

MAYRA S. ARTILES, PH.D.

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CURRENT AFFILIATION Assistant Professor mayra.artiles@asu.edu  
The Polytechnic School  
Ira A. Fulton Schools of Engineering  
Arizona State University  
Mesa, AZ 85212

RESEARCH INTERESTS Graduate Education, Academic Motivation, 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

REFEREED JOURNAL PUBLICATIONS

1. 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).
2. 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.
3. 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.

4. 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. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.
7. 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.

8. 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. Artiles, M.S., Blackowski, S., Matusovich, H.M., & Adams, S.G. (2021). The Rising Dissertation Institute: Helping Minority Students Overcome the Transition into the Engineering PhD. *Accepted for the 2021 The Collaborative Network for Engineering and Computing Diversity*. Crystal City, VA. Accepted.
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

- Collaborative Research: The Rising Doctoral Institute      Funding Period: 2021-2025  
Agency: National Science Foundation  
Total Amount of Award: \$ 524,000 OF \$1.76M (30% Recognition)  
Role: CoPI alongside PI Dr. Holly Matusovich of Virginia Tech & CoPIs 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.
- Educational 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

- ENGE5714: Qualitative Analysis – Teaching Instructor      2019  
Department of Engineering Education, Virginia Tech  
Supervisor: Jennifer M. Case, Ph.D.
- Co-taught a course for doctoral students across multiple disciplines in education and engineering on qualitative analysis where students designed, executed, and published a complete qualitative study in their field.
- ENGE1604: Global Engineering Practice – Teaching Assistant      2017– 2019

Department of Engineering Education, Virginia Tech  
Supervisor: David Knight, Ph.D.

- Taught a section of the Rising Sophomore Abroad Program for freshmen students traveling overseas for a three week study abroad program. The course focused on developing students' problem solving skills in international contexts.
- Led the group in travel through South Africa (2017), South America (2018), & China (2019) as students were exposed to the local context studied in class and they addressed the engineering problems discussed before attending the trip.

ME305: Heat Transfer – Teaching Assistant 2011

Department of Mechanical Engineering, Purdue University  
Supervisor: Bumsoo Han, Ph.D.

- Responsible of teaching and conducting the experimental portion of the course as well as leading student groups in designing and conducting experiments that study the basic heat transfer principles.

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

• 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., 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	<ul style="list-style-type: none"> <li>• Graduate and Post-Doctoral Education across the Disciplines Outstanding Dissertation Award American Educational Research Association 2020</li> <li>• Torgersen Research Award - Poster Finalist Virginia Tech College of Engineering 2019</li> <li>• Edward Alexander Bouchet Graduate Honor Society Virginia Tech Graduate School 2019</li> <li>• Best Paper in the International Division American Society for Engineering Education 2018</li> <li>• OpenCon Fellow Scholarly Publishing and Academic Resources Coalition 2016</li> <li>• Davenport Fellowship Virginia Tech, Graduate School 2016–2017</li> <li>• Purdue Doctoral Fellowship Purdue University, Graduate School 2009–2011</li> <li>• Summer Undergraduate Research Fellowship Purdue University, College of Engineering 2008</li> <li>• Tau Beta Pi Engineering Honor Society University of Puerto Rico at Mayagüez 2008</li> </ul>
SERVICE	<ul style="list-style-type: none"> <li>• Associate Editor Advances in Engineering Education Journal 2020 – Present</li> <li>• Reviewer 2016 – Present               <ul style="list-style-type: none"> <li>• Higher Education Journal</li> <li>• Journal of Women and Minorities in Science and Engineering</li> <li>• Journal of Engineering Education</li> <li>• International Journal for Researcher Development</li> <li>• American Society for Engineering Education Proceedings</li> </ul> </li> <li>• Appointed Member on the Task Force for Graduate Education American Society for Engineering Education 2019 – 2020</li> </ul>

	<ul style="list-style-type: none"> <li>• Vice-President of VT ASEE Student Chapter American Society for Engineering Education at Virginia Tech</li> </ul>	2018 – 2019
	<ul style="list-style-type: none"> <li>• New Horizons Scholars Graduate Student Mentor Virginia Tech College of Engineering</li> </ul>	2017 – 2019
	<ul style="list-style-type: none"> <li>• Graduate Ambassador for the College of Engineering Virginia Tech College of Engineering</li> </ul>	2018 – 2019
	<ul style="list-style-type: none"> <li>• Plotter Coordinator Virginia Tech Engineering Communications Center <ul style="list-style-type: none"> <li>• Lead coordinator for printing services in the Engineering Communication Services.</li> </ul> </li> </ul>	2017 – 2018
PROFESSIONAL DEVELOPMENT	<ul style="list-style-type: none"> <li>• NextProf: Preparing the Next Generation of Science and Tech Leaders Cohosted by : University of Michigan &amp; UC Berkeley</li> </ul>	2018
	<ul style="list-style-type: none"> <li>• Graduate Student Public Policy Seminar Association for Study of Higher Education Annual Meeting</li> </ul>	2017
LANGUAGES	<ul style="list-style-type: none"> <li>• <i>Fluent</i> in English and Spanish</li> <li>• <i>Conversational</i> in French and Portuguese</li> </ul>	
SOFTWARE AND SKILLS	<ul style="list-style-type: none"> <li>• <i>Qualitative Software</i>: Dedoose, Nvivo, Rayyan</li> <li>• <i>Engineering software</i>: Matlab, Solidworks, Pro-Engineer, Ansys, CATIA, SAP</li> <li>• <i>Statistics Software</i>: SPSS, R Studio</li> <li>• <i>Skills</i>: Extensive project management training</li> </ul>	
REFERENCES	Available upon request	