

Tanya M. Nocera, PhD

3100B Fontana Labs | 614.292.4753 | nocera.15@osu.edu

EDUCATION

Biomedical Engineering (BME) The Ohio State University, Columbus, OH	PhD, Dec 2013 MS, Dec 2011
Physics Allegheny College, Meadville, PA	BS, May 2009

PROFESSIONAL APPOINTMENTS

Co-Founder and Vice President of Research and Development HDO Health (medical device start-up company), Columbus, OH	2021 – Present
Director of Undergraduate Education, Biomedical Engineering (BME) The Ohio State University, Columbus, OH	2020 – Present
Associate Professor of Practice, Biomedical Engineering (BME) The Ohio State University, Columbus, OH	2020 – Present
Founder and Director of Medical Product Development Master's Degree Program, BME The Ohio State University, Columbus, OH	2018 - Present
Assistant Professor of Practice, Biomedical Engineering (BME) The Ohio State University, Columbus, OH	2014 – 2020
Graduate Research Associate, Biomedical Engineering (BME) The Ohio State University, Columbus, OH	2009 – 2013

GRANTS AND OTHER FUNDING SUPPORT

All-in-one Ventilator Device Development OSU Center for Clinical and Translational Science Multi-disciplinary Voucher (PI: Nocera) \$5,000	2020 – 2021
Ohio Third Frontier Technology Validation and Start-Up Fund (TVSP), and OSU Corporate Engagement Office and Keenan Center for Entrepreneurship “A junctional tourniquet for control of bleeding from areas not accessible to extremity tourniquets.” (PI: Nocera) \$149,750	2020 – 2021
Research Initiation in Engineering Formation (RIEF) – NSF Award 1830814 “Research Initiation: Analyzing inequities in undergraduate workforce opportunities between biomedical and other engineering majors.” (PI: Nocera) \$199,957	2018 – 2022
Junctional Tourniquet Device Development OSU Center for Clinical and Translational Science Voucher (PI: Nocera) \$3000 OSU College of Nursing Innovation Studio Seed Funds (PI: Nocera) \$500	2019

AWARDS AND HONORS

• Ralph L. Boyer Award for Excellence in Undergraduate Teaching Engineering Innovation, OSU	2021
• Herman R. Weed Excellence in Teaching Award, OSU Biomedical Engineering	2020
• Biomedical Engineering Teaching Award, American Society for Engineering Education	2019
• Best Diversity Paper Finalist, American Society for Engineering Education	2019
• Herman R. Weed Excellence in Teaching Award, OSU Biomedical Engineering	2015
• Graduate Teaching Associate Award, OSU Biomedical Engineering	2013
• Graduate Service Award, OSU Biomedical Engineering	2013
• Andreas F. von Recum Graduate Research Award, OSU Biomedical Engineering	2013
• Women in Engineering Distinguished Graduate Student Award, OSU College of Engineering	2011

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CREATIVE WORKS

Patents

1. “Junctional Tourniquet,” PCT/US2021/015539, *McElroy J, Graham N, **Nocera TM***. Published August 5, 2021.

Invention Disclosures

1. “All-in-one mechanical ventilator for improved patient ambulation and transport.” *Kenyon H, Dunlea T, Fan A, Haney A, Israelstam G, **Nocera TM**, Pierson C, Skidmore J, Thanh G, Vazquez D*. Filed **April 2020**.
2. “Adaptive Wheelchair for Everyday Life and Recreation.” *Losensky J, Tran R, Seng W, Franzoni M, Doherty C, Berner T, **Nocera TM***. Filed **April 3, 2019**.
3. “A junctional tourniquet for control of bleeding from areas not accessible to standard extremity tourniquets.” *McElroy JA, Graham N, **Nocera TM***. Filed **May 17, 2018**.
4. “Adaptive Horse Saddle Adjunct for Children and Adolescents with Core Instability.” *Berner T, Donnelly E, Lane C, Hale C, Feder S, Balhorn J, Haas E, **Nocera TM***. Filed **March 9, 2018**.
5. “Adaptive Paddle Board Seat for Individuals with Spinal Cord Injury.” *Berner T, Allen M, Brannan Z, Centa A, Al-Ghawi H, Ruscello N, Pfeifer E, Schroeder K, **Nocera TM***. Filed **March 8, 2018**.
6. “Adaptive Sports Track and Field Throwing Chair.” *Berner T, McQuaide D, Agrotis C, Boberek M, Kravitz H, Casa C, Rieger N, Clairmonte I, Jeffers A, **Nocera TM***. Filed **February 28, 2018**.
7. “Attachable Equipment-Carrying Device for Use with Manual Rigid Wheelchair.” *Stricko R, Elder A, Harrington J, Lin D, Kandel A, Berner T, **Nocera TM***. Filed **March 9, 2017**.
8. “Adaptive Kayak Seat for Small Framed Individuals with Quadraparetic/plegic Cerebral Palsy and Similarly Presenting Disabilities.” *Sesock J, Bodnyk K, Roshetko R, Ebner T, Rodewald M, Wang C, Berner T, **Nocera TM***. Filed **March 9, 2017**.
9. “Kayak Assistive Paddle Device.” *Sunycz I, Patel N, Howard T, Vannoy A, Herman S, Roser M, Ruegsegger M, Berner T, **Nocera TM***. Filed **February 27, 2016**.
10. “Written Communication Assist Device.” *Clark JA, Baumann ME, Wharton J, Metka K, Inkrott J, Kerslake D, Stahr K, Berner T, **Nocera TM***. Filed **March 12, 2015**.
11. “Manual Muscle Testing Assistive Device.” *Hetterscheidt S, Snider D, Kanner C, Neville R, Totten Z, Pavelko S, Spitznagle A, Metzler S, Berner T, **Nocera TM***. Filed **March 10, 2015**.
12. “Two-Rail Boccia Ramp with Extension.” *Telek S, Schwieterman K, Leahy S, Wehrle M, Shah N, Doughten S, Berner T, **Nocera TM***. Filed **February 27, 2016**.

PUBLICATIONS AND PRESENTATIONS

Google Scholar: <https://scholar.google.com/citations?user=eCA-jHsAAAAJ&hl=en>

Peer-Reviewed Journal Articles

1. Dusane DH, Diamond SM, Knecht CS, Farrar NR, Peters CW, Howlin RP, Swearingen MC, Calhoun JH, Plaut RD, **Nocera TM**, Granger JF, Stoodley P, “Effects of loading concentration, blood and synovial fluid on antibiotic release and anti-biofilm activity of bone cement beads,” *J.Control. Release* 2017; 248: 24-32.
2. Blissett A, Ollander B, Deng B, **Nocera TM**, Calomeni E, Yin F, McComb D, McTigue D, Agarwal G, “Ferritin mineral core composition in health and disease,” *Microscopy and Microanalysis* 2016; 22(S3).
3. **Nocera TM**, Zeng Y, Agarwal G, “Distinguishing ferritin from apoferritin using magnetic force microscopy,” *Nanotechnology*. 2014, 25(46): 461001.
4. Stevenson MD, Piristine H, Hoglebe NJ, **Nocera TM**, Boehm MW, Reen RK, Koelling KW, Agarwal G, Sarang-Sieminski AL, Gooch KJ, “A self-assembling peptide matrix used to control stiffness and binding site density supports the formation of microvascular networks in three dimensions,” *Acta Biomater*. 2013, 9(8): 7651-7661.
5. **Nocera TM**, Chen, J., Murray, C.B., Agarwal, G., “Magnetic Anisotropy Considerations in Magnetic Force Microscopy Studies of Single Superparamagnetic Nanoparticles,” *Nanotechnology* 2012; 23 (49): 495704.
6. Hilfiger, M.G., Chen, M., Brinzari,T.V., **Nocera, TM**, Shatruck, M., Petasis, D.T., Musfeldt, J.L., Achim, C. Dunbar, K.R., “An Unprecedented Charge Transfer Induced Spin Transition in an Fe–Os Cluster,” *Angewandte Chemie International Edition* 2010; 49(8): 1410–1413.

Invited Book Chapter

1. Agarwal G and **Nocera TM**, “Atomic force microscopy.” *The Nanobiotechnology Handbook*, edited by Yubing Xie, CRC, 2012, 369-91.

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Conference Proceedings

(*) denotes full, peer-reviewed paper (!) denotes best diversity conference paper finalist

1. (*) Ortiz-Rosario A, Choe NH, Shermadou AS, Delaine DA, **Nocera TM** “Comparison of Job Market and Employer Interest in Undergraduate Engineering Students: An Exploratory Analysis,” *American Society for Engineering Education*, Virtual, 2020.
2. (*)(!) Ortiz-Rosario A, **Nocera TM**, Shermadou AS, Delaine DA, “To What Extent Does Gender and Ethnicity Impact Engineering Students’ Career Outcomes? An exploratory analysis comparing biomedical to three other undergraduate engineering majors,” *American Society for Engineering Education*, Tampa, 2019.
3. Gammon-Pitman R, **Nocera TM**, “Work-in-Progress: BME Students’ Perspectives on a Laboratory Technical Writing Cycle,” *American Society for Engineering Education*, Tampa, 2019. *Poster*.
4. Young E, **Nocera TM**, Tobias JD, D’Mello, A, “Mechanical Analysis of Endotracheal Tube Kinking,” *Society Pediatric Anesthesiology Annual Meeting*, Phoenix, AZ, 2018. *Poster*.
5. (*) **Nocera TM**, Delaine DA, Ortiz-Rosario A, Shermadou A. “Bridging the Gap between BME and Industry: A Case Study,” *American Society for Engineering Education*, Salt Lake City, 2018.
6. **Nocera TM**, Gammon-Pitman RW, “WIP: Improving BME Student Technical Writing through Rubrics & Report Resubmissions,” *American Society for Engineering Education*, Salt Lake City, 2018. *Poster*.
7. Okon MD, **Nocera TM**, “Work in Progress: Teaching Effective Teamwork Skills Through Activities that Promote Self-Awareness,” *American Society for Engineering Education*, Salt Lake City, 2018. *Poster*.
8. Okon MD, **Nocera TM**, “Work in Progress: The Student Educational Experience with Electronic Laboratory Notebooks,” *American Society for Engineering Education*, Columbus, 2017. *Poster*.
9. (*) **Nocera TM**, Okon MD, “Electronic Lab Notebooks Impact BME Students’ Quality of Documentation & Technical Communication,” *American Society for Engineering Education*, Columbus, 2017.
10. Ruegsegger MA, Digiovine CD, Berner T, Metzler S, **Nocera TM**, “Capstone projects have improved outcomes from combined partnership with clinical and commercialization experts,” *BMES*, Tampa, 2015.
11. Ruegsegger MA, Ruan G, **Nocera TM**, Jones R, “Engineering summer design experience has greater impact with international collaborations,” *Biomedical Engineering Society*, Tampa, 2015.
12. **Nocera TM**, Zeng Y, Agarwal G, “Novel Indirect Magnetic Force Microscopy Technique for Analyzing Magnetic Biological Samples,” *Biomedical Engineering Society*, Atlanta, 2012.
13. **Nocera TM**, Teeling R, Page M, Pelekhov D, Hammel PC, Chen J, Murray CB, Agarwal G, “Imaging Superparamagnetic Nanoparticles in Cells,” *Biomedical Engineering Society*, Pittsburgh, 2009. *Poster*.
14. **Nocera TM**, Meier K, Abood R, Chen M, Hilfiger M, Petasis D, Achim C, Dunbar K, “Electron paramagnetic resonance spectroscopic studies of cyanide-bridged Fe/Os and Fe/Ru clusters,” *American Physical Society*, Pittsburgh, 2009. *Poster*.

Invited Seminars

1. “Understanding Supports and Barriers Faced by Undergraduate Engineers during their Career Attainment Processes,” University of Illinois, Champaign-Urbana, Dept. of Bioengineering Seminar Series, Sept. 2021.
2. “Understanding Supports and Barriers Faced by Undergraduate Engineers during their Career Attainment Processes,” University of Louisville, Department of Bioengineering Seminar Series, October 2021.

TEACHING

* denotes significant course development; (A) denotes autumn and (S) denotes spring semester

BIOMEDE 3702 – Measurements & Instrumentation Lab*	Semesterly, S15 – S17
BIOMEDE 4711 – Bioimaging Lab*	Annually, A14 – A18
BIOMEDE 4712 – Biotransport Lab*	Annually, S15 – S20
BIOMEDE 4713 – Biomaterials Lab*	Semesterly, A14 – A20
BIOMEDE 4714 – Biomechanics Lab*	Semesterly, A14 – A20
BIOMEDE 4715 – Tissue Engineering Lab*	Semesterly A15 – S20
BIOMEDE 4716 – Biomedical Micro/Nanotech Lab*	Annually S15 – S18
BIOMEDE 4901/4902 – Senior Design Sequence*	Semesterly A14 – Present
BIOMEDE 5901/5902 – Medical Product Development Sequence*	Semesterly A18 - Present
BIOMEDE 5810 – Industry and Professional Development Seminar*	Semesterly A19 – A21

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RELEVANT INNOVATION AND TEACHING PROFESSIONAL DEVELOPMENT

OSU COE Inclusive Excellence Certificates – Levels 1 and 2	2022
Biomedical Engineering Educations Conference (BEEC)	2020
NSF Engineering Education Centers (EEC) Grantees Conference	2019
Council of Chairs Biomedical Engineering Education Summit Meeting	2019
OSU University Institute of Teaching and Learning Course Design Institute	2019
OSU Annual University Assessment Conference	2015, 2016, 2017, 2018
BME Innovation, Design and Entrepreneurship Alliance (IDEA) Meeting	2015, 2016, 2018
KEEN Innovating Curriculum with Entrepreneurial Mindset (ICE) Workshop	2018
Capstone Design Conference	

MENTORING

PhD Students Advised in Engineering Education Research

Amena Shermadou, Engineering Education, Department of Engineering Education	2018 – Present
Robert Gammon-Pitman, STEM Education, Education and Human Ecology	2017 – 2020
Monica Okon, Biomedical Engineering Education	2016 – 2018

MS Students Supported on Research and Design Projects

Curtis Pierson, BME, Medical Device Design	2020 – Present
Mengyun Li, Integrated Systems Engineering, Product Usability	2020 – Present

MS Committees

Hannah Kenyon, BME, non-thesis MS, Medical Product Development	2021
Curtis Pierson, BME, non-thesis MS, Medical Product Development	2021
Genevieve Thanh, BME, non-thesis MS, Medical Product Development	2021
Anthony Mango, BME, non-thesis MS, Medical Product Development	2020
Josh Reddington, BME, non-thesis MS	2020
Lauren Shingler, BME, non-thesis MS, Medical Product Development	2020
Patrick Smith, BME, non-thesis MS, Medical Product Development	2020
Holly Wendell, BME, non-thesis MS	2019
Hannah Thek, BME, non-thesis MS	2019
Emily Albrecht, BME, non-thesis MS	2019
Brad Homyak, BME, non-thesis MS	2016

Undergraduate Students Advised in Research and Independent Design Projects

Emily Young, BME, Honors Research Thesis: “Mechanical Analysis of Endotracheal Tubes”	2017 – 2018
Yue Pan, BME, and Andrew Karnele, BME, “EEG device for maintaining alertness in class”	2015 – 2016
Megan Posukonis, BME, and Briana Swan, microbiology, “Wheelchair design for 3-legged dog”	2015 – 2016

Undergraduate Research Distinction Committees

Cole Anderson, BME	2021
Marissa Ruzga, BME	2020
Dennison Min, BME	2020
Curtis Pierson, BME	2020
Emily Young, BME	2018
Cemantha Lane, BME	2018
Rachel Novinc, BME	2018
Kathryn Kaltenmark, BME	2017
Nehal Patel, BME	2016
Nicholas Farrar, BME	2015
Anne Shim, BME	2015

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PROFESSIONAL SOCIETIES AND SERVICE

Member, American Society for Engineering Education (ASEE)	2013 – Present
• Program Chair, Division Chair, Biomedical Engineering Division	2020 – Present
• Delegate, Committee on Diversity, Equity and Inclusion (Partnerships Committee)	2018 – 2020
• Member at Large, Biomedical Engineering Division	2017 – 2020
• Paper and Abstract Reviewer, Biomedical Engineering Division	2017 – Present
• Student Travel Award Reviewer, Biomedical Engineering Division	2017 – 2020
Member, Biomedical Engineering Society (BMES)	2009 – Present
• Abstract Reviewer, Engineering Education Track	2018 – Present
• Reviewer and Judge, BMES Student Design Competition	2014 – Present

SERVICE – THE OHIO STATE UNIVERSITY

University Service

• Mentor, Faculty FIT Program, University Institute for Teaching and Learning	2019 – 2020
• Advisor, Accessible Prosthetics Initiative, Student Organization	2018 – Present
• Consultant, Office of Distance and E-Learning, LabArchives and Canvas Integration	2018 – 2019
• Founding Faculty Advisor, Medical Innovation Club, Student Organization	2017 – 2022
• Faculty Mentor, Second-year Transformation Experience Program (STEP)	2015 – 2018

College of Engineering Service

• Member, College Committee on Academic Affairs	2020 – Present
• Member, Curriculum Approval Sub-Committee	2020 – Present
• Member, Outcomes and Assessment Committee	2014 – 2020
• Leader, Professors of Practice Mentorship Committee	2016 – 2018

Biomedical Engineering Departmental Service

• Chair, Undergraduate Studies Committee	2020 – Present
• Coordinator, BME Faculty iPad Learning Community	2019 – 2020
• Member, Undergraduate Studies Committee	2014 – 2020
• Member, Space and Facilities Committee	2014 – 2018
• Faculty Mentor, BME International Summer Design Experience Camp	2014 – 2019
• Prospective BME Students and Families Teaching Laboratory Tours	2014 – 2019
• BMES Symposium Poster Judge	2014 – 2019
• Coordinator and Trainer, BME Graduate Teaching Associates	2014 – Present
• Demonstrator, BMES Industry Day – “Seeing with Sound” Ultrasound Demo	2019
• Demonstrator, Medical Exposure Club Student Organization – BME lab visit night	2019
• Faculty resume reviewer, BMES student resume workshop	2018
• Member, BMEC Building Planning Committee – Teaching Spaces	2016 – 2018
• Member, BMES Reception Planning Committee	2016 – 2018

Outreach Activities

• Delaware Area Career Center – Visit BME at OSU day; presentation and demonstrations	2017 – 2019
• Annual Westerville Blendon Middle School Career Day – BME careers demo	2015 – 2019
• Annual Women in Engineering Middle and High School Summer Camps – BME demos	2014 – 2019
• Annual Women in Engineering Learning Community Orientation – Invited Panelist	2015 – 2019
• Dublin City Schools Emerald Campus – BME demo day	2019
• OSU WiE Café – featured woman engineering faculty of the month (March)	2019
• Women in STEMM Alumni Association – invited panelist	2018
• Shanahan Middle School Innovative Careers Day – BME careers demo	2018
• Watkins Middle School Career Day – BME careers demo	2018

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- College of Engineering Dean's Roadshow – faculty/student demo coordinator 2017 – 2018
- Metro Early College Middle School – BME outreach and demo day 2017
- Allegheny College Women in Physics Conference – Invited Speaker 2017
- Women in STEM Student Book Club (“Lean In”) – Faculty Lead 2017