K.**, & Walther, J. (2015). Narrative Analysis in Engineering Education Research: Exploring Ways of Constructing Narratives to have Resonance with the Reader and Critical Research Implications. *Proceedings of the Educational Research Methods Division of the American Society for Engineering Education (ASEE) Intl. Mtg.*, Seattle, WA, Paper #13617.  
[Mrs. Gerow is a Doctoral Candidate who was funded and mentored by Dr. Kellam]
- 11) \*Kellam, N., Walther, J., **Wilson, G.**, **Gerow, K.**, & Lande, M. (2015). Uncovering the Role of Emotion in Learning through First- and Second-Year Engineering Students' Narratives. *The 6<sup>th</sup> Research in Engineering Education Symposium (REES)*, Dublin, Ireland.  
[\*Dr. Wilson and Mrs. Gerow were Doctoral Candidates that were mentored and funded by Dr. Kellam at the University of Georgia]

**g. Peer Reviewed Conference Proceedings Prior to ASU: 33**

- 1) Pawley, A., Carberry, A., Cardella, M., Carnasciali, M., Daly, Shanna, Gorlewicz, J., Hynes, M., Jordan, S., Kellam, N., Lande, M., Verleger, M., & Yang, D. (2014) The PEER Collaborative: Supporting Engineering Education Research Faculty with Near-peer Mentoring Unconference Workshops, *Proceedings of the American Society for Engineering Education (ASEE) Intl. Mtg.*, Indianapolis, IN, Paper #9048.
- 2) **Bird, S.** & Kellam, N. N. (2013). Teaching Journeys of Engineering Faculty: Stories of Transition. *Proceedings of the American Society for Engineering Education (ASEE) Intl. Mtg.*, Atlanta, GA, Paper #7744.
- 3) Sochacka, N., Guyotte, K., Walther, J., Kellam, N. N., & Costantino, T. (2013). Faculty Reflections on a STEAM-Inspired Interdisciplinary Studio Course. *Proceedings of the American Society for Engineering Education (ASEE) Intl. Mtg.*, Atlanta, GA, Paper #6555.
- 4) Walther, J., Sochacka, N., & Kellam, N. (2012). Challenges to ensuring quality in qualitative research: A procedural view. *Proceedings of the Educational Research Methods Division of the American Society for Engineering Education (ASEE) Intl. Mtg.*, San Antonio, TX, Paper #4659.
- 5) Miller, S., Walther, J., & Kellam, N. N. (2012). Social Work and Environmental Engineering: A Transdisciplinary Approach to Educating Reflective Practitioners. *Paper presented at the Council on Social Work Education 58th Annual Program Meeting*, Washington DC.
- 6) Walther, J., Miller, S., & Kellam, N. N. (2012). Exploring the role of empathy in engineering communication through a transdisciplinary dialogue. *Proceedings of the ASEE Intl. Mtg.*, San Antonio, TX.
- 7) Choi, I., Hong, Y., **Gay, M.**, Jensen, L., Park, H., Lee, Y., Gattie, D.K., & Kellam, N.N. (2012). Promoting Second-Year Engineering Students' Epistemic Beliefs and Real-World Problem-Solving Abilities through Case-Based E-Learning Resources. *Proceedings of the ASEE Intl. Mtg.*, San Antonio, TX.
- 8) Walther, J., Sochacka, N., & Kellam, N. N. (2011). Emotional indicators as a way to elicit authentic student reflection in engineering programs. *Proceedings of the*

- Educational Research Methods Division of the American Society for Engineering Education (ASEE) Intl. Mtg.*, Vancouver, BC, Paper #2056.
- 9) Kellam, N. N., Costantino, T., Walther, J., & Sochacka, N. (2011). Uncovering the Role of Emotion in Engineering Education within an Integrated Curricular Experience. *Proceedings of the ASEE Intl. Mtg.*, Vancouver, BC, Paper #2764.
  - 10) Walther, J., Kellam, N. N., Costantino, T., & Cramond, B. (2010). Integrative Learning in a Synthesis and Design Studio: A Phenomenological Inquiry. *Proceedings of the ASEE Educational Research Methods sponsored Frontiers in Education Intl. Mtg.*, Washington, DC, Paper #S2F.
  - 11) Kellam, N. N., Walther, J., Costantino, T., & Cramond, B. (2010). Integrating the environmental engineering curriculum through crossdisciplinary studios. *Proceedings of the American Society for Engineering Education Intl. Mtg.*, Louisville, KY.
  - 12) Choi, I., Hong, Y.C., Kellam, N. N., Gattie, D. K., & Gay, M. (2010). Case-based e-learning for solving real-world engineering design problems: Nurturing epistemic growth of engineering students. *Paper presented at the Association for Educational Communications & Technology (AECT)*, Anaheim, CA.
  - 13) Walther, J., Kellam, N. N., Radcliffe, D., & Boonchai, C. (2009). Integrating students' learning experiences through deliberate reflective practice. *Proceedings of the ASEE Educational Research Methods sponsored Frontiers in Education Intl. Mtg.*, Austin, TX, Paper #T3G.
  - 14) Kellam, N. N., Walther, J., & Babcock, A. (2009). Complex Systems: What Are They and Why Should We Care? *Proceedings of the Educational Research Methods Division of the ASEE Intl. Mtg.*, Austin, TX, Paper #AC2009-2125.
  - 15) Kellam, N. N., Walther, J., & Gattie, D. K. (2009). An Adaptive Response Model to Describe Emergent Engineering Education System Properties. *Proceedings of the Research in Engineering Education Symposium Intl. Mtg.*, Cairns, Australia, Paper #69.
  - 16) Walther, J., Kellam, N. N., & Radcliffe, D. (2009). Influences of the Cohort on Engineering Students' Competence Formation. *Proceedings of the Research in Engineering Education Symposium Intl. Mtg.*, Cairns, Australia, Paper #38.
  - 17) Costantino, T. E., Kellam, N. N., & Cramond, B. L. (2009). What can engineers and artists learn from each other about creativity: a preliminary study. *The American Educational Research Association*, San Diego, CA.
  - 18) Kellam, N. N. & Gattie, D. K. (2008). The Engineering Learning Environment and its Level of Complexity in an American Mechanical Engineering Program. *Proceedings of the Research in Engineering Education Symposium Intl. Mtg.*, Davos, Switzerland.
  - 19) Gattie, D. K. & Kellam, N. N. (2008). Engineering Education as a Complex System. *Proceedings of the Complexity Science and Educational Research Conference*.
  - 20) Kellam, N. N., Babcock, A., & Gattie, D. K. (2008). The Engineering Learning Environment: A Proposed Model. *Proceedings of the American Society for Engineering Education Intl. Mtg.*, Pittsburgh, PA, Paper #2008-1296.

- 21) Mativo, J. & Kellam, N. N. (2008). Responsiveness of Engineering Curricula to Cultural and Societal Changes. *Proceedings of the American Society for Engineering Education Intl. Mtg.*, Pittsburgh, PA, Paper #2008-1129.
- 22) Kellam, N. N. & Gattie, D. K. (2008). Developing a Systems Understanding of Education through Ecological Concepts. *Proceedings of the Complexity Science and Educational Research Conference*, Athens, GA.
- 23) Kellam, N. N., Gattie, D. K., & Kazanci, C. (2007). A Network Model of Distributed and Centralized Systems of Students. *Proceedings of the ASEE Educational Research Methods sponsored Frontiers in Education Intl. Mtg.*, Milwaukee, WI, Paper #F4G.
- 24) Kellam, N. N., Gattie, D. K., & Peters, W. H. (2007). Niche Construction as an Ecological Analog for Improving Educational Systems. *Proceedings of the Complexity Science and Educational Research Conference*, Athens, GA, pp. 145-155.
- 25) Kellam, N. N., Mann, L., Addison, V., Maher, M. A., Radcliffe, D., & Peters, W. H. (2006). The Faculty Perspective on the State of Complex Systems in American and Australian Mechanical Engineering Programs. *Proceedings of the Educational Research Methods Division of the ASEE Intl. Mtg.*, Chicago, IL, Paper #2006-103.
- 26) Kellam, N. N., Mann, L., Addison, V., Maher, M., Radcliffe, D., & Peters, W. H. (2006). The Student Perspective on the State of Complex Systems in Australian and American Mechanical Engineering Programs. *Proceedings of the ASEE Southeastern Section Annual Conference*, Tuscaloosa, AL, Paper #P2006011CRA.
- 27) Kellam (Craig), N. N., Addison, V., Maher, M., & Peters, W. H. (2005). Integrating Complex Systems Study into the Freshman Mechanical Engineering Experience. *Proceedings of the American Society for Engineering Education Intl. Mtg.*, Paper #22035.
- 28) Kellam, N. N., Russell, J. A., Maher, M., & Peters, W. H. (2005). Benchmarking the Integration of Complex Systems Study in Southeastern Mechanical Engineering Programs. *Proceedings of the American Society for Engineering Education Southeastern Section Annual Conference*, Paper #P2005182CRA.
- 29) Kellam (Craig), N. N., Thompson, N. S., Donath, L., & Matthews, M. (2005). Incorporating Complexity into Undergraduate Engineering Development through the Research Communications Studio. *Proceedings of the American Society for Engineering Education Conference Intl. Mtg.*, Paper #22009.
- 30) Russell, J. A., Maher, M. A., Kellam (Craig), N. N., & Peters, W. H. (2004). Embracing Complexity in Engineering Education at Southeastern Universities. *Proceedings of the ASEE Southeastern Section Annual Conference*, Paper #P2004103.
- 31) Kellam (Craig), N. N., Maher, M. A., & Peters, W. H. (2003). Recipe for Complexity: A Freshman Learning Experience. *Proceedings of the American Society for Engineering Education Conference Intl. Mtg.*, Paper #18408.
- 32) Kellam (Craig), N. N., Addison, V., Maher, M., & Peters, W. H. (2005). Benchmarking the Integration of Complex Systems Study in American and Australian Mechanical Engineering Programs. *Proceedings of the Global Colloquium of Engineering Education Intl. Mtg.*, Sidney, Australia.

33) Kellam (Craig), N. N., Thompson, N. S., & Donath, L. (2005). Incorporating Complexity into Undergraduate Engineering Development through the Research Communications Studio. *Paper presented at the Global Colloquium of Engineering Education Intl. Mtg.*, Sidney, Australia.

#### **4. SUMMARY OF PROFESSIONAL ACTIVITIES AND SERVICE:**

##### **a. Editor at ASU**

Associate Editor for Journal of Engineering Education, 2016-present.

##### **b. Editor Prior to ASU**

Complexity Science in Educational Research Conference Proceedings, 2008.

##### **c. Peer-Review Service for 6 journals**

Journal of Engineering Education  
International Journal of Engineering Education  
Ecological Modelling  
Engineering Studies  
Complicity  
Narrative Inquiry

##### **d. Conference Proceeding Refereeing**

Frontiers in Education  
American Society of Engineering Education  
Research in Engineering Education Symposium

##### **e. Service to Professional Society**

ASEE, Educational Research and Methods, Apprentice Faculty Grants Committee  
Chair, 2015-16.

ASEE, Educational Research and Methods, Apprentice Faculty Grants Committee  
Co-Chair, with Samantha Brunhaver, 2016-17.

##### **f. Other Prior to ASU**

Science as Art Exhibit Judge, Clemson University, 2010, 2011, 2012.

##### **g. Moderator**

Frontiers in Education  
American Society of Engineering Education  
Research in Engineering Education Symposium

##### **h. Proposal Review Service for National Science Foundation**



IUSE/ Professional Formation of Engineers: Revolutionizing Engineering Departments (RED) (2016, 2017)  
Research in Engineering Education Program (2011, 2012, 2013)  
Course, Curriculum, and Laboratory Improvement (2007)

**i. Faculty Mentor**

American Society for Engineering Education Educational Research Methods  
Division Apprentice Faculty Grant Mentor ERM Faculty Fellow Mentor (2009,  
2012)

**j. Engineering Schools-level Committees: 1**

2015-17 Ira A. Fulton Schools of Engineering Dean's Executive Committee

**k. School and Program Committees: 2**

2016-present EESD Executive Committee

2015-16 Chair of Faculty Search Committee for Engineering Education Faculty  
Position

2014-15 Co-Chair of Faculty Search Committee for Design Education and  
Learning Systems Position

**l. Other Service: 2**

2016 Expert/ Advisory Board Member for grant proposal: Scaffolding  
Engineering Students' Ability to Address Wicked Problems: Exploring  
Cognitive, Metacognitive and Affective Strategies, Submitted to  
Swedish National Science Foundation, PI: Magdalena Svanström.

2017 Expert/ Advisory Board Member for grant proposal: Challenges and  
opportunities of ontological diversity in engineering education in  
relation to the ability to deal with (wicked) sustainability problems,  
Submitted to Swedish National Science Foundation, PI: Magdalena  
Svanström.

**m. University-level Committees Prior to ASU**

2014 University of Georgia Gender Equity Committee

**n. College and Department-level Committees Prior to ASU**

2013-14 College of Engineering Graduate Advisory Committee

2013-14	College of Engineering Curriculum Committee
2012-14	Mechanical Engineering Curriculum Committee, Coordinator for the Design and Professional Spines
2012-13	College of Engineering Dean Search Committee
2010-present	ABET Accreditation Faculty Committee, Faculty Liaison for ABET and engineering education questions or concerns
2010	Center for Undergraduate Research Opportunities (CURO)-Engineering committee member
2009	Mechanical Engineering Degree Proposal Committee, Chair to the committee to prepare documentation for the Bachelors of Science degree in Mechanical Engineering for the Board of Regents
2009	Agricultural Engineering Curriculum Committee
2008	Engineering Education Faculty Search Committee
2007, 2008	Environmental Engineering Faculty Search Committees
2006-13	Environmental Engineering Curriculum Committee

**o. Other Service Prior to ASU**

2013-14	Creativity Certificate Advisory Board Member
2013-14	Lilly Teaching Fellows Mentor
2012-13	Lilly Teaching Fellows Mentor
2010-present	Ideas for Creative Explorations (ICE) Advisory Board Member
2009-10	Creative Strategies Faculty Development Workshop Series

**5. SUMMARY OF RESEARCH SUPPORT:**

**Total Approved External Funding at ASU: 6**

- 2017-20 The untapped community: Community colleges as an opportunity to broaden participation in engineering, National Science Foundation, Nadia Kellam (PI), Brooke Coley (co-PI), \$399,388.
- 2016-19 Value through the Voices: Exploring Making and its Impact on Engineering Identity Formation of Underrepresented Groups, National Science Foundation, Nadia Kellam (PI), Brooke Coley (co-PI), 100%, \$599,905.
- 2015-20 IUSE/PFE: RED: Additive Innovation: An Educational Ecosystem of Making and Risk Taking, National Science Foundation, \*Ann McKenna (PI), Nadia Kellam (co-PI), Micah Lande (co-PI), Samantha Brunhaver (co-PI), Shawn Jordan (co-PI), Jennifer Bekki, Adam Carberry, & Jeremi Lonon, 14%, \$1,993,593.
- 2015-16 “A Long Way Coming”—Understanding Engineering Educators’ Transformations to Student-Centered Teaching, National Science Foundation, Nadia Kellam, PI, 100%, \$183,564 at ASU (original award at UGA: \$400,000).

[This grant was initially awarded at UGA in 2013 and was transferred to ASU.]

2015-16 Connected Ways of Knowing: Uncovering the Role of Emotion in Engineering Student Learning, National Science Foundation, \*Nadia Kellam, PI, 100%, \$138,783 at ASU (original award at UGA: \$300,000).

[This grant was initially awarded at UGA in 2012 and was transferred to ASU.]

2015-16 University of Washington, Consortium to promote reflection in engineering education, PI, \$3,300.

**a. Total Approved External Funding as PI at ASU: 5**

2017-20 The untapped community: Community colleges as an opportunity to broaden participation in engineering, National Science Foundation, 100%, \$399,388.

2016-19 Value through the Voices: Exploring Making and its Impact on Engineering Identity Formation of Underrepresented Groups, National Science Foundation, 100%, \$599,905.

2015-16 “A Long Way Coming”—Understanding Engineering Educators’ Transformations to Student-Centered Teaching, National Science Foundation, 100%, \$183,564 at ASU (original award at UGA: \$400,000).

[This grant was initially awarded at UGA in 2013 and was transferred to ASU.]

2015-16 Connected Ways of Knowing: Uncovering the Role of Emotion in Engineering Student Learning, National Science Foundation, 100%, \$138,783 at ASU (original award at UGA: \$300,000).

[This grant was initially awarded at UGA in 2012 and was transferred to ASU.]

2015-16 University of Washington, Consortium to promote reflection in engineering education, 100%, \$3,300.

**b. Total External Funding Prior to ASU: 6**

2013-14 “A Long Way Coming”—Understanding Engineering Educators’ Transformations to Student-Centered Teaching, National Science Foundation, Nadia Kellam, Joachim Walther, Kathleen deMarrais, Stephan Durham, \$400,000.

[This grant was initially awarded at UGA in 2014 and was transferred to ASU.]

2012-14\* Connected Ways of Knowing: Uncovering the Role of Emotion in Engineering Student Learning, National Science Foundation, Nadia Kellam, Joachim Walther, Tracie Costantino, \$300,000.

[This grant was initially awarded at UGA in 2012 and was transferred to ASU.]

2011-12 Establishing a PEER Collaborative Network for Engineering Education Researchers, National Science Foundation, \*Nadia Kellam, \$50,000.

2010-13 Making Connections: A Theory of Synergistic Learning in Engineering, National Science Foundation, \*Joachim Walther, Nadia Kellam, \$400,000.

2009-12 Synthesis of Engineering and Art for Innovative Education, National Science Foundation, \*Nadia Kellam, Tracie Costantino, Bonnie Cramond, \$149,999.

2009-12 Case-Based E-Learning for Solving Real-World Engineering Design Problems: Nurturing Epistemic Growth for Second Year College Students, National Science Foundation, \*Ikseon Choi, Nadia Kellam, \$150,000.

**c. Total Internal Funding Prior to ASU: 12**

- 2013-14 Building Creative Confidence in Mechanical Engineering Students through the IM Creative Studio, UGA Office of STEM, PI, \$9,000.
- 2013-14 3D Printing and Maker Learning Communities in the First Year Mechanical Engineering Program: Encouraging Retention and Professional Identity Development, Innovative Instruction Faculty Grant, UGA, PI, \$5,000.
- 2011-12 Reflection as a way of integrating student learning across Science, Technology, Engineering and Math, UGA Office of STEM, \$9,000.
- 2011-12 Exploring multi-modal methodologies to investigate synergistic learning in engineering and art, ICE Project Development Grants, Ideas for Creative Exploration (UGA), co-PI, \$500.
- 2010-11 STEAM: Integrating the Arts into STEM through a Stop-motion Animation Lesson, UGA Office of STEM, PI, \$5,256.
- 2010 Exploring student development in the ‘third space’ between art and engineering, ICE Project Development Grants, Ideas for Creative Exploration (UGA), co-PI, \$2,500.
- 2009-10 Preparing Engineering Students to be Global Citizens with Case-Based E-Learning Technology, UGA Learning Technology Grant, PI, \$30,000.
- 2008-09 Engineering Mechanics in Performing Arts: Linking Engineering and Music Students, Lowry H. Gillespie, Jr. Engineering Curriculum Enhancement Award, co-PI, \$2,500.
- 2008-09 Lilly Teaching Fellows Grant, UGA Center for Teaching and Learning, PI, \$2,000.
- 2008-09 Integrating Creativity into Engineering Education through a Cross-Disciplinary Design Course, UGA Office of STEM, PI, \$8,000.
- 2008-09 Understanding Why They Leave, UGA Office of STEM, co-PI, \$8,000.
- 2006-07 Systems Based Engineering Education: Exploring Distributed Cognition, UGA OVPR, Junior Faculty Research Grant, PI, \$1,600.

**d. Invited Talks Prior to ASU**

- 2014 Kellam, N. Keynote address: Taking Risks and Transcending Disciplinary Boundaries, Athens, GA, Interdisciplinary Research Conference.
- 2014 Kellam, N. N. TEDxUGA Presentation: Cutting Away to a Fulfilling Life, Invited TEDxUGA Speaker, March 2014.
- 2013 Kellam, N. Transitioning to Active Learning Strategies, Mesa, AZ, Arizona State University.

- 2013 Kellam, N. N. Making connections: An engineering education research project on synergistic learning, how findings from this project are informing practice, and what this type of research means for you, Invited Seminar Speaker, University of South Carolina, Columbia, SC.
- 2013 Kellam, N. N. & Walther, J. Exploring Connected Ways of Knowing and Uncovering the Power of Connections to Construct our Professional Identities, Invited Seminar Speaker, Virginia Polytechnic University, Blacksburg, VA.
- 2009 Kellam, N. N. & Walther, J. The Pathways of an Engineering Education Project from Pilot Implementations to Theory Building. Invited Seminar at the Engineering Education Graduate Seminar Series, Virginia Tech Department of Engineering Education and Clemson University Department of Engineering Science Education.
- 2009 Kellam, N. N. Emergence, Adaptability, and Open Boundaries: Complex Systems as a Unifying Perspective for Engineering Education. Invited Seminar to the School of Engineering at Purdue University, West Lafayette, IN.

#### **e. Conference Activity**

##### **1. Conferences Organized at ASU**

- 2016 Camacho, M., Kellam, N., & Lord, S. (2016). Online workshop with over 300 attendees and available online. Proposing a revolution – Lessons learned in designing RED projects. Assisted in grant writing for NSF workshop funds, Facilitator for pre-conference workshop. Led the session, “What is Revolutionary and Not-so-Revolutionary? Hypothetical Cases.
- 2015 PEER Collaborative Network Conference for Early Career Tenure-Track Faculty with Promotion and Tenure Consideration based on Engineering Education Research, Seattle, WA.

##### **2. Conferences Organized Prior to ASU**

- 2014 PEER Collaborative Network Conference for Early Career Tenure-Track Faculty with Promotion and Tenure Consideration based on Engineering Education Research, West Lafayette, IN.
- 2013 PEER Collaborative Network Conference for Early Career Tenure-Track Faculty with Promotion and Tenure Consideration based on Engineering Education Research, Atlanta, GA.
- 2011 PEER Collaborative Network Conference for Early Career Tenure-Track Faculty with Promotion and Tenure Consideration based on Engineering Education Research, Athens, GA.
- 2008 5th International Complexity Science and Educational Research (CSER) conference.

### **3. Panels at ASU**

- 2017 Spring 2017 TPS Faculty Mentorships series, Panel on Publishing.
- 2017 Interdisciplinarity! Panel presentation/ talk show, Tempe, Arizona, Sponsored by the LLT Program Committee.
- 2016 Interdisciplinarity! Panel presentation/ talk show, Tempe, Arizona, Sponsored by the LLT Program Committee.

### **4. Panels Prior to ASU**

- 2014 Kellam, N. N. How to be a Successful Professional in Academe & Industry, Panel member at the American Society for Engineering Education Annual Conference and Exposition, Indianapolis, IN.
- 2011 Kellam, N. N. Student Constituent Committee/ New Engineering Educators Roundtable Panel, Panel member at the American Society for Engineering Education Annual Conference and Exposition, Vancouver, BC.
- 2009 Kellam, N. N. Engineering Education at the University of Georgia. Presentation to the Mumbai Sheriff's Education Delegation Visit, Athens, GA.
- 2007 Kellam, N. N., Moore, T., Varnado, T. Castillo, M., & Dischino, M. Doctoral Student Transitioning to University Professor. Invited Panelist for the National Center for Engineering and Technology Education, Urbana-Champaign, IL.
- 2007 Kellam, N. N. ...To Life Assignments. Invited Presentation in the Have You Tried...? The Sequel Special Session, Frontiers in Education, FIE Special Session, Milwaukee, WI.

### **5. Summer Schools/ Workshops/ Symposia at ASU: 4**

- 2017 Kellam, N. & Coley, B. (2017). Three day workshop to 80 engineering faculty from Ho Chi Minh University of Technology, Inclusive Maker Pedagogies and the Power of Story for Innovative Engineering Education, Can Tho, Vietnam.
- 2016 Walter, M.C., Kellam, N., & Lord, S. RED Workshop to Plan for Webinar, University of San Diego, San Diego, CA.
- 2015 Bekki, J. & Kellam, N. (2015). Workshop to Department of Biological and Chemical Engineering Faculty, Additive Innovation: An Educational Ecosystem of Making and Risk Taking, University of New Mexico, Albuquerque.
- 2015 Kellam, N. & McKenna, A. (2015). RED Teaching and Learning Nexus Workshop 1: Seeding a Revolution, December 11, 2015, ASU Polytechnic School.

### **6. Summer Schools/ Workshops/ Symposia Prior to ASU**

- 2012 Walther, J., Sochacka, N., & Kellam, N. Qualifying Qualitative Research Quality (the Q3 Project): A Conversation for Engineering Education Researchers Workshop presented at the 2012 Australasian Association for Engineering Education (AAEE) Annual Conference. Melbourne, Australia.
- 2009 UGA Academic Affairs Faculty Symposium, The Challenged University: Communication and Collaboration in Good and Bad Times, Helen, GA.
- 2009 University System of Georgia Science, Technology, Engineering, and Math (STEM) Institute, Stone Mountain, GA.
- 2008 UGA Faculty Symposia, Enhancing Faculty Impact Through Engagement and Renewal, Dillard, GA.
- 2007 UGA Academic Affairs Faculty Symposium, Engancing the Undergraduate Experience through Discovery, Engagement, Transformation, and Reflection, Helen, GA.
- 2007 National Effective Teaching Institute, Honolulu, HI.
- 2006 UGA Academy of the Environment Symposium, October 23-24, Athens, GA.

#### **7. Campus and Departmental Talk at ASU: 1**

- 2016 The Role of Emotions in Student Learning, Evidence-based teaching in STEM seminar and workshop.

#### **8. Campus and Departmental Talks Prior to ASU**

- 2012 Kellam, N. N., & Walther, J. Interdisciplinary Research Projects: What Are They and How Do They Emerge? CURO Gateway Seminar: Introduction to Research in the Arts. UGA CURO, Athens, GA.
- 2009 Costantino, T. C., Kellam, N. N., & Cramond, B. The Impacts of an Interdisciplinary Engineering and Art Design Studio on Creativity. Invited Keynote, Foundations for Art Theory and Education ThinkTank4, Athens, GA.
- 2009 Kellam, N. N. (2009). Messy Problems—Why Engineering Needs the Humanities. Invited Keynote, High School Science Fair, Athens, GA.
- 2009 Kellam, N. N. & Walther, J. Engineering education research: What is it and why should we care? Invited Presentation at the Georgia Society of Professional Engineers, Northeast Chapter Meeting, Athens, GA.
- 2008 Kellam, N. N. (2008). Integrating Complex Systems in Engineering Education. Seminar to UGA Graduate Students, Athens, GA.

#### **9. Conference Presentations (without accompanying proceedings) at ASU: 2**

- 2017 †Coley, B., †Boklage, A., & Kellam, N. (2017). Narrative smoothing and constructing in the wild: Navigating the space of co-constructing narratives

for analysis. In American Educational Research Association Annual Meeting, San Antonio, TX.

- 2016 **Cruz, J.** & Kellam, N. (2016). "Doing" Narratology: Drawing on Literary Theory for Structural Analysis of Narratives. Paper Session: Exploring Methodological Issues in Narrative Research, American Educational Research Association Annual Meeting, Washington, DC.

#### **10. Conference Presentations (without accompanying proceedings) Prior to ASU: 15**

- 2014 Steacy, C., Walther, J., Costantino, T., & Kellam, N. "Where do the words come from? Discourse analysis and the neglected subject." Tenth International Congress of Qualitative Inquiry. University of Illinois at Urbana-Champaign. May 22-24, 2014. Conference Presentation.
- 2014 Guyotte, K., Walther, J., Kellam, N., & Costantino, T. "Residing In-Between: A Visual-Verbal Narrative Inquiry into Student Experiences in a Transdisciplinary Design Studio." Tenth International Congress of Qualitative Inquiry. University of Illinois at Urbana-Champaign. May 22-24, 2014. Conference Presentation.
- 2012 Costantino, T., Guyotte, K., Kellam, N., & Walther, J. "Seeing Experiences of Interdisciplinarity through Student Artwork." Eighth International Congress of Qualitative Inquiry. University of Illinois at Urbana-Champaign. May 16, 2012. Conference Presentation.
- 2012 Walther, J., Sochacka, N., & Kellam, N. N. A Quality Framework for Interpretive Engineering Education Research. Poster presented at the National Science Foundation - Engineering Education Awardees Conference, Washington, DC.
- 2012 Kellam, N. N., Walther, J., **Bird, S.**, Costantino, T., & **Guyotte, K.** Making Connections: A Theory of Synergistic Learning in Engineering. Poster presented at the National Science Foundation - Engineering Education Awardees Conference, Washington, DC.
- 2012 Walther, J., Sochacka, N., **Reyes, E. M.**, & Kellam, N. N. Emotional Indicators - Eliciting Authentic Student Reflection in Engineering Programs. Presentation to the 2012 Regional STEM Institute of Teaching and Learning Conference. Athens, GA.
- 2010 Crowder, I., Cramond, B., Costantino, T., & Kellam, N. N. Synthesis of creativity, art, and engineering: An interdisciplinary journey, Presented at the National Association of Gifted Children annual conference, Atlanta, GA.
- 2010 Choi, I., Hong, Y.-C., Kellam, N. N., Gattie, D. K., & **Gay, M.** A Case-Based E-Learning Environment for Solving Real-World Engineering Design Problems. Design & Development Showcase presented at the annual conference of the Association for Educational Communications & Technology (AECT), Anaheim, CA.



- 2010 Choi, I., Hong, Y.-C., Kellam, N. N., Gattie, D. K., & **Gay, M.** Ongoing design of a case-based e-learning system promoting engineering students' personal epistemology and real-world problem solving abilities. Research/Technical Showcase presented at the E-Learn 2010 - World Conference on E-Learning in Corporate, Government, Healthcare & Higher Education, Orlando, FL.
- 2010 Kellam, N. N., Costantino, T., Cramond, B., Walther, J. & **Crowder, I.** Synthesis of Engineering and Art for Innovative Education: Creating an Interdisciplinary Curriculum, American Association for the Advancement of Curriculum Studies Conference, Denver, CO.
- 2010 Costantino, T., Kellam, N. N., Cramond, B., Walther, J., & **Crowder, I.** The synthesis of engineering and art for innovative education: Preliminary findings. Peer-reviewed paper presented at the American Educational Research Association, Denver, CO.
- 2005 Addison, V., Kellam (Craig), N. N., Wilson, D. K., & Peters, W. H. Using the Built Environment to Alter Human Energy Expenditure. Presented at the International Society for Behavioral Nutrition and Physical Activity 4th Annual Conference, Amsterdam, The Netherlands.
- 2004 Russell, J. A., Kirtland, K., Wilson, D. K., Kellam (Craig), N. N., Addison, V., & Peters, W. H. A Comparison of Slowly-Evolving Versus Rapidly-Evolving Cities on Prevalence of Obesity and Physical Activity. Presented at the International Society for Behavioral Nutrition and Physical Activity 3rd Annual Conference, Washington, DC.
- 2003 Kellam (Craig), N. N. A 'Picture Show' of Energy Flow in South Carolina. Poster presented at the Green Engineering: Defining the Principles Conference, Sandestin, FL.
- 2003 Peters, W. H., Russell, J. A., & Kellam (Craig), N. N. A Discussion of the First Principles for Green Engineering. Presented at the Green Engineering: Defining the Principles Conference, Sandestin, FL.

## 6. SUMMARY OF TEACHING SUPPORT

### a. Awards and Honors Prior to ASU: 3

- 2013 Frontiers of Engineering Education Faculty Member, National Academy of Engineering.
- 2007 Center for the Advancement of Scholarship on Engineering Faculty Fellow, National Academy of Engineering.
- 2007-09 Lilly Teaching Fellow, University of Georgia, Center for Teaching and Learning.

### b. Design Courses Taught at ASU: 3

- EGR 202: User-Inspired Design Project II (Sp15, Sp16)  
 EGR 201: User-Inspired Design Project I (F14)

**c. Engineering Fundamental Courses Taught at ASU: 5**

EGR217: Engineering Mechanics (F15, Sp16, F16, F17)  
MET230/300: Materials Science (F15)

**d. Design Courses Taught Prior to ASU: 13**

Mechanical Engineering Design Studio (Sp14, 3 sections)  
Synthesis and Design Studio: Systematic ways of understanding and working in complex socio-technical systems, Environmental Engineering, 1<sup>st</sup> and 2<sup>nd</sup> year students, 6 contact hours per week (Sp09, Sp11, Sp13)  
Synthesis and Design Studio Seminar (F10, F11, F12)  
Synthesis and Design Studio: Engineers, technology and the social – exploring relationships in socio-technical systems, Environmental Engineering, 1st and 2nd year students, 6 contact hours per week (Sp10, Sp12)  
Interdisciplinary Synthesis and Design Studio: Environmental Engineering and Studio Art, 6 contact hours per week (F09)  
Senior Design, Agricultural Engineering (Sp08)

**e. Engineering Fundamental Courses Taught Prior to ASU: 9**

Principles of Systems Engineering (F11, F12)  
Dynamics (Sp07, Sp08, Sp09)  
Computational Engineering Methods, 1<sup>st</sup> year students (F07 2 sections, F08 2 sections)

**f. Study Abroad: 1**

Faculty mentor, Nepal--Grassroots Innovation for Sustainable Development, EGR 494, 12 students from ASU and 5 students from Institute of Engineering in Kathmandu, Nepal.

**g. Other Courses at ASU: 1**

ASU 101 (F16)

**h. Other Courses Prior to ASU: 1**

First Year Odyssey Seminar, STEAM: Integrating the Arts into STEM (F11)

**i. Graduate Courses at ASU: 3**

EGR671: Application of Qualitative Methods for Engineering Education Research (Sp17)  
EGR565: Qualitative Methods for Engineering Education Research (F16, F17)

**j. Graduate Courses Prior to ASU: 2**

Introduction to Engineering Education Research (F11)  
Theories of Learning and Human Development in Contemporary Engineering Education Research (Sp12)

**7. SUPERVISION OF STUDENTS**

**a. Postdoctoral Advisor**

Audrey Boklage, PhD. (Fall 2015 to present)  
Brooke Coley, PhD. (Fall 2015 to Summer 2017, Assistant Professor at ASU)  
Anna Cirell (begins Fall 2017)

**b. Doctoral Thesis Advisor**

Sandy Bird, Department of Biological and Agricultural Engineering, ABD

**c. Doctoral Thesis Committee**

Kelly Guyotte, PhD, Department of Art Education, Lamar Dodd School of Art, Graduated in 2014, Assistant Professor at University of Alabama  
Gregory Wilson, PhD, Learning, Design, and Technology, College of Education, Graduated in 2015.  
Larry Brumback, Department of Mathematics Education  
Eliana Rozo Meves, Department of Biological and Agricultural Engineering  
Melissa Gay, Department of Educational Psychology and Instructional Technology  
Isabelle Crowder, Department of Educational Psychology and Instructional Technology, College of Education, Graduated in 2011  
H. Jeff Turk, College of Agricultural and Environmental Sciences, Biological and Agricultural Engineering Department, Graduated in 2013  
NaJuana Lee, School of Art, Art Education, Graduated in 2011

**d. Masters Thesis Committee**

Tyler Niles, College of Agricultural and Environmental Sciences, Biological and Agricultural Engineering Department

**e. Doctoral Student Mentoring**

Anna Cirell, Mary Lou Fulton Teachers College, Learning, Literacies and Technologies

Joshua Cruz, Mary Lou Fulton Teachers College, Learning, Literacies and Technologies

Karen Gerow, School of Art, Art Education Program

Chad Steacy, Department of Geography

Todd Kelley, College of Education, Technology Education, Graduated May 2008,

Assistant Professor at Purdue University

Cameron Denson, College of Education, Technology Education, Graduated August 2008,

Postdoctoral Researcher at Utah State University

**e. Undergraduate Student Mentoring**

2012-2014 Julie Chambers, Undergraduate Researcher.

2012-2013 Olivia Gorbatkin, Undergraduate Researcher, presented at UGA's Center for Undergraduate Research Opportunities Symposium (CURO), 2013.

2006-2012 Academic Advisor to 25 students per semester.

2007-2010 Ashley Babcock, Undergraduate Researcher, presented at UGA's Center for Undergraduate Research Opportunities Symposium (CURO), 2008; Attended and presented at the American Society for Engineering Education (ASEE), 2008; Awarded an NSF Graduate Research Fellowship in Spring 2010.

2009-2010 Steven Joiner, Undergraduate Researcher

2009-2010 Robin Moore, Undergraduate Researcher

2009 James Dimitroff, Undergraduate Researcher

**8. PROFESSIONAL SOCIETY MEMBERSHIP**

American Society for Engineering Education

American Educational Research Association

Pi Tau Sigma, Mechanical Engineering Honor Society

Tau Beta Pi, Engineering Honor Society