

Timothy E. Muhich

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Education

- Certification in Secondary Education, Biology and Chemistry May 2014
College of Education, Michigan State University, East Lansing, MI
- B.S. in Biology, Chemistry Minor May 2012
Lyman Briggs College, Michigan State University, East Lansing, MI
- B.S. in Zoology, Marine Biology Concentration May 2012
Lyman Briggs College, Michigan State University, East Lansing, MI

Publications

1. Muhich, T. and, R. Rood (2022). CCE for Me: Students Demand High-Quality Climate Change Course Offerings, *The Science Teacher* 90:1 (36-40).
2. Hill, R.W., M. Grezlik, T. Muhich, and M. Humphries (2021). City-Scale Energetics: Window on Adaptive Thermal Insulation in North American Cities, *Journal of Comparative Physiology B*. 192:6 (643-658).
3. Hill, R. W., T. Muhich, and M. Humphries (2013). City-Scale Expansion of Human Thermoregulatory Costs, *PlosOne* 8:10 (e76238).

Conference Presentations and Seminars

1. Muhich, T. *Providing Meaningful Climate Change Education to Secondary Students*. Seminar to School of Education and School of Environment and Sustainability at the University of Michigan (2022, December 9).
2. Muhich, T. *Teaching Climate Change as a High School Class*. Michigan Science Teachers Association 68th Annual Conference (2021, February 27 - March 6).

Research Experience

- Teacher Collaborator, Multilevel Computational Modeling 10/2019-12/2022
Create for STEM at Michigan State University, East Lansing, MI and the Concord Consortium
- Piloted units in SageModeler, providing feedback on the programming and materials while participating in Multilevel Computational Modeling discussions
- Field Assistant, Protection by Aposematic Coloration 7/2013-8/2013
Department of Biology, University of Mississippi in French Guiana
- Investigated the protection provided by and evolution of aposematic coloration in *Dendrobates tinctorius*

Student, Kluane Red Squirrel Project 7/2012-4/2013
University of Alberta, Edmonton, AB in Yukon, Canada

- Collected and analyzed data on behavior, energy, and resource use in free-ranging red squirrels

Undergraduate Research Experience, Forest and Road Relations: Amphibians 6/2011-7/2011
Lyman Briggs College, Michigan State University, East Lansing, MI in Nicaragua

- Co-designed and independently carried out a study to determine effects of road building on amphibian communities through auditory sampling of ponds

Research Assistant, Richard Hill Lab 9/2010-5/2012
College of Natural Science, Michigan State University, East Lansing, MI

- Collected and analyzed data on city energy use and reviewed literature of vertebrate mortality

Field Assistant, Conservation of a Polymorphic Frog and Herpetology Survey 5/2010-7/2010
Lyman Briggs College, Michigan State University, East Lansing, MI in Panama and Nicaragua

- Determined limiting resource of *Oophaga punilio*, and investigated appropriateness of auditory sampling for determining population size
- Installed and then collected data from pitfall traps as well as visual sampling within community ponds

Teaching Experience

Classroom Teacher 8/2014-7/2016 & 8/2018-6/2023
Battle Creek Area Math & Science Center, Battle Creek Public Schools, Battle Creek, MI

- Created and implemented curriculum for inquiry-based class on Global Climate Change in partnership with the University of Michigan
- Created and lead the High School Climate Change Symposium, an international conference featuring speakers such as Prof. James Hansen
- Improved curriculum of SageModeler through collaboration with Create for STEM at Michigan State University and Concord Consortium
- Implemented and taught a modeling-based approach to Sophomore Chemistry
- Taught Advanced Chemistry, Organic Chemistry, Forensic Science, Freshman Technology, Food Science, Research Methods, Ornithology: Birds of Michigan, and Honors Global Climate Change courses
- Advised student Horticulture Club
- Received “Highly Effective” in all evaluations, the highest possible rating

Classroom Teacher and Biology Team Lead 8/2016-6/2018
Northwest High School, Montgomery County Public Schools, Montgomery County, MD

- Developed Next Generation Science Standard aligned assessment clusters for county wide implementation
- Managed seven biology teachers as Team Lead to ensure county curriculum and Next Generation Science standards were met in all 24 course sections
- Taught Honors Biology, Honors Chemistry, and Environmental Chemistry courses
- Received “Met Standard” in all evaluations, the highest possible rating

Student Teacher and Intern 8/2013-5/2014
Holt High School, Holt Public Schools, Delhi Township, MI

- Lead taught case-study-centered and inquiry-based Biology and Chemistry classes
- Assistant Coach of Science Olympiad team

Teaching Assistant 7/2011-8/2011
College of Natural Science, Michigan State University, East Lansing, MI
Study Abroad Wild Borneo: Malaysia

Learning Assistant 8/2010-12/2011
Lyman Briggs College, Michigan State University, East Lansing, MI
Calculus I

Camp Counselor 6/2005-8/2009
Cole Canoe Base Scout Camp, Detroit Area Council, MI
Small Boat Sailing, Wilderness Survival, Camping

Impactful Professional Development Participation

2021 Grading for Equity, by Joe Feldman

- Recreated grading philosophy and procedures at BCAMSC through teacher led book study and discussions to increase bias resistance, student motivation, and increased accuracy in grades
- Transitioned classes to standards-based grading.

2017-2018 Research for Scientific Understanding in Students

- Demonstrating the process of science to students through conducting novel research applicable to class content
- Conducted lab experiment exploring the impacts of Ocean Acidification of non-calcium secreting corals

2015 American Modeling Teachers Association Training

- Modeling philosophy and methodology instruction.
- Restructured school chemistry curriculum to be inquiry based and student driven

2014-2015 Visible Learning, by John Hattie

- Identifying practices in teaching that can be focused for better instructional outcomes

Study Abroad:

5/2011-6/2011 Biology in the Galapagos Islands, Ecuador
7/2010-8/2010 Wild Borneo: Biodiversity of Southeast Asia, Malaysia
3/2010 Rainforests and Reality, Nicaragua

Awards and Scholarships:

2023 Excellence in Education Award, Lakeview High School
2023 Influential Educator Award, Pennfield High School
2012 Fulbright Canada, Science Technology Engineering and Math Award
2008-2012 Michigan State University Dean's List
2011 Lyman Briggs College Summer Research Scholarship
2011 Study Abroad Merit Scholarship
2007 Eagle Scout