Kassandra Fernandez

PhD Candidate in Engineering Education at the University of Florida

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Research Interests

STEM Professional Formation, STEM Identity Construction, Mentorship, Social Responsibility

Education

University of Florida Gainesville, FL, USA
Ph.D. in Engineering Education Expected August 2026

University of Florida Gainesville, FL, USA
M.S. in Microbiology & Cell Science December 2020

Miami Dade College Miami, FL, USA
B.S. in Biological Sciences July 2017

Miami Dade College Miami, FL, USA
A.A. in Mechanical Engineering December 2011

Relevant Experience

University of Florida Gainesville, FL, USA
Graduate Research Associate, Supervised by Dr. Nancy Ruzycki January 2026 – Current

- Conducting a mixed methods study, *Mentorship Matters: Development of a Conceptual Framework of Effective Mentoring Activities*, on the impact of mentorship on STEM undergraduate student professional formation as evidenced by self-reported changes to students' STEM identity & professional development towards producing a framework of effective mentorship activities

University of Florida Gainesville, FL, USA
Graduate Research Assistant, Supervised by Dr. Nancy Ruzycki August 2023 – December 2025

- Conducted quantitative, qualitative, & mixed methods research on STEM identity construction & professional development of K-12 student mentees & their undergraduate student mentors at STEM summer camps & undergraduate students engaged in mentorship through STEM student organizations
- Mentored 4 undergraduate research assistants
- Published & presented 3 conference papers, & co-authored 2 conference papers
- Created & presented 1 conference poster, & supported mentees in creating 2 conference posters

University of Florida Gainesville, FL, USA
Graduate Research Assistant, Supervised by Dr. Sindia Rivera-Jimenez August 2022 – June 2023

- Conducted mixed methods research on social responsibility in engineering undergraduate students
- Created & facilitated a series of workshops on social responsibility, science communication, & policy advocacy for engineering undergraduate students
- Mentored 2 undergraduate research assistants
- Published & presented 2 conference papers, & co-authored 2 conference papers

University of Florida Gainesville, FL, USA
Board of Education Summer Program Fellow June 2022 – July 2022

- Attended professional development workshops, academic writing courses, & graduate seminars
- Participated in peer mentorship throughout the fellowship, including activities such as oral presentations & critiques, networking events, & journal clubs

Miami Dade College Miami, FL, USA
Adjunct Professor, Kendall Campus – Biology Department May 2021 – May 2022

- Taught Introduction to Biology, Principles of Biology I, & Microbiology lecture & laboratory sections, both in-person & virtually over Zoom
- Effectively utilized the Blackboard Collaborate Ultra learning management system (LMS) to deploy & grade assignments & proctored exams
- Ensured that students took a holistic view to their academic success
- Developed course materials including but not limited to syllabi, class note handouts, PowerPoint presentations, assignments, quizzes, & exams
- Evaluated student performance & advised students as needed
- Participated in departmental & college affairs such as recruiting students, serving on committees, & collaborating on the development of curricula

University of Florida Gainesville (Remote), FL, USA
Graduate Research Assistant (Voluntary Position) October 2020 – April 2021

- Accessed the University of Florida's supercomputing cluster, HiPerGator, to perform bioinformatics analyses on viral proteins
- Used mmseqs2 to group viral proteins into protein families & determine protein family size
- Created phylogenetic tree diagrams to reveal the evolutionary history of the viral proteins of interest
- Critically assessed scientific papers for elegant & innovative ways to work with experimental data
- Utilized virtual collaboration tools including Zoom & Microsoft Teams to keep in touch with the laboratory group & work collaboratively with them to generate new ideas & solutions

Miami-Dade County Public Schools Homestead, FL, USA
Science Teacher – Homestead Senior High School June 2019 – October 2020

- Taught biology & physical science courses using student-centered, active learning approaches including collaborative group activities & project-based learning
- Facilitated learning in the classroom & emphasized the importance of having a growth mindset
- Sought to improve the lives of Miami-Dade County's student population
- Fostered student success in the classroom & produced quantifiable student achievement gains
- Persevered through difficulties & problem-solved how to turn challenges into learning opportunities

Miami-Dade County Public Schools Miami, FL, USA
TEAChSTRONG Summer Academy Associate June 2019 – July 2019

- Attended professional development workshops to prepare for a teaching career at a Title I school
- Gained teaching experience by co-teaching a summer biology course at Homestead Senior High School

Miami Dade College Miami, FL, USA
Laboratory Technician II, Kendall Campus – Biology Department July 2016 – July 2019

- Trained new laboratory staff & assisted them in their assigned tasks
- Prepared laboratory equipment & materials for anatomy, botany, biology, biotechnology, biochemistry, & genetics student learning laboratories
- Created & maintained laboratory preparation manuals & materials checklists
- Ensured professors had the required resources for teaching & experimentation

- Assisted professors with troubleshooting issues as they arose in the laboratory
- Organized & inventoried laboratory supplies & equipment as necessary
- Ensured deliveries were checked, labeled, & stocked properly
- Reported issues regarding laboratory supplies & equipment to the Lab Manager

Miami Dade College Miami, FL, USA
Undergraduate Research Assistant, Supervised by Dr. Selwyn Williams December 2016 – July 2017

- Used molecular biology laboratory techniques (tissue sample acquisition, isolation of nuclear contents, phenol-chloroform DNA extraction, ethanol precipitation of DNA, UV-spectrophotometry, agarose gel electrophoresis, PCR amplification, etc.) to identify novel Myosin genes in *Sabal domingensis*
- Analyzed results derived from the aforementioned laboratory techniques using bioinformatics tools
- Created & presented 2 conference posters

Miami Dade College Miami, FL, USA
Undergraduate Research Assistant, Supervised by Dr. Servando Muñoz January 2015 – March 2017

- Used Spartan '14 Molecular Modeling software to create molecular models of organic nanotubes & other organic compounds & run quantum mechanical calculations on them
- Created & presented 9 conference posters, & prepared & delivered 6 conference presentations
- Awarded the "Outstanding Undergraduate Student Oral Presentation" distinction at the Annual Meeting of the Florida Academy of Sciences for two consecutive years (2016 & 2017)

Honors & Awards

- Science for Public Good Fund Award ($750), *Union of Concerned Scientists* ..... January 2026
- Honorable Mention for Methods ($25), *FAIR Forward 2025 Hackathon* ..... November 2025
- Herbert Wertheim College of Engineering Dean's Research Award, *University of Florida* . August 2022
- Florida Board of Education (BOE) Summer Fellowship ($1,000), *University of Florida* ..... June 2022
- Distinction in STEM Scholastic Leadership, *Miami Dade College* ..... July 2017
- Outstanding Undergraduate Student Oral Presentation, *Environmental Chemistry & Chemical Sciences Division - Florida Academy of Sciences* ..... March 2017
- Bank of America Biosciences Scholarship ($3,000), *Miami Dade College* ..... August 2016
- Outstanding Undergraduate Student Oral Presentation, *Environmental Chemistry & Chemical Sciences Division - Florida Academy of Sciences* ..... March 2016

Publications

Refereed & Published Conference Papers

* Equal Contribution † Corresponding Author ‡ Undergraduate Mentee

K. D. Chisholm, E. Kronsnoble‡, **K. Fernandez**, and N. Ruzycki, "K–12 student stem identity development through participation in goldberg gator engineering explorers summer programs (rtp)," in *2025 ASEE Annual Conference & Exposition*, Jun. 2025. DOI: 10.18260/1-2--56903

K. D. Chisholm, S. L. Langham‡, **K. Fernandez**, and N. Ruzycki, "Development of k–12 stem teacher self-efficacy through participation in goldberg gator engineering explorers summer programs (rtp)," in *2025 ASEE Annual Conference & Exposition*, Jun. 2025. DOI: 10.18260/1-2--56289

K. Fernandez†, K. D. Chisholm, and N. Ruzycki, "Cultivating future engineers through mentoring experiences: Undergraduate student perceptions of mentorship in an educational stem k–12 summer program (ebr)," in *2025 ASEE Annual Conference & Exposition*, Jun. 2025. DOI: 10.18260/1-2--56182

K. Fernandez† and N. Ruzycki, "An exploratory study on post-secondary stem mentorship within student organizations," in *2024 IEEE Frontiers in Education Conference (FIE)*, Oct. 2024, pp. 1–5. DOI: 10.1109/FIE61694.2024.10893363

K. Fernandez†, K. D. Chisholm, and N. Ruzycki, "Examining stemm mentorship within student organizations in higher education through a critical lens," in *2024 ASEE Annual Conference & Exposition*, Jun. 2024. DOI: 10.18260/1-2--47372

K. Fernandez†, A. G. Buhler, and S. M. Rivera-Jimenez, "Methods for conducting a scoping literature review on institutional culture and transformational change in engineering education," in *2023 ASEE Annual Conference & Exposition*, Jun. 2023. DOI: 10.18260/1-2--43639

K. Fernandez† and S. M. Rivera-Jiménez, "Social responsibility views in science and engineering: An exploratory study among engineering undergraduate researchers," in *2023 ASEE Annual Conference & Exposition*, Jun. 2023. DOI: 10.18260/1-2--44235

Non-Refereed Conference Papers

* Equal Contribution † Corresponding Author ‡ Undergraduate Mentee

K. Fernandez† and S. M. Rivera-Jimenez, "From research to advocacy: A workshop to develop the next generation of socially responsible scientists and engineers," in *2023 AIChE Annual Meeting*, Nov. 2023.

S. M. Rivera-Jimenez and **K. Fernandez**, "Exploring the use of natural language processing in developing problem-based learning scenarios for social responsibility in the curriculum.," in *2023 AIChE Annual Meeting*, Nov. 2023.

Talks & Presentations

Refereed Conference Presentations & Posters

* Equal Contribution † Corresponding Author ‡ Undergraduate Mentee

K. D. Chisholm, E. Kronsnoble‡, **K. Fernandez**, and N. Ruzycki, "K-12 student stem identity development through participation in goldberg gator engineering explorers summer programs (rtp)," in *2025 ASEE Annual Conference & Exposition*, Jun. 2025. DOI: 10.18260/1-2--56903

K. D. Chisholm, S. L. Langham‡, **K. Fernandez**, and N. Ruzycki, "Development of k-12 stem teacher self-efficacy through participation in goldberg gator engineering explorers summer programs (rtp)," in *2025 ASEE Annual Conference & Exposition*, Jun. 2025. DOI: 10.18260/1-2--56289

K. Fernandez†, K. D. Chisholm, and N. Ruzycki, "Cultivating future engineers through mentoring experiences: Undergraduate student perceptions of mentorship in an educational stem k-12 summer program (ebr)," in *2025 ASEE Annual Conference & Exposition*, Jun. 2025. DOI: 10.18260/1-2--56182

K. Fernandez† and N. Ruzycki, "An exploratory study on post-secondary stem mentorship within student organizations," in *2024 IEEE Frontiers in Education Conference (FIE)*, Oct. 2024, pp. 1–5. DOI: 10.1109/FIE61694.2024.10893363

K. Fernandez†, K. D. Chisholm, and N. Ruzycki, "Examining stemm mentorship within student organizations in higher education through a critical lens," in *2024 ASEE Annual Conference & Exposition*, Jun. 2024. DOI: 10.18260/1-2--47372

K. Fernandez†, A. G. Buhler, and S. M. Rivera-Jimenez, "Methods for conducting a scoping literature review on institutional culture and transformational change in engineering education," in *2023 ASEE Annual Conference & Exposition*, Jun. 2023. DOI: 10.18260/1-2--43639

K. Fernandez[†] and S. M. Rivera-Jiménez, "Social responsibility views in science and engineering: An exploratory study among engineering undergraduate researchers," in *2023 ASEE Annual Conference & Exposition*, Jun. 2023. DOI: 10.18260/1-2--44235

Non-refereed Conference Presentations & Posters

[*] Equal Contribution [†] Corresponding Author [‡] Undergraduate Mentee

K. Fernandez[†], K. Wood[‡], S. Shepard[‡], E. Kronsnoble[‡], S. L. Langham[‡], K. D. Chisholm, and N. Ruzycki, "Demonstrating that mentorship matters: An approach for developing a mentorship framework," in *UF Graduate Student Research Day*, Apr. 2026.

K. Fernandez[†], K. Wood[‡], S. Shepard[‡], E. Kronsnoble[‡], S. L. Langham[‡], K. D. Chisholm, and N. Ruzycki, "Demonstrating that mentorship matters: An approach for developing a mentorship framework," in *UF Engineering Education Department Symposium*, Apr. 2026.

K. Wood[‡], **K. Fernandez**[†], and N. Ruzycki, "Defining mentorship in student organizations of higher education: A scoping review and thematic analysis," in *UF Materials Science and Engineering Research Poster Showcase*, Apr. 2026.

K. Wood[‡], **K. Fernandez**[†], and N. Ruzycki, "Defining mentorship in student organizations of higher education: A scoping review and thematic analysis," in *UF University Scholars Program Spring Symposium*, Apr. 2026.

N. Ruzycki[†], K. D. Chisholm, and **K. Fernandez**, "Beyond prompt engineering," in *2025 ASEE PreK-12 Engineering Education Teacher Conference*, Jun. 2025. [Online]. Available: https://tinyurl.com/beyond-prompt-engineering

E. Kronsnoble[‡], K. D. Chisholm, **K. Fernandez**, and N. Ruzycki, "Evaluating the effects of the goldberg gator engineering explorers summer program on k-12 student stem identity," in *UF Materials Science and Engineering Research Poster Showcase*, Apr. 2025.

K. Wood[‡], **K. Fernandez**[†], and N. Ruzycki, "A scoping review on stemm mentorship in student organizations at institutions of higher education," in *UF Materials Science and Engineering Research Poster Showcase*, Apr. 2025.

C. Casson[*], E. Bermúdez-Berríos[*], and **K. Fernandez**[*], "Creating a standardized and secure biomedical imaging data repository," in *PASE Fall 2024 Semester Policy Showcase*, Nov. 2024.

K. Fernandez[†] and S. M. Rivera-Jimenez, "From research to advocacy: A workshop to develop the next generation of socially responsible scientists and engineers," in *2023 AIChE Annual Meeting*, Nov. 2023.

S. M. Rivera-Jimenez and **K. Fernandez**, "Exploring the use of natural language processing in developing problem-based learning scenarios for social responsibility in the curriculum.," in *2023 AIChE Annual Meeting*, Nov. 2023.

K. Fernandez and S. Williams, "Experimental strategy for the identification of novel myosin genes in sabal palms," in *2017 Miami Dade College School of Science Symposium*, Sep. 2017.

K. Fernandez and S. Muñoz, "Towards carbon based nanotechnology: The search for a spherical, spontaneously self-assembled, supramolecular capacitor of buckminsterfullerene, c60," in *Florida Academy of Sciences 81st Annual Meeting*, Mar. 2017.

K. Fernandez and S. Muñoz, "Towards carbon-based nanotechnology: A ph-driven self-assembled supramolecular piston from n-octadecylglycine and a cyclic β-peptide nanotube," in *Florida Academy of Sciences 81st Annual Meeting*, Mar. 2017.

K. Fernandez and S. Muñoz, "Towards carbon-based nanotechnology: A self-assembled, supramolecular dipole motor from a zwitterionic dicyclopenta[b,i]anthracene betaine rotor and 18-crown-6 macrocyclic polyether stator," in *Florida Academy of Sciences 81st Annual Meeting*, Mar. 2017.

K. Fernandez and S. Williams, "An experimental strategy for identification of novel myosin genes in sabal palms," in *Association of Southeastern Biologists 78th Annual Meeting*, Mar. 2017.

K. Fernandez and S. Muñoz, "Towards carbon-based nanotechnology: Electrostatic shielding and deshielding effects on the 13c nmr spectra of buckminsterfullerene guest molecules in a cyclic β-peptide nanotube host," in *2016 Miami Dade College School of Science Symposium*, Sep. 2016.

K. Fernandez and S. Muñoz, "Towards carbon-based nanotechnology: Electrostatic shielding and deshielding effects on the 13c nmr spectra of buckminsterfullerene guest molecules in a cyclic β-peptide nanotube host," in *Life Sciences South Florida 2016 STEM Undergraduate Research Symposium*, Apr. 2016.

K. Fernandez and S. Muñoz, "Towards carbon-based nanotechnology: Electrostatic shielding and deshielding effects on the c13 nmr spectra of buckminsterfullerene guests in a cyclic β-peptide nanotube host," in *Life Sciences South Florida 2016 STEM Undergraduate Research Symposium*, Apr. 2016.

K. Fernandez and S. Muñoz, "Towards carbon-based nanotechnology: Electrostatic potential maps, molecular nanotopography and electrical conductivity of guest (9,0)-zigzag single-walled carbon nanotubes within host cyclic peptide nanotubes," in *Florida Academy of Sciences 80th Annual Meeting*, Mar. 2016.

K. Fernandez and S. Muñoz, "Towards carbon-based nanotechnology: Electrostatic shielding and deshielding effects on the c13 nmr spectra of buckminsterfullerene, c60, within a cyclic β-peptide nanotube host," in *Florida Academy of Sciences 80th Annual Meeting*, Mar. 2016.

K. Fernandez and S. Muñoz, "Towards carbon based nanotechnology: 13c nmr shielding and deshielding effects in a self-assembled supramolecular nanopeapod from a [60]fullerene guest in a cyclo-[(l)-β-aminobutyric acid)9] peptide nanotube host," in *2015 Miami Dade College School of Science Symposium*, Sep. 2015.

K. Fernandez and S. Muñoz, "Towards carbon based nanotechnology: 13c nmr magnetic shielding and deshielding effects on a [60]fullerene guest in a self-assembled cyclo-[(l)-β-aminobutyric acid)9] peptide nanotube host," in *Life Sciences South Florida 2015 STEM Undergraduate Research Symposium*, Apr. 2015.

K. Fernandez and S. Muñoz, "Towards carbon based nanotechnology: Electrostatic potential maps, electrical conductivity and nanotopography of single-walled (9,0)-zigzag boron nitride nanotubes," in *10th Annual Cell Science Research Symposium*, Apr. 2015.

K. Fernandez and S. Muñoz, "Towards carbon based nanotechnology: Supramolecular nanopeapod from a [60]fullerene guest in a self-assembled cyclo-[(l-β-aminobutyric acid)9] peptide nanotube host," in *10th Annual Cell Science Research Symposium*, Apr. 2015.

K. Fernandez and S. Muñoz, "Towards carbon-based nanotechnology: Electrostatic potential maps, electrical conductivity, and nanotopography of (n,0)-zigzag and (n,n)-armchair single walled carbon nanotubes," in *10th Annual Cell Science Research Symposium*, Apr. 2015.

Invited Talks, Panels, Symposia, & Workshops

* Equal Contribution † Corresponding Author ‡ Undergraduate Mentee

K. Fernandez† and N. Ruzycki, "Constructing a framework for the assessment of effective peer and near-peer mentorship," in *UF Materials Science and Engineering Graduate Student Seminar Series*, Nov. 2024.

A. Burgess* and **K. Fernandez***, "Polishing policy pieces: Refining recommendations for presentation or publication," in *PASE Policy Writing Workshop Series*, Oct. 2024.

A. Burgess* and **K. Fernandez***, "Designing effective policy posters," in *PASE Policy Writing Workshop Series*, Sep. 2024.

A. Burgess* and **K. Fernandez***, "Engaging with the public effectively: Strategies for communicating policy analysis," in *PASE Policy Skills Workshop Series*, Sep. 2024.

A. Burgess* and **K. Fernandez***, "Op-ed writing tips and practice," in *PASE Policy Writing Workshop Series*, Sep. 2024.

K. Fernandez, "Effective communication strategies for public policy," in *PASE Policy Skills Workshop Series*, Mar. 2024.

K. Fernandez†, L. Phillips‡, and S. M. Rivera-Jimenez, "Making better research videos: Storyboarding in science communication," in *UF College of Engineering REU Professional Development Workshop Series*, Jul. 2023.

K. Fernandez†, L. Phillips‡, and S. M. Rivera-Jimenez, "Getting started with societal impact research," in *UF College of Engineering REU Professional Development Workshop Series*, Jun. 2023.

K. Fernandez, "A peer panel discussion," in *1st Annual Communities of Interest Academic Success Series at Miami Dade College*, Nov. 2016.

K. Fernandez, "My journey to becoming a stem professional," in *2016 Miami Dade College School of Science White Coat Ceremony*, Sep. 2016.

Professional Development & Certifications

- FAIR Forward 2025 Hackathon Certificate of Participation from BioData Sage: November 2025
- Negotiation Professional Certificate by the American Negotiation Institute: September 2025
- NASA Open Science 101 Certificate of Completion: December 2024
- Science Policy & Advocacy for Research Competition (SPARC) Certificate of Completion from the Universities Research Association (URA): April 2024
- Science Policy & Advocacy for STEM Scientists Certificate of Completion: September 2023
- Policy for Science, Technology & Innovation Certificate of Completion from MIT: August 2023
- Inclusive Engineering Fundamentals Microcredential from the University of Texas at Austin: June 2023
- Inclusive Mentoring Academy in Graduate Education (IMAGE) Certificate from the University of Florida: May 2023
- Computer Science Education Microcredential from the University of Florida: April 2023
- Diversity, Inclusion, & Belonging Certificate from the University of Florida: January 2023
- The Inclusive STEM Teaching Project Professional Certificate: November 2022

Technical Skills

Quantitative Methods: Surveys, Descriptive & Inferential Statistics, Data Visualization
Qualitative Methods: Focus Group Interviews, One-on-One Interviews, Thematic Coding
Programming Languages: C, C++, JavaScript, Python, R, SQL
Collaboration Software: Microsoft Teams, Zoom Video Conferencing, Slack
Productivity Software: Microsoft Office Suite, Google Workspace, LibreOffice
Statistical Software: R (RStudio, Positron), SPSS Statistics, JASP
Languages: English (native), Spanish (professional working proficiency)

Teaching

Adjunct Faculty, Kendall Campus – Biology Department

- Biology Lecture, *Miami Dade College* ..... May 2021 – May 2022
- Biology Laboratory, *Miami Dade College* ..... May 2021 – May 2022
- Microbiology Lecture, *Miami Dade College* ..... May 2021 – May 2022
- Microbiology Laboratory, *Miami Dade College* ..... May 2021 – May 2022

High School Teacher, Science Department

- Biology, *Homestead Senior High School* ..... August 2019 – October 2020
- Physical Science, *Homestead Senior High School* ..... August 2019 – October 2020
- Biology (Summer School), *Homestead Senior High School* ..... June 2019 – August 2019

Mentoring

- Kayleigh Wood, *Undergraduate Mentee* ..... October 2023 – Current
- Shane Shepard, *Undergraduate Mentee* ..... October 2023 – Current
- Emersen Kronsnoble, *Undergraduate Mentee* ..... August 2023 – November 2025
- Sarah Langham, *Undergraduate Mentee* ..... August 2023 – August 2025
- Angelica Santiago-Ortiz, *Undergraduate Mentee* ..... June 2023 – August 2023
- Laura Phillips, *Undergraduate Mentee* ..... June 2023 – August 2023

Service

Peer Review

- IEEE Frontiers in Education Conference: 2024 – Current
- UF Journal of Undergraduate Research: 2023 – Current
- ASEE Annual Conference & Exposition: 2022 – Current

Departmental & University Service

- President – Policy Advocacy in Science & Engineering, *University of Florida* ... August 2022 – Current
- Vice President – EED Graduate Student Council, *University of Florida* ..... August 2024 – July 2025

Community Service

- Organizing Member, *Scientist Network for Advancing Policy* ..... May 2025 – Current

Professional Memberships

- American Association for the Advancement of Science (AAAS): 2021 – Current
- American Society of Engineering Education (ASEE): 2022 – Current
- Society for the Advancement of Chicanos/Hispanics & Native Americans in Science (SACNAS): 2023 – Current