**LYNNETTE M. MICHALUK**

**CURRICULUM VITAE**

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## ACADEMIC POSITIONS

Research Assistant Professor, Center for Excellence in STEM Education, West Virginia University 2015 – Present

Visiting Assistant Professor, Department of Psychology, Oklahoma State University 2014 – 2015

Adjunct Faculty, Department of Psychology, Oklahoma State University 2010 – 2011

Adjunct Faculty, Department of Social Sciences, Northern Oklahoma College 2009 – 2011

## EDUCATION

**Postdoctoral Fellow,** Center for Excellence in STEM Education, West Virginia University Fall 2015

**Ph.D.,** Experimental/Life Span Developmental Psychology, Oklahoma State University 2009
Dissertation: *The effects of direction of motion, length of spatial distance, and differences in velocity on temporal interval estimates of visual stimuli.*

**M.S.,** Experimental/Life Span Developmental Psychology, Oklahoma State University 2005
Thesis: *The influence of movement and predefined spatial distance on temporal perception in the kappa effect.*

**B.A.,** Psychology, Oakland University, Rochester, Michigan 1999

## RESEARCH INTERESTS

- Developing statistical models for identifying students at risk for STEM dropout
- Determining factors involved in the development and maintenance of STEM identity and related non-cognitive factors in underrepresented undergraduate STEM students
- Development of methods to increase the enrollment and retention of students in STEM majors with particular emphasis on recruitment of women, people of color, and rural populations

## RESEARCH EXPERIENCE

**Center for STEM Education, West Virginia University** 2014 – Present

I supervise research design and conduction of statistical analyses and evaluate center research projects to develop a model of best practices in STEM education specific to local rural and underrepresented minority students. I develop and validate new assessments and adapt existing assessments, prepare manuscripts, NSF research reports and state data proposals, edit center manuscripts, and write grant proposals. I have prepared and contributed to the preparation of more than 76 National Science Foundation, Department of Education, National Institutes of Health, National Aeronautics and Space Administration, and foundation grant proposals to date. I collaborate with center affiliates to write research questions and hypotheses and design appropriate research methodology and statistical analyses. Train Center staff in quantitative analyses, research methodology, writing, and graphic presentation of results.

### Current Projects

- **UK-WV Louis Stokes Alliance for Minority Participation**, a 5-year National Science Foundation Funded collaboration between ten two- and four-year higher education institutions that utilizes evidence-based

techniques to aggressively increase the competitiveness and number of students from traditionally underrepresented minority (URM) populations who receive degrees in STEM by examining the impact of LSAMP activities and pedagogical techniques on LSAMP participant academic success and graduation. I am the Project Research Study Co-Primary Investigator.

- **Secure and Upgrade Computer Science in Classrooms through an Ecosystem with Scalability & Sustainability (SUCCESS)** This National Science Foundation funded Research Practice Partnership is investigating how best to design and maintain an ecosystem of people, programs, knowledge, and resources to provide Computer Science (CS) education and related career counseling to all students of West Virginia's Raleigh County School District middle schools. School- and district-level partnership teams including teachers, principals and counselors, are using research results produced by the project to work together to provide and iteratively improve professional development (PD) and modification of the most widely used CS curriculum in the world (from Code.org) to ensure that all middle school students in predominantly rural West Virginia have access to high quality CS education and an understanding of CS career opportunities, both of which are lacking in rural areas. I am the project Research Scientist.

- **Strengthening Potomac State College by Increasing Student Engagement and Persistence Through Investing in Course Evaluation and Redesign, Academic Advising, Career Services, Diversity Programming, and Endowment Funds**, funded by the U.S. Department of Education, and the National Science Foundation funded **RII Track 2 FEC: Enabling Factory to Factory (F2F) Networking for Future Manufacturing**. I am external evaluator for both projects, which are broadening participation of underrepresented students from two- and four-year higher education institutions in STEM.

## PUBLICATIONS

Miller, D., Deshler, J., McEldowney, T., Stewart, J., Fuller, E., Pascal, M., & **Michaluk, L.** (2021). Supporting student success and persistence in STEM with active learning approaches in Emerging Scholars Classrooms. Frontiers in Education, 6, 667918. https://doi.org/10.3389/feduc.2021.667918

Stewart, J., Cochran, G. L., Henderson, R., Zabriskie, C., DeVore, S., Miller, P., Stewart, G., & **Michaluk, L.** (2021). Mediational effect of prior preparation on performance differences of students underrepresented in physics. Physical Review: Physics Education Research*,* 17, 010107. 10.1103/PhysRevPhysEducRes.17.010107

Stewart, J., Henderson, R., **Michaluk, L.**, Deshler, J., Fuller, E., & Rambo-Hernandez, K. (2020). Using the Social Cognitive Theory framework to chart gender differences in the developmental trajectory of STEM self-efficacy in science and engineering students. Journal of Science Education and Technology, 29(6), 758-773. https://doi.org/10.1007/s10956-020-09853-5

**Michaluk, L.,** Stoiko, R., Stewart, G., & Stewart, J. (2018). Beliefs and attitudes about science and mathematics in pre-service elementary teachers, STEM, and non-STEM majors in undergraduate physics courses. Journal of Science Education and Technology, 1 - 15.

Henderson, R., Stewart, G., Stewart, J., **Michaluk, L.**, & Traxler, A. (2017). Exploring the gender gap in the Conceptual Survey in Electricity and Magnetism. Physical Review: Physics Education Research*,* 13, 020114.

**Michaluk, L. M.,** DeVore, S., Stewart, G. B., & Stewart, J. C. (2016). New directions in educational research, methodology, and analytical techniques. In M. d' Souza (Ed.), Teaching and learning in higher education: Emerging trends (pp. 90-131). Anaheim, CA: United Scholars Publications.

Stewart, J. C., Devore, S., Stewart, G. B., & **Michaluk, L.** (2016). Behavioral self-regulation in a physics class. Physical Review: Physics Education Research, 12(1), 010125.

**Michaluk, L. M.**, Martens, J., Damron, R. L., & High, K. A. (2016). Critical thinking elements of first-year engineering students. International Journal of Engineering Education, 32(1A), 84–99.

Abramson, C. I., Wanderley, P. A., Wanderley, M. J. A., Silva, J. C. R., & **Michaluk, L. M.** (2007). The effect of essential oils of sweet fennel and pignut on mortality and learning in Africanized honey bees (Apis mellifera L.). Neotropical Entomology, 36, 828 – 835.

Abramson, C. I., Wilson, M. K., Singleton, J. B., Wanderley, P. A., Wanderley, M. J. A., & **Michaluk, L. M.** (2006). Citronella is not a repellent to Africanized honey bees (*Apis mellifera* L.) in Brazil. Bioassay, 1, 1 – 7.

Abramson, C. I., Singleton, J. B., Wilson, M. K., Wanderley, P. A., Ramalho, F. S., & **Michaluk, L. M.** (2006). The effect of an organic pesticide on mortality and learning in Africanized honey bees (*Apis mellifera* L.) in Brasil. American Journal of Environmental Sciences, 2, 37 – 44.

Foley, A. J., **Michaluk, L. M.**, & Thomas, D. G. (2004). The effect of pace alteration on time interval estimation. Perceptual and Motor Skills, 98, 291 – 298.

Abramson, C. I., Morris, W. A., **Michaluk, L. M.**, & Squire, J. (2004). The use of antistatic foam as a shocking surface for invertebrates. Journal of Entomological Science, 39, 562 – 566.

## GRANTS

### Current Funding

Department of Education. Strengthening Potomac State College by Increasing Student Engagement and Persistence Through Investing in Course Evaluation and Redesign, Academic Advising, Career Services, Diversity Programming, and Endowment Funds. Role: External Evaluator. PI: Gregory Ochoa. Amount: $1,756,677. 2021 – 2026

National Science Foundation. RII Track 2 FEC: Enabling Factory to Factory (F2F) Networking for Future Manufacturing. Role: External Evaluator. PI: Thorsten Wuest. Amount: $3,800,000. 2021 – 2025

National Science Foundation. BCSER-IID: Undergraduate Knowledge of the Mathematics Graduate School Application Process (Knowledge-GAP). Role: Research Mentor. PI: Tim McEldowney. Amount: $349,287. 2022 – 2024

National Science Foundation. CAREER: Leveraging Deep Learning and Big Data Spatial Detection Analytics to Increase the Value of the National Geospatial Data Infrastructure: Using 3DEP LiDAR and Historic Data for Geomorphic Mapping and Change Genomics and STEM Engagement in Appalachia (TBD). Role: Evaluator. PI: Aaron Maxwell. Amount: $636,778. 2021 – 2026

National Science Foundation. CAREER: Mycoheterotrophic Plants as Models for Evolutionary Genomics and STEM Engagement in Appalachia (DEB-2044259). Role: Evaluator. PI: Craig Barret. Amount: $808,805. 2021 – 2025

National Science Foundation. Secure and Upgrade Computer Science in Classrooms through an Ecosystem with Scalability & Sustainability (SUCCESS; EHR-2031355). Role: Co-PI, Social Sciences Researcher. PI: Afrin Naz. Amount: $1,000,000. 2021 – 2024

National Science Foundation. Breaking the Cycle: Preparing West Virginia's Rural, First Generation College Goers for the Careers of the Future through Computational Physics (CPHYS), a Track 2 Design and Development Project, (DUE-1833694). Role: Research Design and Evaluation. PI: John Stewart. Amount: $1,000,000. 2019 – 2024

National Science Foundation. NSF INCLUDES Alliance: First2 STEM Success Alliance, (HRD-1834569). Role: Research Methods and Statistical Analyses and Graduate Student Mentor. PI: Gay Stewart. Total amount: $796,101. 2018 – 2023

National Science Foundation. Louis Stokes Alliance for Minority Participation STEM Pathways and Research Alliance: KY-WV, (HRD-1826763). Role: Site Research Study Co-PI. Site PI: David Miller. Amount: $3,500,000. 2018 – 2023

National Science Foundation. GP-IMPACT: Improving Geoscience Education for Rural and First-Generation College Students through a Shared-Instruments Collaboration - Bridging the High School to Undergraduate Divide for Students in Reclamation Science and Management (ICER-1911347). Role: Statistical and Qualitative Analysis and Internal Evaluator. PI: Louis McDonald. Amount: $306,036. 2019 – 2022

**Past Funding**

National Science Foundation. Adapting the Next Generation: Physical Science and Everyday Thinking Curriculum for a Lecture-Laboratory Format (DUE-1611738). Role: Research Methods, Rubric Development, and Statistician. PI: Gay Stewart. Amount: $211,399. 2016 – 2021

National Science Foundation. STEM-R: Modeling STEM Retention and Departure across Physics, Mathematics, and Engineering, (DGE-1561517). Role: Internal Evaluator. PI: John Stewart. Amount: $299,993. 2016 – 2019

National Science Foundation. Critical Thinking Enhancement through Paired English Composition and Engineering Courses. (DUE-0737514). Role: Statistical Analyst. PI: Karen High. Amount $150,000. 2008 – 2012

**PROFESSIONAL DEVELOPMENT**

Enhancing the Security and Integrity of America's Research Enterprise. Webinar presented by the White House Office of Science and Technology Policy, October 2020.

NSEC Webinar on Center Evaluation. Webinar presented by the Network of STEM Education Centers, August 2020.

Excellence: A Critical Examination of Accountability. Webinar presented by the evaluative partner of the Howard Hughes Medical Institute (HHMI) Inclusive Excellence Initiative, sponsored by American Association of Colleges & Universities, May 2019.

Proven Strategies to Prepare Students for CS Careers. STEM connector Town Hall Webinar sponsored by STEM connector, August 2017.

Rigorous Data Collection & Analysis. Webinar presented by Nature.com webcasts. Sponsored by Gilman, June 2017.

Automated Machine Learning in Action. Webinar sponsored by DataRobot, May 2017.

Envisioning the Data Science Discipline: The Undergraduate Perspective. Webinar sponsored by The National Academies of Science, Engineering, & Medicine, April 2017.

The Difference that Makes a Difference: Transforming Southern Connecticut State University with Cognitive Analytics. Webinar sponsored by IBM Analytics, April 2017.

Roundtable on Data Science Post-Secondary Education I & II. Webinars sponsored by the Committee on Applied and Theoretical Statistics (CATS), March and May 2017.

When Your Big Data Seems Too Small. Webinar presented by the Databases and Foundations in Computer Science Graduate Certificate Program, Stanford University, March 2017.

Applying the WWC Standards to Postsecondary Research. Webinar sponsored by Institute of Education Sciences (IES), March 2016.

Measuring Student Learning with the Engineering Design Process Portfolio Scoring Rubric (EDPPSR). Webinar sponsored by the NSF-funded Technical Evaluation Assistance in Mathematics and Science (TEAMS) project (DRL#1238120), February 2016.

Developing Indicators for Undergraduate STEM Education. Webinar sponsored by The National Academies of Sciences, Engineering, and Medicine, February 2016.

**PRESENTATIONS**

**Michaluk, L.**, Glenn, M., Williams, F., Miller, D., Henderson, R., Stewart, J., & Stewart, G. (2021). LSAMP Scholar's academic motivation, STEM self-efficacy and other non-cognitive factors important to STEM interest and success. Louis Stokes Midwest Regional Center of Excellence Annual Conference, October 23.

Miller, D., Deshler, J., McEldowney, T., Stewart, J., Fuller, E., Pascal, M., & **Michaluk, L.** (2021). Supporting student success and persistence in STEM with active learning approaches in Emerging Scholars Classrooms. Louis Stokes Midwest Regional Center of Excellence Annual Conference, October 24.

**Michaluk, L.** (2021). Broadening Participation in STEM: A WVU Center for Excellence in STEM Education Update. NASA WVSGC/ NASA WV EPSCoR 2021 Fall Board of Directors Meeting, October 15-16.

Stewart, G., Miller, P., **Michaluk, L.**, Koenig, K., & Henderson, R. (2021). Creating an instrument to assess NGSS Planning and Carrying Out Investigations. American Association for the Advancement of Science Improving Undergraduate STEM Education Initiative, June 29, Virtual.

Henderson, R., Koenig, K., **Michaluk, L.**, Miller, P., Luna, M., & Stewart. G. (2021). Developing an instrument to assess the Next Generation Science Standard Practice Planning and Carrying out Investigations in preservice STEM teachers. January 9 – 12, Virtual.

Williams, F., Capilouto, E., Parker, J., Javed, K., Miller, D., **Michaluk, L.**, Cloud, V., Wilson, J., Sims, D., Cooley, M., Torres, R., Jones, V., Payne, H., & McGruder, C. (2019). Kentucky – West Virginia Louis Stokes Alliance for Minority Participation Workshop. Louis Stokes Midwest Regional Center of Excellence Conference, October 25 – 27, Indianapolis, IN.

Miller, P., Koenig, K., **Michaluk, L.**, Luna, M., Goldberg, F., & Stewart, G. (2018). Planning and Carrying Out Investigations in the Next Generation Physical Science and Everyday Thinking curriculum. Poster presented at the 2018 Annual PhysTEC Conference, College Park, MD.

Henderson, R., DeVore, S., **Michaluk, L.,** & Stewart, J. (2017). Situated self-efficacy in introductory physics students. Paper presented at the 2017 American Physical Society Annual Meeting, Washington, DC.

Henderson, R., Stewart, J., Devore, S., & **Michaluk, L.** (2017). Longitudinal physics self-efficacy in introductory STEM students. Poster presented at the 2017 Annual Summer Meeting, Cincinnati, OH.

Henderson, R., Stewart, J., **Michaluk, L.,** & Murphy, C. (2017, April). The role of personality and self-efficacy in achievement in science classes. Paper presented at the 2017 American Educational Research Association Conference, San Antonio, TX.

DeVore, S., Henderson, R., **Michaluk, L.,** & Stewart, J. (2016, July). Differentiated self-efficacy within Physics, Science, Mathematics, and Engineering. Poster presented at the 2016 Annual Physics Education Research Conference, Sacramento, CA.

Henderson, R., DeVore, S., **Michaluk, L.**, Zabriskie, C., & Stewart, J. (2016, March). Situated self-efficacy in

introductory physics students. Poster presented at the American Association of Physics Teachers 2016 Winter Meeting, New Orleans, LA.

**Michaluk, L. M.**, Thomas, D. G., Moses, A., Bryant, A., & Sethman, G. L. (2006, May). The influence of direction and mode of movement on the kappa effect. Poster presented at the 18th Annual Convention of the Association for Psychological Science, NY.

**Michaluk, L. M.**, Sethman, G. L., Thomas, D. G., & Zephier, R. H. (2005, May). Movement reverses the influence of visual stimuli on temporal perception in the kappa effect. Poster presented at the 17th Annual Convention of the American Psychological Society, Los Angeles, CA.

Thomas, D. G., Anderson, J., Bryant, A., **Michaluk, L. M.**, & Mills, J. (2005, May). Auditory stimuli influence spatially defined temporal judgments. Poster presented at the 17th Annual Convention of the American Psychological Society, Los Angeles, CA.

Zephier, R. H., **Michaluk, L. M.**, & Thomas, D. G. (2005, April). Piaget's theories of the development of the perception of space and time in children. Poster presented at the Oklahoma Psychological Society Spring Research Conference, Edmond, OK.

Van de Griend, P. J., **Michaluk, L. M.**, & Thomas, D. G. (2004, May). Clock speed affects time estimation but not internal tempo or heart rate. Poster presented at the American Psychological Society 16th Annual Convention, Chicago, IL.

**Michaluk, L. M.**, & Thomas, D. G. (2004, April). Neural mechanisms and the perception of time. Paper presented at the Oklahoma Psychological Society Spring Research Conference, Oklahoma City, OK.

Lack, C. W., Morales, B. L, Haala, K. A., **Michaluk, L. M.**, & Abramson, C. I. (2003, November). Interactive materials for the teaching of history and systems of psychology. Poster presented at the annual meeting of the Southwestern Teachers of Psychology, Seguin, TX.

Allen, R. J., **Michaluk, L. M.**, Dicken, V., Avendaño, K., & Thomas, D. G. (2003, April). Perceptions and conceptions of time in two populations. Poster presented at the Southwestern Psychological Association 49th Annual Convention, New Orleans, LA.

**Michaluk, L. M.**, Dicken, V., Allen, R. J., Zephier, R. H., Avendaño, K., & Thomas, D. G. (2003, April). The modern psychological impact of Newton's theory of time. Poster presented at the Southwestern Psychological Association 49th Annual Convention, New Orleans, LA.

Foley, A. J., Thomas, D. G., & **Michaluk, L. M.** (2002, April). The effect of pace alteration on time interval estimation. Poster presented at the Southwestern Psychological Association 48th Annual Convention, Corpus Christi, TX.

Bartgis, J., **Michaluk, L. M.**, Grant, F., Moore, J., Avendaño, K., & Thomas, D. G. (2002, April). The development of response inhibition in early childhood. Poster presented at the Southwestern Psychological Association 48th Annual Convention, Corpus Christi, TX.

Morris, A., **Michaluk, L. M.**, Squire, J., & Abramson, C. I. (2002, April). The use of anti-static foam as a surface for aversive conditioning in invertebrates. Paper presented at the Oklahoma Psychological Society Spring Research Conference, Oklahoma City, OK.

**Michaluk, L. M.**, & Bartgis, J. (2001, April). The dopamine theory and alternative therapies for ADHD. Paper presented at the Oklahoma Psychological Society Spring Research Conference, Oklahoma City, OK.

## INVITED TALKS AND WORKSHOPS

Observational Research Workshop: An Overview of the Goals and Processes Involved in Participant Observation and Practical and Ethical Steps involved in Collecting and Recording Observational Data. UK-KY LSAMP Retreat, June 14-15, 2018.

STEM-R: Modeling STEM Retention and Departure across Physics, Mathematics, and Engineering. Seminar in Engineering and Science Education, Department of Engineering, Clemson University. October 2015.

Preparing for the Job Market: What to do Now. Department of Psychology, Oklahoma State University. October 2013.

## POPULAR PRESS COVERAGE

WalletHub. (2020, January 22). Best & Worst Metro Areas for STEM Professionals. Ask the Experts.

## Teaching Experience

**Courses Offered at Oklahoma State University** 2004 – 2015

Conflict Resolution (undergraduate)
Psychology of Women (undergraduate)
Experimental Psychology Laboratory (undergraduate)
Introduction to Psychology (undergraduate)
Quantitative Methods I (undergraduate)
Quantitative Methods II Laboratory (graduate)
Quantitative Methods I Laboratory (graduate)
Quantitative Methods I & II Laboratory (undergraduate)
Social Psychology (undergraduate)
Speech Communication (undergraduate)

**Courses Offered at Northern Oklahoma College** 2009-2011

Developmental Psychology (undergraduate)
Social Psychology (undergraduate)
Introduction to Psychology (undergraduate)

## PROFESSIONAL EXPERIENCE

West Virginia University Office of Human Research Protections Faculty Advisory Committee 2021– Present

Ad hoc reviewer, *Current Psychology, International Journal of Engineering Education*, *Journal of Science Education and Technology, International Journal of STEM Education* 2015 – Present

Reviewer, National Science Foundation Grant Submissions 2021, 2022

Ad hoc reviewer, WVU Internal Grant Submissions 2016

Graduate Student Teaching and Research Awards, Oklahoma State University 2014, 2015

Graduate Student Peer Review Exchange (founder) – Oklahoma State University 2004 – 2009
Created a program to help graduate students improve writing skills and prepare for defense meetings via the exchange of manuscripts, theses, and dissertations. Participating students provided editorial comments to fellow graduate students, writing assistance, guidance in statistical analyses, and writing results in APA style.

Statistics Tutor – Oklahoma State University 2006 – 2008

Academic Tutor – Academic Enhancement Center, Oklahoma State University 2004 – 2006

## VOLUNTEER EXPERIENCE

Member & volunteer grant writer, A Long Talk Anti-Racism Community Pillars of Change. 2014 – Present

## GRANTS

Contributed to preparation of the $1M KY-WV LSAMP Bridge to the Doctorate Program proposal with PI Fara Williams. Funded. 2019

Contributed to preparation of AWESOME: Academy on Web-development, Engineering and Science Optimized with Multicultural Education Summer Camp proposal sponsored by West Virginia's Health Sciences & Technology Academy with PI Afrin Naz. Funded but canceled due to pandemic. 2019

Contributed to preparation of a $1,055 McDonald's Community Grant allowing a West Virginia teacher to start a WeDo Legos Club for students in grades 1 – 4. Funded. 2017

Prepared a $2,917 West Virginia Governor's STEM mini grant to replace computers lost in local floods for the purpose of starting a coding club for high school students. Funded. 2017

## HONORS AND AWARDS

Dean's Academic Scholarship Award, Oklahoma State University 2001 – 2003

B.A., Magna Cum Laude 1999

Golden Key National Honor Society 1998 – Present

## PROFESSIONAL ORGANIZATIONS

American Psychological Association

American Psychological Society

Sigma Xi