DIANE SILVA PIMENTEL

Distinguished Senior Lecturer, STEM Education
Department of Education | Brown University

EDUCATION

Boston College: Chestnut Hill, MA — Dec. 2012
Ph.D., Curriculum and Instruction: Science Education
M.S T., Curriculum & Instruction/Specializing in Biology — Dec. 1995

Brown University: Providence, RI
Sc.B., Biology with Honors — May 1993

PROFESSIONAL EXPERIENCE

Brown University: Providence, RI — 2017 - Present
Teaching Professor/Distinguished Senior Lecturer (2024 – Present)
Senior Lecturer (2020-2024)
Associate Professor of Practice 2017-2020)

Courses Taught
EDUC 0900 – Fieldwork and Seminar in Secondary Education
EDUC1675/EDUC 2500 – Principles/Foundations of Teaching and Learning
EDUC 1900 – Senior Seminar
EDUC 2510C, 2520C, 2530C – Educational Theory and Practice I, II, & III– Science Methods
EDUC 2515 – Learning Theory and Special Populations
EDUC 2565 – Fall Practicum and Seminar
EDUC 2575 – Student Teaching and Seminar

Director of the Teacher Education Program — 2017 – 2023
Led redesign of the program
Led preparations for Rhode Island Department of Education PREP-RI (Program) Review (May 2022)
MAT Program Received Approval with Distinction

University of New Hampshire: Durham, NH — 2014 - 2017
Assistant Professor, STEM Education

Courses Taught
EDUC 703/803: Teaching Elementary School Science
EDUC 791/891: Methods of Teaching Secondary School Science
EDUC 897: Special Topics in Education: Next Generation Science Standards and Best Practices
EDUC 998: STEAM: Integrating STEM with the Music and Arts Curricula

Boston College, Chestnut Hill, MA
Graduate Student Research Assistant — 2007 – 2011
Instructor: ED 300: Secondary and Middle School Science Methods

Lincoln High School: Lincoln, RI — 2000 – 2014
Science Teacher
Courses taught: A.P. Biology, Biology, Foundations of Physics, Bioethics, and Environmental Science

REFEREED JOURNAL ARTICLES

Jin, K. & **Pimentel, D. S.** (2020). Using recorded online meetings to support remote PD program for UAV drones. *Teaching, Technology, and Teacher Education During the COVID-19 Pandemic: Stories from the Field*. Association for the Advancement of Computing in Education (AACE). pp. 695-698.

Pimentel, D. S. (2017). Female undergraduate engineering students' perspectives on laboratory experiences: The complexity of social, role, and self-identities. *Journal of Women and Minorities in Science and Engineering*, *23*(4), 303-321

Pimentel, D. S. & McNeill, K. L (2016). Secondary science students' beliefs about class discussions: A case study comparing and contrasting academic tracks. *International Journal of Science Teaching*, *38*(12), 2047-2068.

Pimentel, D. S., & McNeill, K. L. (2013). Conducting talk in science classrooms: Investigating instructional moves and teacher beliefs. *Science Education, 97,* 367-394*.*

McNeill, K. L., **Pimentel, D. S.,** & Strauss, E. (2013). The impact of high school teachers' beliefs, curricular enactments and experience on learning during an inquiry-based urban ecology curriculum. *International Journal of Science Education, 35(15),* 2608-2644.

Price, J. F., **Pimentel, D. S**., McNeill, K., Barnett, M., & Strauss, E. (2011). Science in the 21st century: More than just the facts. *The Science Teacher, 78(7),* 36-41.

McNeill, K. L., & **Pimentel, D. S.** (2010). Scientific discourse in the urban classrooms: The role of the teacher in engaging high school students in argumentation. *Science Education, 94,* 203-229.

EDITED BOOKS

Pimentel, D. S. & Terrell, K. L (Eds.). (2026). Science Education and Culturally Sustaining Pedagogies: Research, Practices, and Critical Reflections New York: IGI Global.

Terrell, K. L. & **Pimentel, D. S.** (Eds.). (2026). STEM Education and Culturally Sustaining Pedagogies: Research, Practices, and Critical Reflections. New York: IGI Global.

BOOK CHAPTERS

Pimentel, D. S. (2026). A critical reflection on the nature of science construct: A call for worldview integration. In D. S. Pimentel & K. L. Terrell (Eds). Science Education and Culturally Sustaining Pedagogies: Research, Practices, and Critical Reflections (pp. 43 – 68). New York: IGI Global.

Pimentel, D. S. (2026). A heuristic model for the preparation of culturally sustaining STEM teachers. In K. L. Terrell & D. S. Pimentel (Eds). STEM Education and Culturally Sustaining Pedagogies: Research, Practices, and Critical Reflections (pp. 311-346). New York: IGI Global.

Reagan, E. M., Coppens, A. D., Couse, L. J., Hambacher, E., Lord, D., McCurdy, K., & **Pimentel, D. S.** (2018). Toward a conceptual framework for designing and implementing the teacher residency for rural education. In M. Reardon & J. Leonard (Eds.), Innovation and Implementation in Rural Places: School-University-Community Collaboration in Education (pp. 81-106). Charlotte, NC: Information Age Publishing.

GRANTS

Principal Investigator: Teaching High School Students about Autonomous Aerial Robots. Brown University Office of the Vice President for Research Seed Award. $98,000. 2021. Other Co-Principal Investigator: Stefanie Tellex, Brown University.

Contributor. Collaborative Research: The Rules of Predation: Linking Biomechanics and Ecology in the Bat-Insect Arms Race. National Science Foundation. $239,750. July 2019 – July 2023. I supported the curriculum development associated with this project. Principal Investigator: Sharon Swartz, Brown University

Evaluator. United States Regional GLOBE Science Fairs. $338,810. National Science Foundation. July 2015 – June 2016. This project established regional science fairs throughout the United States focusing on the use of Global Learning and Observations to Benefit the Environment (GLOBE) data. The conference included online professional development for teachers specifically targeting science practices. Principal Investigator: Jennifer Bourgeault, University of New Hampshire.

Principal Investigator. Integrating Technology and Mathematics Instruction in PreK-2. $25,000 Community Grant, New Hampshire Charitable Foundation. January 2016 – December 2016. The project will employ online learning and discussion in conjunction with face-to-face peer collaboration and facilitator coaching to explore best practices in development and learning as well as research-based mathematics instruction. The project provided professional development opportunities in geographic areas of the state that are currently underserved. Other Co-Principal Investigator: Brandie Bolduc, Department of Education, UNH.

Co-Principal Investigator. ***Teacher-Engineer Summer Scholar Academy.*** $10,000 Engagement STEM Partnership University of New Hampshire Vice Provost Office. May 2015 – June 2016 This project focuses on creating and supporting partnerships between middle school science teachers and professional engineers to encourage the implementation of more engineering instruction in middle school classes. Other Co-Principal Investigators: Dr. Erin Bell, College of Engineering and Physical Sciences, UNH and Dr. Mihaela Sabin, STEM Discovery Lab Director, UNH-Manchester.

Principal Investigator. ***Factors Influencing the Pursuit and Persistence of Females in Undergraduate Engineering Degrees.*** $550 Gender Research Grant, Department of Education, UNH. June 2015 – September 2015. This research study investigates the factors that seem to influence females' decisions to enter the engineering major and factors that support their persistence.

CONFERENCE PAPERS AND PRESENTATIONS

Pimentel, D. S. (October, 2023). We are all born scientists…but no communicating like scientists! Invited Colloquium speaker presented Georgia Teachers of English to Speakers of Other Languages Conference, Atlanta, GA

Pimentel, D. S. (May, 2018). Early childhood and elementary education teacher preparation in mathematics: Unexplainable variation. Paper presented at the annual meeting of the New England Education Research Organization, Portsmouth, NH.

Pimentel, D. S. (March, 2018). Early childhood and elementary education teacher preparation in Science: variations in content and methods. Paper presented at the annual meeting of the National Association for Research in Science Teaching. Atlanta, GA.

Pimentel, D. S. (April, 2017). Creating successful middle school teacher-professional engineering partnerships to support NGSS. Paper presented at the annual meeting of the National Association for Research in Science Teaching, San Antonio, TX.

Pimentel, D. S. (April ,2017). Middle school teachers' experiences with engineering projects: Supporting English language learners and at-risk students in STEM. Poster presented at the annual meeting of the National Association for Research in Science Teaching, San Antonio, TX.

Pimentel, D. S., Partinoudi, V, & Koper, M. (April, 2017). Middle school students' conceptions of engineering: Setting a baseline to measure NGSS impact. Paper presented at the annual meeting of the New England Educational Research Organization, Portsmouth, NH.

Pimentel. D. S. (April 2016). *Elementary Pre-Service Teachers' Preparedness for Next Generation Science Standards.* Paper presented at the annual meeting of the National Association for Research in Science Teaching, Baltimore, MD.

Pimentel, D. S. (April 2016). Female Undergraduate Engineering Major Experiences and Perspectives: Going Beyond Getting Them In. Paper presented at the annual meeting of the American Educational Research Association, Washington, DC.

Pimentel, D. S. (April, 2015). *Secondary science students' framing of class discussions: Perspectives from different tracks.* Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.

Pimentel, D. S. (April, 2013). *Approaches to whole-class discussions in high school science: A Case Study*. Paper presented at the annual meeting of the New England Educational Research Organization, Portsmouth, NH.

Pimentel, D. S., & McNeill, K. L. (March, 2012). *Secondary science teachers' beliefs about talk during whole-class discussions.* Paper presented at the annual meeting of the National Association for Research in Science Teaching, Indianapolis, IN.

McNeill, K. L., & Pimentel, D. S. (June, 2010). *The effects of teachers' beliefs and curricular enactments on student learning in high school science.* Poster presented at the International Conference of the Learning Sciences, Chicago, IL.

Pimentel, D. S., & McNeill, K. L. (March, 2010). *Discourse in science classrooms: The relationship between teacher perceptions and their practice*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Philadelphia, PA.

Pimentel D. S., & McNeill, K. L. (May, 2009). *Teacher discourse associated with curriculum designed to solicit student science talk.* Paper presented at the annual meeting of the New England Education Research Organization, Portsmouth, NH.

McNeill, K. L., & Pimentel, D. S. (April, 2009). *Scientific discourse in three urban classrooms: The role of the teacher in engaging high school students in argumentation*. Paper presented at the annual meeting of the American Educational Research Association, San Diego, CA.

McNeill, K. L., & Pimentel, D. S. (April, 2008). *High school students' use of evidence in argumentation talk in an urban ecology unit.* Paper presented at the annual meeting of the National Association for Research in Science Teaching, Baltimore, MD.

McEachern, K. P., Pimentel, D. S., Power, C., Pizzo, L, Price, J., & Welch, M. J. (April, 2008). *Policing and producing the field: The role of the literature in research.* Paper presented at the annual meeting of the New England Education Research Organization, Hyannis, MA.

WORKSHOPS

Pimentel, D. S. (Jan. 2025). Using AI Tools to Differentiate the Reading Levels of Science Texts. Workshop Presented at 2025 STEM Super Saturday Conference, Providence, RI.

Pimentel, D. S. (Oct., 2024). Physical Science Stations: Multiple Phenomena to Support Meaning Making. Workshop presented at Rhode Island Science Teachers Association Conference, Providence, RI.

Pimentel, D. S. (April 2024). Incorporating Social Justice into the Science Curriculum: Concrete Approaches in Culturally Responsive Science Teaching. Workshop presented at RISE UP! Conference, Providence, RI.

Pimentel, D. S. (Sept., 2023). Concept mapping: A powerful tool for meaning making and formative assessment. Workshop presented at Rhode Island Science Teachers Association Conference, Providence, RI.

Pimentel, D. S. (Aug. 2018). Culturally Responsive Teaching in STEM. Noyce CREST Fellowship Workshop. Workshop presented at University of New Hampshire, Durham, NH.

Pimentel, D. S. (Apr. 2017). Addressing the 3 dimensions of the NGSS. STEM Docent Workshop. Workshop presented at STEM Discovery Lab, University of New Hampshire, Manchester, NH.

Pimentel, D. S., Bell, E, & Sabin, M. (June 2016 – July 2017). Teacher-Engineer Summer Scholar Academy. Workshop series presented at STEM Discovery Lab, University of New Hampshire, Manchester, NH.

Pimentel, D. S., Bell, E, & Sabin, M. (July 2015 – June 2016). Teacher-Engineer Summer Scholar Academy. Workshop series presented at STEM Discovery Lab, University of New Hampshire, Manchester, NH.

Pimentel, D. S. & Honwad, S. (July 2015). Tech for Teachers: Educators' Summit. Workshop series presented at University of New Hampshire, Durham, MA

Pimentel, D. S. (May 2015). You go girl!: Reflecting on female learning and identity formation. Workshop presented at STEM Educators Summit, University of New Hampshire, Durham, NH.

CURRICULUM DEVELOPMENT

Urban EcoLab: How do we develop healthy and sustainable cities? 2007 –2011

Boston College: Chestnut Hill, MA

- Developed and refined lessons for a high school standards-based urban ecology curriculum, *Urban EcoLab,* that is intended to actively engage underrepresented students in the study of science by having them focus on relevant ecological issues and reflect on their role in

improving ecological sustainability. *www.urbanecolabcurriculum.com*

Project ARISE
Brown University: Providence, RI 2006 – 2007
Member of Development Team
- Developed inquiry-based lessons for biotechnology unit which included the use of PCR and gel electrophoresis to distinguish genetically modified corn products from unmodified corn products.

Lincoln High School: Lincoln, RI 2006 - 2007
- Worked collaboratively with a colleague to establish the scope and sequence for two courses: A.P. Biology and Introductory Biology.
- Assisted with the development of the 9th grade Physics curriculum.

Rhode Island Skills Commission 2005 – 2006
Task Developer
- Developed inquiry-based science assessments that were used by science departments throughout Rhode Island to assess the proficiency of biology students in various concepts (e.g. genetics, evolution, etc.).

AWARDS and HONORS

Jhumaki Basu Scholar Award: NARST Equity and Ethics Committee 2016

The (Mary) Kim Fries Memorial Award (Lynch School of Education, Boston College) 2013
- Awarded to a Curriculum & Instruction doctoral student who exhibits academic achievement, belief in social justice education, and an enduring commitment to community.

Research Assistantship: NSF Urban EcoLab Grant (Boston College) 2007 – 2011

Outstanding Biology Teacher Award (Rhode Island) 2007

CERTIFICATIONS

Rhode Island Department of Education Exp. July 2028
- Secondary Biological Sciences
- Secondary General Sciences

National Board Certification 2006 – 2016
- Science/Adolescence and Young Adulthood (Specialization: Biology)

MEMBERSHIPS

National Association for Research in Science Teaching, since 2007
American Educational Research Association, since 2007
National Science Teacher Association, since 2009
Rhode Island Science Teacher Association, since 2009

Affiliations

Annenberg Institute – Brown University

PROFESSIONAL SERVICES

Editorial Board Member 2023 -present
- *International Journal of Science Education*

Review of Journal Articles 2013 - present
- *Journal of Research in Science Teaching*
- *Science Education*
- *American Educational Research Journal*
- *International Journal of STEM Education*

Review of Conference Proposals
- Annual Meeting for the National Association for Research in Science Teaching
- Annual Meeting for the American Educational Research Association

EDUCATION ENGAGEMENT

Rhode Island Science Educators Leadership Committee 2021 – present
Informs Rhode Island Department of Education decisions regarding standards and other science education related topics

Urban Teach Conference Lead Organizer 2021 – 2023
Annual Conference that brings together high school students from local urban schools interested in the teaching profession.

Collective Impact Approach to Diversifying the Teacher Workforce, RI Foundation 2021 – present
Collaboration among various stakeholders in Rhode Island to Diversity

Community Advisory Board Member for 360 Academy, Providence Public School District 2021 – 2023

Rhode Island Career and Technical Education Advisory Board Member 2021 - present

LANGUAGES

- Fluent in Portuguese (oral, reading, and writing)