MAYRA S. ARTILES, PH.D.

Current Affiliation

Assistant Professor
The Polytechnic School
Ira A. Fulton Schools of Engineering
Arizona State University
Mesa, AZ 85212

mayra.artiles@asu.edu

Research Interests

Graduate Education, Doctoral Advising, Engineering Education

Education

Virginia Tech | Blacksburg, VA

Ph.D. in Engineering Education, August 2019

- Dissertation Title: *Choice and Doctoral Advisor Selection Processes in STEM Ph.D. Programs*
- Advisor: Holly M. Matusovich, Ph.D
- Honors: Edward Bouchet Graduate Honor Society, Davenport Fellowship

Purdue University | West Lafayette, IN

M.S. in Mechanical Engineering, May 2012

- Thesis Title: *Metal Nanoparticle Morphology in Single-Walled Carbon Nanotubes Biosensors*
- Advisor: Timothy S. Fisher, Ph.D.
- Honors: Purdue Doctoral Fellowship

University of Puerto Rico | Mayagüez, PR

B.S. in Mechanical Engineering, May 2009

- Honors: *Magna Cum Laude*, Tau Beta Pi Engineering Honor Society

Journal Publications In Process

1. Artiles, M. S. & Matusovich, H.M. (Under Review). Achieving Autonomy, Competence, and Relatedness in the Advisor Selection Process in a Chemical Engineering Doctoral Program. *Under Review at International Journal of Engineering Education*.

2. Artiles, M. S., Matusovich, H.M., & Knight, D.M. (Under Review). Advisor Selection Processes in STEM Doctoral Programs. *Under Review at International Journal of STEM Education*.

3. Artiles, M.S., Huggins, N., Santiago, A.I., & Matusovich, H.M. (Under Review). Just let me do research!: Policies and Practices that Impact Research Productivity and Mentoring Relationships at an HSI. *Under review at Journal of Hispanic Higher Education*.

4. Blackowski, S.M., Geary, C.P.,Artiles, M.S., & Matusovich, H.M. (Under Preparation). Minoritized Doctoral Students in Engineering: Who are their mentors and what roles do they fill?. *Under preparation for submission to Journal of Women and Minorities in Science and Engineering*.

5. Artiles, M.S., Huggins, N. & Matusovich, H.M. (Under Preparation). The Socialization Experiences of Minoritized Doctoral Students in Engineering. *Under preparation for submission to Journal of Engineering Education*.

6. Artiles, M.S., & Soledad, M.M. (Under Preparation). Secondary Qualitative Analysis: A Promising Framework for Engineering Education. *Under preparation for submission to Studies in Engineering Education*.

Refereed Journal Publications

1. Artiles, M. S. & Matusovich, H.M. (2021). Doctoral Advisor Selection in Chemical Engineering: A Comparative Study of Two Doctoral Programs. *Studies in Engineering Education*. Accepted for Publication.

2. Miller, D., Artiles, M. S., & Matusovich, H.M. (2020). The Role of Writing Clusters in Minority Students Beliefs about Writing. *Papers and Publications: Interdisciplinary Journal of Undergraduate Research,* 8 (1), 11.

3. Artiles, M. S. & Matusovich, H.M. (2020). Examining Doctoral Degree Attrition Rates: Using Expectancy Value Theory to Compare Student Values and Faculty Supports. *International Journal of Engineering Education,* 36 (3).

4. Artiles, M. S., Rout, C. S., & Fisher, T. S. (2011). Graphene-based hybrid materials and devices for biosensing. *Advanced Drug Delivery Reviews*, 63(14-15), 1352-1360.

5. Claussen, J. C., Artiles, M. S., McLamore, E. S., Mohanty, S., Shi, J., Rickus, J. L., Porterfield, D. M. (2011). Electrochemical glutamate biosensing with nanocube and nanosphere augmented single-walled carbon nanotube networks: a comparative study. *Journal of Materials Chemistry*, 21(30), 11224-11231.

6. Claussen, J. C., Kim, S. S., Haque, A.,Artiles, M. S., Porterfield, D. M., & Fisher, T. S. (2010). Electrochemical Glucose Biosensor of Platinum Nanospheres Connected by Carbon Nanotubes. *Journal of Diabetes Science and Technology*, 4(2), 312-319.

Book Chapters

1. Claussen, J. C., Shi, J., Rout, C. S., Artiles, M. S., Stensberg, M. C., Porterfield, D. M., & Fisher, T. S. (2012). Nano-sized biosensors for medical applications. In S. P. J. Higson (Ed.), *Biosensors for Medical Applications* (pp. 65-102). Elsevier.

Refereed Conference Publications

1. Artiles, M.S., Cruz-Bohorquez, J., Matusovich, H.M., Adams, S.G., & Lee-Thomas, G. (2021). The Rising Doctoral Institute: Preparing Minority Students for the Transition into the Engineering Ph.D.. Proceedings - ASEE Annual Conferences and Exposition.

2. Amelink, C., Artiles, M.S., & Edwards, C. (2021). Minority Student Experiences in Engineering Graduate Programs: Socialization and Impact on Career Trajectories. Proceedings - ASEE Annual Conferences and Exposition.

3. Cruz-Bohorquez, J., Artiles, M.S., Lee-Thomas, G., Matusovich, H.M., & Adams, S.G. (2019). Revising the Dissertation Institute: Contextual Factors Relevant to Transferability. Proceedings - ASEE Annual Conference and Exposition. Tampa, Florida.

4. Boyd, K., Waters, R.C., Sikder, Y.Y., Taylor, A.R., Artiles, M. S. , Coso-Strong,A., & Lee, W.C. (2019). Work-In-Progress: Applying Transition Theory to an Exploration of the High-School-to-College Transition Experiences of Students from Underrepresented Ethnic/Racial Groups. Proceedings - The Collaborative Network for Engineering and Computing Diversity. Crystal City, VA.

5. Cruz-Bohorquez, J., Artiles, M.S., Lee-Thomas, G., Matusovich, H.M., & Adams, S.G. (2018). The Dissertation Institute: Evaluation of a Doctoral Student Writing Workshop. Proceedings - Frontiers in Education Annual Conference. San Jose, California.

6. Artiles, M.S., Matusovich, H. M., Adams, S. G., & Bey, C. J. (2018). The Dissertation Institute: Understanding the Socialization of Underrepresented Minorities in Doctoral Engineering Programs. Proceedings - ASEE Annual Conferences and Exposition. Salt Lake City, Utah.

7. Knight, D.B., Matusovich, H. M., Artiles, M.S., Davis, K.A., Kinoshita, T.J., Bairaktarova, D., Hodges, K., Knott, T., Lee, W.C., McGothlin-Lester, M., McNair, L.D., Reid, K., & Rutledge-Simmons, D. (2018). Sustaining a Study Abroad Program at Scale: What Motivates Faculty Members to Engage in Such Programs?. Proceedings - ASEE Annual Conference and Exposition. Salt Lake City, Utah.

8. Bluestein, T., Amelink, C. T., & Artiles, M. S. (2018). Campus Climate for Engineering Graduate Students: Examining Differences Between Domestic Minority, Domestic Majority, and International Students. Proceedings - The Collaborative Network for Engineering and Computing Diversity, Crystal City, VA.

9. Boyd, K., Hermundstadt, A., Artiles, M. S. , Waters, R., Phillips, C., Lutz, B., & Lee, W.(2018). Student Conceptualizations about Diversity: How would you describe the diversity in engineering at your institution?. Proceedings - The Collaborative Network for Engineering and Computing Diversity. Crystal City, VA.

10. Artiles, M. S., Waters, R. C., Taylor, A. R., Boyd-Sinkler, K., Williams, S. A., Hampton, C., Hermundstad, A. L., Lee, W. C. and Lutz, B. D. (2017). Action on Diversity: A Content Analysis of ASEE Conference Papers, 2015-2016. Proceedings - ASEE Annual Conferences and Exposition. Columbus, Ohio.

Refereed Research Presentations

1. Vicente, S., Artiles, M.S., & Matusovich, H.M. (2021). Professional Engineering Pathways: Internships, Perceptions of Preparedness, and Expectations of Success. *Presented at the 2021 American Educational Research Association Annual Meeting*. Virtual Conference.

2. Edwards, C., Amelink, C.T. & Artiles, M.S., (2019). Understanding Majority and Minority Engineering Graduate Student Socialization Experiences: A Mixed Methods Approach. *Presented at the 2019 American Educational Research Association Annual Meeting*. Toronto, Canada.

3. Bluestein, T., Artiles, M.S., & Grote, D. (2019). The Role of Graduate Student Funding and Engineering Students' Experiences. *Presented at the 2019 American Educational Research Association Annual Meeting*. Toronto, Ontario.

4. Artiles, M.S., Matusovich, H.M., & Knight, D.B. (2019). Advisor Selection Processes in Doctoral STEM Programs in the US. *Presented at the 2019 Postgraduate Supervision Conference*. Stellenbosch, South Africa.

5. Artiles, M.S., Kinoshita, T. J., Amelink, C. T., Matusovich, H. M., & Knight, D.B. (2018). Underrepresented Students Attributions of Success in Graduate School. *Presented at the 2018 American Educational Research Association Annual Meeting*. New York, New York.

6. Artiles, M.S., Hasbun, I. M., Matusovich, H. M., Adams, S. G., & Bey, C. J. (2017). Underrepresented Doctoral Students'Self-Efficacy Towards Ph.D. Completion. *Presented at 2017 Association for the Study of Higher Education Annual Conference*. Houston, Texas.

Grants

- Motivating Successful Advising: Creating Productive Doctoral Advising Relationships in Engineering — Funding Period: 2021-2022
  Agency:ASU Kern Grant
  Total Amount of Award: $40,000 OF $100,000 (40% Recognition)
  Role: PI alongside Co-PIs Dr. Rachel Kajfez of The Ohio State University, & Dr. Holly Matusovich of Virginia Tech.

- Collaborative Research: The Rising Doctoral Institute — Funding Period: 2021-2025
  Agency: National Science Foundation

Total Amount of Award: $ 524,000 OF $1.76M (31% Recognition)
Role: Co-PI alongside PI Dr. Holly Matusovich of Virginia Tech, & Co-PIs Stephanie Adams of University of Texas Dallas and Juan Cruz of Rowan University.

- Graduate Education Policies and Advising Relationships Funding Period: 2019-2021
  Agency: Institute for Critical Technology and Applied Science at Virginia Tech
  Total Amount of Award: $ 20,000
  Role: PI alongside CoPIs Dr. Holly Matusovich of Virginia Tech and Dr. Aidsa Santiago of the University of Puerto Rico, Mayagüez Campus.

Research Experience

Postdoctoral Associate 2019 – 2020
The Dissertation Institute: Minority Engineering Graduate Student Motivation
Department of Engineering Education, Virginia Tech
Supervisors: Holly M. Matusovich, Ph.D. & Stephanie G. Adams, Ph.D.
- Manage the research component of The Dissertation Institute, a week long workshop for minority engineering graduate students struggling to complete their dissertations. This role entails conducting mixed methods research on minority engineering graduate students motivation towards completing their Ph.D.

Education Research Assistant 2016 – 2019
The Dissertation Institute: Minority Engineering Graduate Student Motivation
Department of Engineering Education, Virginia Tech
Supervisors: Holly M. Matusovich, Ph.D. & Stephanie G. Adams, Ph.D.
- Graduate research assistant performing mixed methods research on minority engineering graduate students motivation towards completing their Ph.D.
- Assisted in hosting The Dissertation Institute, a week long workshop for minority engineering graduate students struggling to complete their dissertations.
- Teach and supervise an undergraduate student researcher performing qualitative research.

Nanomaterials Research Assistant 2009 – 2012
Department of Mechanical Engineering, Purdue University
Supervisor: Timothy S. Fisher Ph.D.
- Graduate research assistant working on design, fabrication, and testing of electrochemical glutamate and glucose biosensors powered by carbon nanomaterials.

Microfluidics Research Assistant 2008
Department of Mechanical Engineering, University of Puerto Rico at Mayagüez
Supervisor: Ruben Diaz, Ph.D.
- Studied the behavior of HeLa cell membranes under electroporation for future in situ single cell drug delivery schemes.

Teaching Experience

EGR565: Qualitative Research Methods – Professor Fall 2021
The Polytechnic School, Arizona State University

EGR363: Automotive Powertrain & Thermal Management – Professor Spring 2021

The Polytechnic School, Arizona State University

ENGE5714: Qualitative Analysis – Co-Teaching Instructor — Spring 2019
Department of Engineering Education, Virginia Tech
Supervisor: Jennifer M. Case, Ph.D.

ENGE1604: Global Engineering Practice – Study Abroad Teaching Assistant — 2017–2019
Department of Engineering Education, Virginia Tech
Supervisor: David Knight, Ph.D.

ME305: Heat Transfer – Teaching Assistant — Fall 2011
Department of Mechanical Engineering, Purdue University
Supervisor: Bumsoo Han, Ph.D.

Professional Experience

Electrified Powertrain Engineering, Ford Motor Company — 2012 - 2016

Thermal Electrification Engineer — 2015-2016

- Lead thermal systems analyst for the next generation of towing capable electrified vehicles for the powertrain, transmission, and climate control subsystems.
- Lead recruiter for the Product Development division of Ford at the Society of Hispanic Professional Engineer conference.

Climate Control Launch Engineer — 2014-2015

- Led new product launch efforts for the implement of all climate control systems in the 2015 Ford Edge and 2016 Lincoln MKX into mass production at Oakville Assembly Complex in Ontario, Canada.

Ford College Graduate for Electrified Powertrain — 2012-2014

- Collaborating engineer responsible of designing and validating the cooling system for the next generation high voltage battery pack for Ford hybrid vehicles.
- Coordinated implementation efforts for fuel economy certification for externally charged programs in the European market.
- Analysis of competitor vehicle fuel economy and component design for benchmarking.

Invited Talks

- Engaging in Equitable and Culturally Conscious R1/MSI Research Partnerships. 2021
  Virginia Tech

- Transforming the Advising Experience: Advisors' and Advisees' Experiences in Doctoral Engineering Programs 2021
  Purdue University

- Transforming the Advising Experience: Advisors' and Advisees' Experiences in Doctoral Engineering Programs 2021
  The Ohio State University

- Own Your Ph.D. Process: Lessons Learned from the Dissertation Institute Nov 2020
  New York University

- Grad School: Is it for Me? Sep 2020
  University of Puerto Rico at Mayagüez

- Introduction to Qualitative Research Apr 2020
  Virginia Tech Engineering Agricultural Development Research Course

Workshop Presentations

- Own Your PhD Process: Research Based Strategies to get PhinisheD Oct 2020
  Arizona State University - Engineering Education Systems & Design Seminar Series

- Successful Mentoring Practices Workshop Sep 2020
  Arizona State University - Engineering Education Systems & Design

- Advising Graduate Students: Lessons Learned from the Dissertation Institute Jun 2020
  American Society for Engineering Education

- Own Your Ph.D. Process: Time Management Jun 2020
  The Dissertation Institute

- Roundtable Facilitator - Graduate Students in ASEE Jun 2019
  American Society for Engineering Education

- Supporting Graduate Students Beyond Funding Sep 2017
  National Association of Multicultural Engineering Programs Annual Conference

- Own Your Ph.D. Process: Lessons from the Dissertation Institute Feb 2018
  Virginia Tech Engineering Education Research Seminar

- Own Your Ph.D. Process: Lessons from the Dissertation Institute Jul 2018
  Virginia Tech Engineering New Horizons Graduate Scholars Seminar

- Own Your Ph.D. Process: Managing Your Time Oct 2018
  Virginia Tech Graduate School Development Workshop Series

Poster Presentations

- Artiles, M.S., Claussen, J.C., & Fisher, T.S. (2010). Graphene Petals as Electrochemical Biodetection Platform. *Presented at Conference on Infectious Diseases* Tata Institute of Fundamental Research. Mumbai, India.

- Artiles, M.S., Matusovich, H.M., Bey, C.J., & Adams, S.G. (2017). The Dissertation Institute: Supporting Students Beyond Funding. *Presented at Engineering Education Centers NSF Grantees Conference*. Arlington, Virginia

Panels

- Artiles, M.S., Coley, B., Joseph, C., & Jordan, S. (2022 January). *Graduate Experiences of (In)Equity in Engineering: What Administrators Should Do*. Association of Independent Technological Universities Annual Meeting. Virtual Meeting

- Andino, J.A., Artiles, M.S., Holechek, S.A., Susan, Robledo, M., & Villanueva, I. (2021 October). *Latinas in STEM: Embrace your Identity! How to navigate career and culture in today's society*. Hispanic Research Center. Arizona State University.

- Artiles, M.S., Childress, C., Kanimba, E., Rametta, A., & Thuesen, H. (2021 January). *Positioning Yourself for a Career in Industry and/or Academia*. Virginia Tech New Horizons Professional Development Series. Virtual Meeting.

- Artiles, M.S., Hermundstadt, A., Pearson, N., Rodriguez, H., Rohde, J. (2018 June). *Student Pathways into Engineering Education*. Invited guest speaker at the American Society for Engineering Education Annual Meeting at Salt Lake City, UT.

- Abbas, M., Artiles, M.S., DePauw, K., Jaghiavni, R., Petters, J., Young, P. (2018 March). *Connecting the Opens: Open Access, Open Education, Open Data*. Invited guest speaker at Virginia Tech Open Education Week for the Virginia Tech Libraries.

- Artiles, M.S., Cortes, A., Lipscomb, M., De Pena, J., Potter, P., Robertson, J., Skripak, S. (2017 March). *The Potential of Open Education Resources: Virginia Tech Faculty & Student Panel Discussion*. Invited guest speaker at Virginia Tech Open Education Week for the Virginia Tech Libraries.

Fellowships, Awards, & Honors

- Graduate and Post-Doctoral Education across the Disciplines
  Outstanding Dissertation Award — 2020
  American Educational Research Association

- Torgersen Research Award - Poster Finalist — 2019
  Virginia Tech College of Engineering

- Edward Alexander Bouchet Graduate Honor Society — 2019
  Virginia Tech Graduate School

- Best Paper in the International Division — 2018
  American Society for Engineering Education

- OpenCon Fellow — 2016
  Scholarly Publishing and Academic Resources Coalition

- Davenport Fellowship — 2016–2017
  Virginia Tech, Graduate School

- Purdue Doctoral Fellowship — 2009–2011

Purdue University, Graduate School

- Summer Undergraduate Research Fellowship 2008
  Purdue University, College of Engineering

- Tau Beta Pi Engineering Honor Society 2008
  University of Puerto Rico at Mayagüez

Service

- Associate Editor 2021 – Present
  Advances in Engineering Education Journal

- Faculty Advisor 2020 – Present
  ASU ASEE Student Chapter

- Reviewer 2016 – Present
  - Higher Education Journal
  - Journal of Women and Minorities in Science and Engineering
  - Journal of Engineering Education
  - International Journal for Researcher Development
  - American Society for Engineering Education Proceedings

- Appointed Member on the Task Force for Graduate Education 2019 – 2020
  American Society for Engineering Education

- Vice-President of VT ASEE Student Chapter 2018 – 2019
  American Society for Engineering Education at Virginia Tech

- New Horizons Scholars Graduate Student Mentor 2017 – 2019
  Virginia Tech College of Engineering

- Graduate Ambassador for the College of Engineering 2018 – 2019
  Virginia Tech College of Engineering

- Plotter Coordinator 2017 – 2018
  Virginia Tech Engineering Communications Center
  - Lead coordinator for printing services in the Engineering Communication Services.

Professional Organizations

- American Society for Engineering Education *(ASEE)*
- American Educational Research Association *(AERA)*
- Association for Study of Higher Education *(ASHE)*

Professional Development

- Introduction to Qualitative Meta-Synthesis Methods: Achieving STEM Equity and Inclusion through Syntheses Confirmation 2021
  American Educational Research Association

- Designing an ENGagED Virtual REU Experience — 2021
  Arizona State University
- Promising Practices for Effective Student Mentorship Workshop — 2021
  Arizona State University
- NextProf: Preparing the Next Generation of Science and Tech Leaders — 2018
  Cohosted by : University of Michigan & UC Berkeley
- Graduate Student Public Policy Seminar — 2017
  Association for Study of Higher Education Annual Meeting

Languages

- *Fluent* in English and Spanish
- *Conversational* in French and Portuguese

Software and Skills

- *Qualitative Software:* Dedoose, Nvivo, Rayyan
- *Engineering software:* Matlab, Solidworks, Pro-Engineer, Ansys, CATIA, SAP
- *Statistics Software:* SPSS, R Studio
- *Skills:* Extensive project management training

References

Available upon request