GARY M. HOLLIDAY

LEBRON JAMES FAMILY FOUNDATION SCHOOL OF EDUCATION
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Education

Ph.D.	2011	Illinois Institute of Technology, Chicago, IL, Science Education *Dissertation*: The Impact of Professional Development in Informal Science Contexts on Teachers' Content Knowledge and Discourse. *Advisors*: Judith S. Lederman and Norman G. Lederman
M.Ed.	2006	Lesley University, Cambridge, MA, Science Education
M.A.	1992	Lesley University, Cambridge, MA, Art Therapy
B.A.	1990	Boston College, Chestnut Hill, MA, Psychology, Minor – Fine Arts

Work Experiences

2024-Present **Director**, LJFF School of Education, The University of Akron, OH.

2023-Present **Professor, Science Education**, LJFF School of Education, The University of Akron, OH.

2021-2024 **Assistant Director**, LJFF School of Education, The University of Akron, OH.

2017-2023 **Associate Professor, Science Education**, Department of Curricular and Instructional Studies (as of 2020, it is the LJFF School of Education), The University of Akron, OH.

2016 **Interim Program Assessment and Support Facilitator (PASF)**
High Institute of Elastomer Industries, Saudi Arabia, Department of Polymer Science, The University of Akron, OH.
Facilitated assessment of a technical training program and elastomer technology instructors at an overseas training institute.

2014-2016 **Instructor and Elastomer Technology Instructor (ETI) Supervisor**
High Institute of Elastomer Industries, Saudi Arabia, Department of Polymer Science, The University of Akron, OH.

2011-2017 **Assistant Professor, Science Education**, Department of Curricular and Instructional Studies, The University of Akron, OH.

Courses Taught:

- Instructional Design and Assessment
- Teaching Science to Middle Level Learners
- Science for Primary Educators
- Middle Level Education
- Foundations of Museums/Archives I & II
- [Un]Class - I Promise: A Community Service-Learning Think Tank
- [Un]Class – All the World's a Classroom!!
- [Un]Class – UA Museum of Natural History: A Natural History Mystery
- [Un]Class – The Evolution of BEAKs (Biomimicry Exploration Activity Kits)
- [Un]Class – Renewing the UA Natural History Museum
- Teaching the Holocaust: The Economics & Science of Hate (Study Abroad in Germany and Poland)
- Nature, History and Philosophy of Science
- Educational Technology
- Instructional Technology Applications
- Teaching and Learning in STEM
- Teacher Candidate Supervision

2006-2011 **Research Assistant**, Department of Mathematics and Science Education, Illinois Institute of Technology, Chicago, IL.

Project Involvement:
High School Transformation Project, Assessment Co-Lead, 2006-2011
A five-year grant funded by the Melinda and Bill Gates Foundation designed to provide professional development, instructional support and curriculum materials for Chicago Public School teachers of Biology, Chemistry, and Physics.

Primary responsibilities included:

- developing formative and summative assessment items for student tests.
- working with Chicago Public School and American Institutes for Research staff to format individual items and assessments for all three content areas.
- working closely with HSTP project manager and coaches when developing and approving items and assessment forms.
- attending item review, data review, and standard setting meetings.
- assisting in the collection of data (e.g., pre/post questionnaires), data analysis, and presentation at professional meetings.
- assisting with and leading professional development workshops regarding assessment.

Student Teacher Supervision, 2010-2011
Supervision of student teachers in biology classrooms, including weekly meetings with and observation of the student teacher.

Taiwan Teacher Professional Development, 2010

A one-week PD at the Illinois Institute of Technology for secondary gifted/talented math and science teachers from Taiwan. Addressing effective teaching strategies, research design, clinical supervision, informal education, and assessment.

Illinois Math and Science Academy Aurora, IL 2008-2011
Responsible for ongoing assessment and assisting with scoring of instruments to measure the school's gifted sophomores and seniors understanding of nature of science and scientific inquiry.

IIT/Essen Large Scale Assessment Project, 2007-2010
Responsible for working with a research group at the University Duisburg-Essen, Germany, and assisting with:

- development of an instrument with a historical context to assess students (15-16 yrs of age) and competencies regarding nature of science and scientific inquiry
- evaluating assessment items for readability for students in the United States
- administering instruments in the United States
- reviewing and editing proposals for national and international meetings.

Illinois State Board of Education (ISBE) Pre-service Program Accreditation, 2008-2010
Assisted with preparing for site visit (October 2010) and editing/formatting of various reports for submission to ISBE.

Sir Miles Davis Magnet Academy Professional Development, Chicago, IL, 2008-2010
Assisted with preparing for and conducting a series of workshops for elementary and middle school staff. Primary focus was on developing Science, Technology, Engineering, and Mathematics (STEM) curriculum for all grade levels.

Taiwanese Middle School Gifted Science Camp 2006-2009, 2011
An annual two-week science camp at the Illinois Institute of Technology focusing on nature of science, scientific inquiry and technology. Responsible for teaching life science classes covering anatomy, taxonomy, natural selection, and ecology.

Project Way 2 Go funded by NSF 2006-2008
A research project comparing inquiry-based instruction to direct instruction.
Assisted instructors (e.g., fidelity to the teaching method)
Reviewed lesson plans
Project manager (2007-2008)

An International, Systematic Investigation of the Relative Effects of Inquiry and Direct Instruction, 2007
Assisted with scoring and data analysis for a joint project with IIT, Chicago, and Stockholm University, Sweden.

Korean Teacher Professional Development, 2006
A summer two-week PD at the Illinois Institute of Technology for secondary Korean teachers.

- Assisted in teaching classes on the use of technology in the classroom (probeware, computers, calculators, etc.)
- Assisted in teaching classes on explicit and reflective instruction of the nature of science

Courses Taught:
Instructional Methods for Pre-Service Teachers
Informal Education Practicum and Seminar
Inquiry and Nature of Science

Guest Speaker in Courses:
Qualitative Research Methods (Fall '09)
Responsible for teaching doctoral students about using digital and printed resources for conducting research.
Middle & Secondary Level/ Curriculum/Foundations (April '09)
Responsible for teaching graduate students about diversity.
Action Research (September '07)
Responsible for teaching graduate students about using SPSS and providing a statistics tutorial
Action Research (Summer '10)
Responsible for teaching masters' students about using digital and printed resources for conducting research.

Mentoring:
Statistics and SPSS mentor for students in Action Research (2007-2010)

2009-2010 **Science Teacher**, Perspectives / IIT Math and Science Academy, Chicago, IL
Responsibilities included teaching and developing curriculum for a ninth grade integrated biology class with a focus on biotechnology and ecotechnology.

2000-2006 **Coordinator of Outreach Services,** Education Department,
New York Aquarium, Wildlife Conservation Society, Brooklyn, NY
Primary responsibilities included:

- developing pre-K-16 marine science lessons
- coordinating programs for outreach staff members
- supervising outreach staff members.

Science Teacher, New York Aquarium School Partners
Responsibilities included year-long science teaching at the following schools:

- PS 81 Robert J. Christen School (K-6)
- PS 206 Horace Harding School (K-6)
- PS 208 Elsa Ebeling School (K-6)
- PS 238 Anne Sullivan School (K-6)
- PS 288 Shirley Tanyhill School (K-6)
- PS 329 Surfside School (K-6)

- St. Josephs Hill Academy (K-6)

Special Education Science Teacher, New York Aquarium School Partners
Responsibilities included year-long science teaching for special needs classes at the following schools:

- PS 30 R. Hernandez / L. Hughes School
- PS 48 William C. Wilcox School
- PS 117 J Keld Briarwood School
- PS 138 M
- PS 370 K Jim Thorpe School
- PS 721 K Brooklyn Occupational Training Center

Professional Development Lead, Education Department, New York Aquarium, Wildlife Conservation Society, Brooklyn, NY.

2000-2006 *Docent Training.* Workshops presented for the New York Aquarium Education Department, Brooklyn, NY.

2004-2006 *Marine Invertebrates and Vertebrates*. Workshops presented for the special education faculty at PS 721 K, Brooklyn Occupational Training Center, Brooklyn, NY.

2005 *Scientific Methods/ Inquiry/ Research*. A two-day workshop presented for faculty at PS 176, Ovington School, Brooklyn, NY.

2003-2005 *Working with Special Needs Populations.* A series of workshop presented for instructors in the Wildlife Conservation Society Education Department, Bronx, NY.

2004 *Marine Invertebrates and Vertebrates*. A workshop for special education faculty at PS 23Q, Queens Children Center, Queens, NY.

2003 *Marine Invertebrates and Vertebrates*. A workshop presented to faculty at the Rikers Island Correctional Facility High School, Queens, NY.

2003 *Marine Invertebrates, Fish and Sharks, Whales*. A workshop presented to 3-5 grade faculty at PS 215, Morris H. Weiss School, Brooklyn, NY.

2001-2002 *Marine Invertebrates and Vertebrates*. Workshops presented for the special education faculty at PS 138 M, NY, NY.

1995-2000 **Museum Educator,** Education Department, Museum of Natural History & Planetarium, Roger Williams Park, Providence RI,
Responsibilities included:

- teaching K-12 curriculum-based science programs

- developing K-12 curriculum
- assisting with professional development for K -12 teachers

1994-1995 **Program Assistant,** Families Together, Providence Children's Museum, Providence, RI
Responsibilities included coordinating, supervising, and guiding high-risk, separated families (clients of the Department of Children, Youths and Families (DCYF) and Family Court) for weekly visitations in the museum exhibit areas.

Related Work Experiences

2005 **Instructor**, Brooklyn College, Brooklyn, NY.
Selected environmental concepts in the biological sciences for elementary and middle school in-service teachers.

2002-2005 **Instructor**, American Museum of Natural History, New York, NY.
Responsibilities included producing and conducting marine science programs at the museum for children and parents.

1992-2000 **Education Consultant for the Neonatal Intensive Care Unit**,
Women and Infants' Hospital**,** Providence, RI.
Responsibilities include running the Kids' Klub Visitation Program, a weekly group for siblings, ages 3 - 12, of high risk and/or premature infants planning and conducting appropriate weekly activities to further understanding of the babies and the hospital environment, working in conjunction with hospital social workers, psychologists, nursing staff and volunteers.

1992-1993 **Counselor**, Communities for People, Providence, RI,
Responsibilities included supervising and monitoring high-risk adolescent boys in a group home setting.

1991-1992 **Counseling Intern**, Bay Cove Mental Health Clinic, Lemuel Shattuck State Hospital, Jamaica Plain, MA,
Responsibilities included running individual and group therapy sessions on four wards (a day treatment center, an admissions ward, a long-term ward and a short-term ward) with adolescents and adults in a psychiatric setting.

1990-1991 **Counseling Intern**, Cotting School, Lexington, MA,
Responsibilities included running individual and group therapy sessions in a K-12 school setting for students with multiple physical and\or learning disabilities.

Consulting

2019 **Curriculum and Assessment Development**, High Institute for Elastomer Industries, Yanbu, Saudi Arabia.

2014-2015 **Instructor and Supervisor**, Supervision of program instructors, effective teaching and lesson plan seminars for instructors of the High Institute for Elastomer Industries, Yanbu, Saudi Arabia.

2013-2015 **Co-Instructor**, Taiwan Academic Cultural Exchange for students of the Mingdao High School in Taipei, Taiwan at the Illinois Institute of Technology, Chicago IL (Summer).

2013-2015 **Co-Instructor,** Institute for the Advancement of Inquiry Based Science Teaching at the Illinois Institute of Technology, Chicago IL (Summer). Sponsored by INTEL Education Initiative, China.

2010 **Science Editorial Reviewer**, *National Geographic Science: Teachers Editions, Science Inquiry and Writing Books (3-5th Grade Life Science, Earth Science, and Physical Science),* by Randy Bell, Judith Lederman, Malcolm Butler, Kathy Cabe Trundle, and David Moore. National Geographic School Publishing, Hampton-Brown: Washington DC.

2006-2011 **Science Trainer**, Zula International, Burbank, CA.
Responsible for conducting workshops for pre-K through 2nd grade teachers about using public television programming and associated materials to enhance science, mathematics, and reading literacy in the curriculum.

- WTTW PBS Television Studio, Chicago, IL (November, 2006)
- Adler Planetarium, Chicago, IL (December, 2006)
- WTTW PBS Television Studio, Chicago, IL (October, 2007)
- Adler Planetarium, Chicago, IL (April 24 & 25, 2009)
- Headstart, New Orleans, LA (November, 2009)
- Headstart, Washington, DC (January 14 & 15, 2010)
- Department of Education, Queens, NY (June 10, 2010)
- Summer Institute: Focus on Inquiry, Washington, DC (June 24 & 25, 2010)
- Headstart, Alexandria, VA (August 31, 2010)
- NYC Education Department, Manhattan, NY (March 30, 2011)

2004 **Illustrator and Designer**, Wildlife Conservation Society, Bronx, NY.
Large format storyboards for PreK-3 education programs:

- Elly Jelly looks at marine animals: The birthday feast
- Elly Jelly looks at marine animals: The right move
- Elly Jelly looks at marine animals: Elly Jelly's surprise
- Happy Hermit.
- Can you do it?

2003 **Science Editorial Reviewer**, Wildlife Conservation Society, Bronx, NY.
K-3 marine science curriculum (readers, teacher guides, and workbooks):

- Elly Jelly looks at marine animals: Elly Jelly's surprise.
- Elly Jelly looks at marine animals: Big Wilma.
- Elly Jelly looks at marine animals: The right move.

- Elly Jelly looks at marine animals: The color changer.
- Elly Jelly looks at marine animals: The best defense.
- Elly Jelly looks at marine animals: The birthday feast.

2002 **Science Editorial Reviewer**, Penguin Putnam Publishers, NY, NY.
All Aboard Science Reader: Whales (Grades 1 - 3), by Graham Faiella.

Museum Exhibit Productions

1998 Designed, produced exhibit features, and installed *Joint Ventures,* an exhibition produced for the Museum of Natural History, Providence, RI

2000 Designed and installed *Circle of the Sea*, an exhibition for the Museum of Natural History, Providence, RI.

2022 Co-taught a course (with Dr. Lara Roketentz) which resulted in student developed exhibition *Cabinets of Curiosity: Natural History Mysteries* at the Cummings Center of for the History of Psychology and the Main Branch of the Akron Public Library.

2024 Assisted with exhibit features of *Wings & Words*, Bierce Library at the University of Akron.

Research and Scholarship

Publications

Books

Keough, T., Sweeney, J.K., & **Holliday, G.M.** (2002). *Circle of the sea: Creations from Oceania*. Museum of Natural History, Roger Williams Park. Providence, RI.

Chapters

Lederman, J.S., **Holliday, G.M.**, & Lederman, N.G. (2012). The impact of exhibit-based professional development on teacher's pedagogical content knowledge. In E. Davidsson & A. Jakobsson (Eds.), *Understanding interactions at science centers and museums: Sociocultural perspectives*. (pp. 97-114). Sense Publishers.

Makki, N., & **Holliday, G.M.** (2016). Going beyond the status quo: A longitudinal self-study of a school based science teacher preparation program. In G.A. Buck & V.L. Akerson (Eds.), *Allowing our professional knowledge of pre-service science teacher education to be enhanced by self-study research: Turning a critical eye on our practice* (pp. 271-288). Springer.

Lederman, J.S., & **Holliday, G.M.** (2017). Addressing nature of scientific knowledge in the preparation of informal educators. In P.G. Patrick (Ed.), *Preparing informal science educators* (pp. 509-525). Springer.

Roketenetz, L., & **Holliday, G.M**. (2022). Are field stations and nature centers gendered work spaces? In V. McDermott, J. Gee, & A.R. May (Eds.), *Women of the wild: Challenging gender disparities in field stations and marine laboratories* (pp. 199-223). Lexington Books.

Holliday, G.M. (2023). Connecting the history of science to the Holocaust through expeditionary learning**.** In P.G. Patrick (Ed.), *How people learn in informal science environments.* Springer. DOI: https://doi.org/10.1007/978-3-031-13291-9_18

Peer Reviewed Journals

Holliday, G.M., & Lederman, N.G. (2014). Informal science educators' views about nature of scientific knowledge. *International Journal of Science Education, Part B: Communication and Public Engagement, 4* (2), 123-146.

Holliday, G.M., Lederman, N.G., & Lederman, J.S. (2014). Comfort and content: Considerations for informal science professional development. *International Journal of Science Education, Part B: Communication and Public Engagement, 4* (4), 356-375.

Holliday, G.M., Lederman, J.S., & Lederman, N.G. (2014). "Wow! Look at that!": Discourse as a means to improve teachers' science content learning in informal science institutions. *Journal of Science Teacher Education*. DOI: 10.1007/s10972-014-9409-9

Holliday, G.M. (2018). Inquiry: How is it presented during professional development at an informal science institution? *The Ohio Journal of Teacher Education*, 32 (1), 60-73.

Lederman, J.S., Lederman, N.G., Bartels, S., Jimenez, J. Acosta, K., Akubo, M., Aly, S., de Andrade, M.A.B.S., Atanasova, M., Blanquet, E., Blonder, R., Brown, P., Cardoso, R., Castillo-Urueta, P., Chaipidech, P., Concannon, J., Dogan, O.K., El-Deghaidy, H., Elzorkani, A., Ferdous, T., Fukuda, N., Gaigher, E., Galvis-Solano, L., Gao, Q., Guo, S., Gwekwerere, Y., Gyllenpalm, J., Hamed Al-Lal, S., Han-Tosunoglu, C., Hattingh, A., **Holliday, G.**, Huang, X., Irez, S., Jiménez, J., Kay, G., Koumara, A., Kremer, K., Kuo, P-C., Lavonen, J., Leung, J.S.C., Liao, Z., Librea-Carden, M.R., Lin, S-F., Liu, C., Liu, E., Liu, S-Y., Mamlok-Naaman, R., Mcdonald, C.V., Möller, A., Morales, M., Mulvey, B.K., Neumann, I., Neurohr, A-L., Pan, Y., Panjaburee, P., Penn, M., Plakitsi, K., Picholle, E., Ramnarain, U., Raykova, Z., Rundgren, C-J., Salonen, S., Santibáñez-Gómez, D., Schwartz, R., Sharma, R., Srisawasdi, N., Takiveikata, S., Urueta-Ortiz, T., Vitlarov, K., Voitle, F., & Wishart, J. (2021). International collaborative follow-up investigation of graduating high school students' understandings of the nature of scientific inquiry: Is progress being made? *International Journal of Science Education*, DOI: 10.1080/09500693.2021.1894500

Holliday, G.M. (2021). Personal meaning mapping and focused field trips: Capturing change. *The Ohio Journal of Teacher Education*, *35* (2), 8-24.

Holliday, G.M., & Roketenetz, L. (2022). Engaging the urban classroom with the natural world: Lessons learned during a pandemic. *International Journal of Informal Science and Environmental Learning, 2.2,* https://www.diopress.com/jisel.

Lederman, J.S., Bartels, S., Jimenez, J., Lederman, L.G., Acosta, K., Adbo, K., Akerson, V.L., Soares de Andrade, M.a.B., Avraamidou, L., Barber, K-A., Blanquet, E., Boujaoude, S., Cardoso, R., Cesljarev, C.D., Chaipidech, P., Connolly, C.P., Crowther, D.T., Das, P.M.,

Dogan, O.K., Epitropova, A., Fukuda, N., Gai, L., Hamed, S., Han-Tosunoglu, C., **Holliday, G.M.**, Huang, X., Khishfe, R., Koumara, A., Kraan, E., Lavonen, J., Shuk, J., Leunga, C., Li, Y., Librea-Carden, M.R., Liu, C., Liu, S-Y., McMahon, K., Morales, M., Neumann, I., Park, J., Penn, M., Picholle, E., Plakitsi, K., Ramnarain, U., Raykova, Z., Rico, A., Rodríguez-marín, F., Ruiz-González, A., Rundgren, C-J., Sagun, R.D., Salonen, S., Shao, H., Srisawasdi, N., Tan, A.L., Toma, R.B., Tshering, Ünsal, Z., Carulla, C.V., Visnovska, J., Voitle, F., Yalaki, Y., Yoo, H-j., & Zhu, Q. (2023). Completing the progression establishing an international baseline of primary, middle and secondary students' views of scientific inquiry, *International Journal of Science Education*, DOI: 10.1080/09500693.2023.2256458

Peer Reviewed Proceedings

Zilker, I., **Holliday, G.M.**, Fischer, H.E., Kauertz, A., Lederman, J.S., & Lederman, N.G. (2010). Are historical contexts suitable for assessing students' competences in the field of nature of science and scientific inquiry? In M.F. Taşar & G. Çakmakcı (Eds.), *Contemporary science education research: International perspectives* (pp. 237-244). Ankara, Turkey: Pegem Akademi.

Lederman, J.S., Lederman, N.G., & **Holliday, G.M.** (2011, January). Project SLICE: Science learning through inquiry, content, and engagement. *Proceedings of the Southern African Association for Research in Mathematics, Science and Technology Education* (pp. 63-66). North-West University: Mafikeng.

Holliday, G.M., Lederman, J.S., & Lederman, N.G. (2013). Teacher satisfaction and science content learning during professional development at an informal science institution. *Proceedings of the Southern African Association for Research in Mathematics, Science and Technology Education* (pp. 211-214). University of the Western Cape: Cape Town.

Holliday, G.M., Lederman, J.S., & Lederman, N.G. (2014). Addressing Inquiry During Professional Development at an Informal Science Institution. *Proceedings of the Southern African Association for Research in Mathematics, Science and Technology Education* (pp. 43-49). Nelson Mandela Metropolitan University: Port Elizabeth.

Holliday, G.M., Lederman, J.S., & Lederman, N.G. (2015). Addressing inquiry during professional development at an informal science institution. *Proceedings of the European Science Education Research Association: Helsinki, Finland.*

Holliday, G.M., & Roketenetz, L. (2022). Uncovering a natural history mystery at the University of Akron. *Proceedings from the Document Academy, 9* (2), Article 3. DOI: https://doi.org/10.35492/docam/9/2/3

Grants

Principal Investigator (with Lynne Pachnowski and Karen Plaster). The benefits and barriers of audio recording technology when used during teacher candidate supervisory experiences, College of Education, The University of Akron, $1,935 (2012).

Co-Principal Investigator (with Lynne Pachnowski, Nidaa Makki, and Karen Plaster). Ohio STEM Learning Network (OSLN) – UA Woodrow Wilson Teaching Fellowship, Ohio Department of Education, $90,000 (2012).

Co-Principal Investigator (with Lynne Pachnowski, Nidaa Makki, and Karen Plaster). The University of Akron/Akron OSLN Hub Woodrow Wilson Initiative, Ohio STEM Learning Network, $25,000 (2013).

Co-Principal Investigator (with Lynne Pachnowski, Nidaa Makki, and Karen Plaster). Ohio STEM Learning Network (OSLN) – UA Woodrow Wilson Teaching Fellowship, $5,000 (2014).

Co-Principal Investigator (with Lynne Pachnowski, Nidaa Makki, and Karen Plaster). The University of Akron/Akron OSLN Hub Woodrow Wilson Initiative, Ohio STEM Learning Network, $10,500 (2014).

Principal Investigator (with Lynne Pachnowski, Forrest Sheng Bao, Seungdeog Choi and Karen Plaster). *Advancing Boys & Girls Clubs in STEM (BGC_STEM) through Afterschool Robotics.* National Science Foundation (14-555), $1,769,296 [not funded].

Co-Principal Investigator (with Phil Hoffman and William Cole). STEM Art App, The Toyota Foundation, $50,000 [not funded].

Key Project Staff (with Theresa Beyerle, Tracey Riley, Judi Juvancic-Heltzel, and Michelle Boltz), *i-GEODE (Interprofessional gardening/exercise obesity diminishing endeavor)*. Robert Wood Johnson Foundation Healthy Eating Research program, $170,000 [not funded].

Principal Investigator (with Edward Evans, Nidaa Makki, Karen Plaster, and Lynne Pachnowski). *Reclaiming engineering and technology in STEM*. National Science Foundation (12-525), $1,199,966 [not funded].

STEAMed Up About Art APP (with Ellen Perduyn, William Cole, and Phil Hoffman). Progressive Insurance and the Knight Foundation for $120,000 [not funded].

Principal Investigator (with Lynne Pachnowski, Forrest Sheng Bao, Seungdeog Choi and Karen Plaster). *Advancing Boys & Girls Clubs in STEM (BGC_STEM) through Afterschool Robotics.* National Science Foundation (15-593), $ 2,064,848 [not funded].

Co-Principal Investigator (with Paula Watt). *Polymer Frontiers: Making the Connection from Research to Careers for STEM Informal Educators and Learners (PF-R2C).* National Science Foundation (15-593), $299,907 [not funded].

Co-Principal Investigator (with Joel Duff). *Games as Means of Informal Education in STEM: Synthesis.* National Science Foundation (17-573, 2017), $196,835 [not funded].

Co-Principal Investigator (with Amanda Booher and Joel Duff). *IGE Agile Science Communication: Integrating Cross-audience Frameworks into the Biosciences*. National Science Foundation (17-585, 2019), $346,058 [not funded].

Co-Principal Investigator (with Lara Roketenetz and Randall Mitchell). *The nature inspiration academy: Using affinity groups and biomimicry kits in informal learning environments to*

improve STEM engagement for underrepresented groups. National Science Foundation (20-607, 2021), $299,984 [not funded].

Principal Investigator (with Kayleigh Penton [student]). *Covid-19: Stopping the spread of misinformation*. NASA/Ohio Space Grant Consortium (2021-2022), $2,000.

Principal Investigator (with Katelyn Must [student]). *Earth science*. NASA/Ohio Space Grant Consortium (2022-2023), $2,000.

Principal Investigator (with Matthew Ripple [student]). *Using data to understand climate change*. NASA/Ohio Space Grant Consortium (2022-2023), $2,000.

Principal Investigator (with Lara Roketenetz). *Nature-inspired curriculum kits promoting STEM education for students at Bath Elementary School*. Bath Community Fund, Akron Community Foundation (2022) $1,500.

Principal Director (with Lara Roketenetz). *The Nature Inspiration Academy: Biomimicry Exploration Activity Kits (BEAKs) and Affinity Groups.* Ohio Environmental Education Fund, Ohio Environment Protection Agency (2023), $50,000.

Secondary Leader (with Karen Plaster, Primary Leader). *National Girls Collaborative Project-Dynamic Eclipse Broadcast Initiative*. National Science Foundation Advancing Informal STEM Learning (2023), $2,500.

Presentations at Professional Meetings
International

Lederman, J., **Holliday, G.**, Lederman, N., & Babcock, E. (2007, August). *Changes in biology teachers' attitudes and behavior toward informal learning sites: An urban case study*. Paper presented at the international conference of the European Science Education Research Association: Malmo, Sweden.

Zilker, I., **Holliday, G.M.**, Kauertz, A., Fischer, H.E., Lederman, J.S., & Lederman, N.G. (2009, August). *Are historical contexts suitable for assessing students' competences in the field of nature of science and scientific inquiry?* Paper presented at the international conference of the European Science Education Research Association: Istanbul, Turkey.

Holliday, G.M. (2010, April). *Working with gifted and talented students in an integrated biology classroom*. Invited paper presented at the International Conference on Mathematics and Science Gifted Education and Teacher Education: Changhua, Taiwan.

Lederman, J.S., Lederman, N.G., **Holliday, G.M.** (2011, January). *Project SLICE: Science learning through inquiry, content, and engagement*. Paper presented at the international conference of the Southern African Association for Research in Mathematics, Science, and Technology Education: Mmabatho, South Africa.

Lederman, J.S., Lederman, N.G., Meyer, D.Z, Antink-Meyer, A, Bartos, S.A., & **Holliday, G.M.** (2011, July). *The fragile nature of teachers' views of nature of science (NOS)*. Paper

presented at the 11th International IHPST and 6th Greek History, Philosophy and Science Teaching Joint Conference: Thessaloniki, Greece.

Lederman, J.S., Lederman, N.G., & **Holliday, G.M.** (2011, September). *Project SLICE: Science learning through inquiry, content, and engagement*. Paper presented at the international conference of the European Science Education Research Association: Lyon, France.

Lederman, J.S., Lederman, N.G., Meyer, D.Z, Antink-Meyer, A, Bartos, S.A., & **Holliday, G.M.** (2011, September). *The fragile nature of teachers' views of nature of science (NOS)*. Paper presented at the international conference of the European Science Education Research Association: Lyon, France.

Lederman, J.S., Lederman, N.G., & **Holliday, G.M.** (2012, January). *A systematic professional development project to build teaching capacity for more effective STEM learning.* Paper presented at the international conference of the Southern African Association for Research in Mathematics, Science, and Technology Education: Malawi, South Africa.

Holliday, G.M., Lederman, J.S., & Lederman, N.G. (2012, January). *The impact of professional development in informal science contexts on teachers' discourse.* Paper presented at the international conference of the Southern African Association for Research in Mathematics, Science, and Technology Education: Malawi, South Africa.

Lederman, J.S., Lederman, N.G., **Holliday, G.M.**, Bartos, S., Bartels, S., & Gnanakkan, D. (2012, August 15 & 16). *New technologies for classroom instruction, teacher education, research, and supervision.* Invited workshop presented at the National Changhua University of Education: Changhua, Taiwan.

Holliday, G.M., Lederman, J.S., & Lederman, N.G. (2013, January). *Teacher satisfaction and science content learning during professional development at an informal science institution.* Paper presented at the international conference of the Southern African Association for Research in Mathematics, Science, and Technology Education: Cape Town, South Africa.

Holliday, G.M., Lederman, J.S., & Lederman, N.G. (2014, January). *Addressing inquiry during professional development at an informal science institution.* Paper presented at the international conference of the Southern African Association for Research in Mathematics, Science, and Technology Education: Port Elizabeth, South Africa.

Holliday, G.M., Lederman, J.S., & Lederman, N.G. (2015, September). *Addressing inquiry during professional development at an informal science institution.* Poster presented at the international conference of the European Science Education Research Association: Helsinki, Finland.

Lederman, N.G., Lederman, J.S., **Holliday, G.M.**, & Bartels, S. (2016, June). *The nature and teaching of scientific inquiry*. Workshop presented at the 2016 conference of the Open University of Kaohsiung: Kaohsiung, Taiwan.

Lederman, J.S., Lederman, N.G., Bartels, S., & **Holliday, G.M.** (2016, June). *Elements of effective professional development*. Workshop presented at the 2016 conference of the Open University of Kaohsiung: Kaohsiung, Taiwan.

Lederman, J.S., Lederman, N.G., Bartels, S., & **Holliday, G.M.** (2019, January). *Learning to administer and evaluate responses to the VASI (Views about Scientific Inquiry): A valid and reliable instrument that assesses understandings about scientific inquiry*. Workshop presented at the international conference of the Southern African Association for Research in Mathematics, Science, and Technology Education: Durban, South Africa.

Gwekwerere, Y., **Holliday, G.M.**, Lederman, J.S., & Lederman, N.G. (2019, June). *Twelfth grade students' understandings of scientific inquiry: An international collaborative study*. Paper presented at the annual conference of the Canadian Society for the Study of Education: Vancouver, British Columbia.

National

Meyer, E.C., Kennally, K., Zika-Beres, E., & **Holliday, G.** (1995) *Kids' Klub: Support, education, and visitation for siblings of high-risk infants*. Paper presented at the National Conference of the Association for the Care of Children's Health: Boston, MA.

Babcock, E., Willie, S., **Holliday, G.**, & Alvelo-Santiago, M. (2007, May). *Museum and university partnerships: Transforming urban public high schools in Chicago*. Paper presented at the annual meeting of the American Association of Museums: Chicago, IL.

Tompkins, A., Lederman, J., Roelle, B., Schmidt, C., Minerva, C., & **Holliday, G.** (2007, November). *The zula patrol - ready, set, science workshop: A model for implementing science and astronomy in pre-K to second-grade classrooms*. Session presented at the annual meeting of the National Association for the Education of Young Children: Chicago, IL.

Meyer, D., Avery, L.M., Antink, A., Connell, M.G., & **Holliday, G.M.** (2008, March). *Using Excel as a qualitative data analysis tool.* Session presented at the annual meeting of the American Educational Research Association: New York, NY.

Holliday, G.M., Lederman, N.G., & Lederman, J.S. (2008, March). *Assessing learning with personal meaning mapping at a natural history museum*. Paper presented at the annual meeting of the American Educational Research Association: New York, NY.

Lederman, J.S., & **Holliday, G.M.** (2008, March). *Nature of science and scientific inquiry in informal science settings*. Session presented at the annual meeting of the National Science Teachers Association: Boston, MA.

Lederman, J.S., Lederman, N.G., & **Holliday, G.M.** (2008, March). *Teaching the nature of science to young children (CESI).* Session presented at the annual meeting of the National Science Teachers Association: Boston, MA.

Holliday, G.M., Lederman, N.G., & Lederman, J.S. (2008, March). *Assessing learning that occurs at informal science settings.* Paper presented at the annual meeting of the National Science Teachers Association: Boston, MA.

Tompkins, A., **Holliday, G.M.**, & Lederman, J.S. (2008, March). *Science in the early education classroom: Formal and informal perspectives.* Session presented at the annual meeting of the National Science Teachers Association: Boston, MA.

Holliday, G.M., Lederman, N.G., & Lederman, J.S. (2008, April). *Using personal meaning mapping to assess learning at a natural history museum*. Paper presented at the annual international meeting of the National Association for Research in Science Teaching: Baltimore, MD.

Zilker, I., **Holliday, G.M.**, Kauertz, A., Fischer, H.E., Lederman, J.S., & Lederman, N.G. (2008, April). *Developing a large scale assessment instrument measuring students' competencies in nature of science and scientific inquiry.* Paper presented at the annual international meeting of the National Association for Research in Science Teaching: Baltimore, MD.

Lederman, G.M., Lederman, J.S., **Holliday, G.M.**, & White, K.J. (2009, April). *Project SLICE: Science learning through inquiry, content, and engagement*. Paper presented at the annual international meeting of the National Association for Research in Science Teaching: Garden Grove, CA.

Holliday, G.M., Lederman, N.G., & Nieswandt, M. (2009, April). *Understanding museum educators' views about nature of science.* Paper presented at the annual international meeting of the National Association for Research in Science Teaching: Garden Grove, CA.

Holliday, G.M., Lederman, N.G., & Nieswandt, M. (2009, April). *Museum educators' views about nature of science.* Poster presented at the annual meeting of the American Educational Research Association: San Diego, CA.

Zilker, I., **Holliday, G.M.**, Kauertz, A., Fischer, H.E., Lederman, J.S., & Lederman, N.G. (2010, March). *A competence test in the field of nature of science and nature of scientific inquiry.* Paper presented at the annual international meeting of the National Association for Research in Science Teaching: Philadelphia, PA.

Holliday, G.M., & Lederman, N.G. (2010, March). *A comparison of views about nature of science among informal science educators and exhibit designers.* Paper presented at the annual international meeting of the National Association for Research in Science Teaching: Philadelphia, PA.

Holliday, G.M., & Lederman, J.S. (2010, March). *Teaching nature of science beyond the classroom*. Workshop presented at the annual national meeting of the National Science Teacher Association: Philadelphia, PA.

White, K.J., **Holliday, G.M.**, & Bartos, S. (2010, March). *Limits on cell size: Tweaking labs to teach about nature of science and scientific inquiry.* Workshop presented at the annual national meeting of the National Science Teacher Association: Philadelphia, PA.

Holliday, G.M., Kinser, B.P., Maxwell, K., & Pappas, J. (2011, March). *Synergy: Bringing biology, ecology, and technology together*. Workshop presented at the annual national meeting of the National Science Teacher Association: San Francisco, CA.

Antink, A.L., **Holliday, G.M.** (2011, March). *Incorporating problem-based learning and creativity in integrated science classrooms: An international perspective.* Workshop presented at the annual national meeting of the National Science Teacher Association: San Francisco, CA.

Holliday, G.M., Lederman, J.S., & Lederman, N.G. (2011, April). *Content related social interactions during professional development at an informal science institution.* Paper presented for the annual international meeting of the National Association for Research in Science Teaching: Orlando, FL.

Zilker, I., **Holliday, G.M.**, Kauertz, A., Fischer, H.E., Lederman, J.S., & Lederman, N.G. (2011, April). *Assessing understanding about nature of science in historical contexts.* Paper presented for the annual international meeting of the National Association for Research in Science Teaching: Orlando, FL.

Lederman, J.S., **Holliday, G.M.**, Meyer, A.A., Meyer, D.Z., Bartos, S.A., & Lederman, N. (2012, January*). A new generation of teacher education roles: Incorporpating iPad and livescribe technologies to facilitate preservice and inservice teacher growth*. Workshop presented at the annual international meeting of the Association for Science Teacher Education: Clearwater, FL.

Holliday, G.M., Lederman, J.S., & Lederman, N.G. (2012, January). *The impact of professional development in informal science contexts on teachers' content learning and discourse*. Paper presented at the annual international meeting of the Association for Science Teacher Education: Clearwater, FL.

Holliday, G.M., Lederman, J.S., & Lederman, N.G. (2012, March). *"Wow! Look at that!": The impact of professional development in informal science contexts on teachers' discourse*. Paper presented at the annual international meeting of the National Association for Research in Science Teaching: Indianapolis, IN.

Holliday, G.M., Lederman, J.S., & Lederman, N.G. (2012, April). *ASTC Session: Professional development at informal science settings: Recommendations for educators*. Workshop presented at the annual national meeting of the National Science Teachers Association: Indianapolis, IN.

Holliday, G.M., & Lederman, J.S. (2012, April). *Expanding young children's experiences with inquiry*. Workshop presented at the annual national meeting of the National Science Teachers Association: Indianapolis, IN.

Holliday, G.M., Lederman, J.S., & Lederman, N.G. (2013, March). *Teacher satisfaction and science content learning during professional development at an informal science institution*. Paper presented at the annual international meeting of the National Association for Research in Science Teaching: Rio Grande, PR.

Davidsson, E., Jakobsson, A, Lederman, J., & **Holliday, G.** (2013, March). *Understanding interactions at science centers and Museums: Approaching sociocultural perspectives*. Symposium presented at the annual international meeting of the National Association for Research in Science Teaching: Rio Grande, PR.

Holliday, G.M., Makki, N., Plaster, K, Ostrowski, C., & Rouse, S. (2013, April). *Woodrow Wilson Fellows: Shaping teaching practice through field-based action research*. Presentation presented at the annual national meeting of the National Science Teachers Association: San Antonio, TX.

Rouse, S., **Holliday, G.M**., & Plaster, K. (2013, April). *Biotechnology: Making biodiesel in the chemistry classroom*. Workshop presented at the annual national meeting of the National Science Teachers Association: San Antonio, TX.

Holliday, G.M., Lederman, N.G., & Lederman, J.S. (2013, April). *The impact of professional development in informal science contexts on teachers' discourse*. Paper presented at the annual international meeting of the American Educational Research Association: San Francisco, CA.

Holliday, G.M., Lederman, N.G., & Lederman, J.S. (2014, January). *Teacher satisfaction and science content learning during professional development at an informal science institution.* Paper presented at the annual international meeting of the Association for Science Teacher Education: San Antonio, TX.

Holliday, G.M., Lederman, J.S., & Lederman, N.G. (2014, April). *Teacher satisfaction and science content learning during professional development at an informal science institution*. Paper presented at the annual international meeting of the American Educational Research Association: Philadelphia, PA.

Liang, X., Pachnowski, L., Plaster, K., & **Holliday, G.M**. (2104, April). *An analysis of career changers' need in a clinical immersed STEM teacher preparation program.* Paper presented at the annual international meeting of the American Educational Research Association: Philadelphia, PA.

Holliday, G.M., Makki, N., & Plaster, K. (2014, April). *Woodrow Wilson fellows: Shaping teaching practice through field-based action research.* Paper presented at the annual national meeting of the National Science Teachers Association: Boston, MA.

Holliday, G.M., Lederman, J.S., & Lederman, N.G. (2014, January). *Understanding how inquiry is addressed during professional development at an informal science institution.* Paper presented at the international conference of the National Association for Research in Science Teaching: Pittsburgh, PA.

Holliday, G.M., & Makki, N. (2104, July). *How to incorporate nature of science into the middle and secondary Classroom*. Workshop presented at the national convening of the Woodrow Wilson Teaching Fellows: Chicago, IL.

Holliday, G.M., Lederman, N.G., & Lederman, J.S. (2015, January). *Addressing inquiry during professional development at an informal science institution.* Paper presented at the annual international meeting of the Association for Science Teacher Education: Portland, OR.

Holliday, G.M., & Testa, E. (2015, March). *A clear argument: How to address literacy standards in the science classroom*. Paper presented at the annual national meeting of the National Science Teachers Association: Chicago, IL.

Anderson, S., Newton, J., York, J., York, M., Makki, N., **Holliday, G.M**., & Plaster, K. (2015, March). *Teacher Research Day Session: Woodrow Wilson fellows: Shaping teaching practice through field-based action research.* Paper presented at the annual national meeting of the National Science Teachers Association: Chicago, IL.

Patrick, P., Gupta, P., Correa, J., Baram-Tsabari, A., Lewenstein, B.V., Rennie, L.J., Howitt, C., Blake, E., Lederman, J.S., & **Holliday, G.M**. (2015, April). *Informal science education: Pedagogy and epistemology*. Symposium presented at the international conference of the National Association for Research in Science Teaching: Chicago, IL.

Meyer, A., & **Holliday. G.** (2016, April). *Pre-service middle grades teachers' understandings about scientific creativity: Perspectives on teaching for student scientific creativity*. Paper presented for the international conference of the National Association for Research in Science Teaching: Baltimore, MD.

Buck, G., Akerson, V., Feldman, A., Lederman, N., Lederman, J., Bowen, G.M., Capobianco,H.B., Davis, E., Gilles, B., Hume, A., Makki, N., **Holliday, G.M.**, Marble, S., Subramania, K., Trauth-Nare, A., & Wallace, M. (2016, April). *Allowing our professional knowledge of teacher education to be enhanced by self-study research*. Symposium presented for the international conference of the National Association for Research in Science Teaching: Baltimore, MD.

Buck, G., Akerson, V., Feldman, A., Lederman, N., Lederman, J., Bowen, G.M., Capobianco,H.B., Davis, E., Gilles, B., Hume, A., Makki, N., **Holliday, G.M.**, Marble, S., Subramania, K., Trauth-Nare, A., & Wallace, M. (2017, January). *Allowing our professional knowledge of pre-service teacher education to be enhanced by self-study research: Turning a critical eye on our practice*. Paper presented at the annual international meeting of the Association for Science Teacher Education: Des Moines, IA.

Lederman, J.S., Lederman, N.G., Jimenez, J., Bartels, S.L., Tosunoglu, C., Akubo, I., Hattingh, A.M., Liu, C., McDonald, C.V., Gomez, D.S., Liu, E., Blanquet, E., Voitle, F., **Holliday, G.M.**, El-Deghaidy, H., Lavonen, J., Leung, J., Concannon, J., Fukuda, N., Srisawasdi, N., Dogan, O.K., Brown, P., Mamlok-Naaman, R., Schwartz, R., Sharma, R., Irez, S., Liu, S-Y, Lin, S-F., Huang, X., Pan, Y., & Gwekwerere, Y. (2018, March). *International collaborative investigation of high school students' understandings of scientific inquiry – A follow up study*. Symposium presented at the international conference of the National Association for Research in Science Teaching: Atlanta, GA.

Bartels, S.L., Whitworth, B.A., **Holliday, G.M.**, Mensah, F.M., Lederman, J.S., Crawford, B.A, & Neuman, E. (2019, April). *Professional citizenship: Lifetime commitments and rewards.* Symposium presented for the international conference of the National Association for Research in Science Teaching: Baltimore, MD.

Holliday, G.M., & Roketenetz, L.D. (2020, April). *Engaging the urban classroom with the natural world: Lessons learned during a pandemic*. Paper presented at the international conference of the National Association for Research in Science Teaching: Virtual.

Roketenetz, L.D., & **Holliday, G.M.** (2022, August). *Discovering the UA museum of zoology: A natural history mystery.* Presentation at the annual meeting of the Document Academy (DOCAM'22): Akron, OH.

Regional

Meyer, E.C., Kennally, K., Zika-Beres, E., & **Holliday, G.** (1993) *Sibling support and visitation in the neonatal intensive care unit*. Poster presented at the Florida Conference on Child Health Psychology: Gainesville, FL.

Holliday, G., Meyer, E.C., Kennally, K., & Zika-Beres, E. (1993) *Sibling support and visitation in the neonatal intensive care unit*. Paper presented at the Northern New England Regional Conference of the Association for the Care of Children's Health: Boston, MA.

Holliday, G. (1995). *Whole science*. Session presented at the Rhode Island Teachers Applying Whole Language (TAWL) Conference: Cranston, R.I.

Holliday, G.M. (2012, June). *Expanding young children's experiences with inquiry*. Workshop presented at the annual summer institute of the University of Akron's Center for Urban and Higher Education: Akron, OH.

Plaster, K., Pachnowski, L., & **Holliday, G.** (2012, October). *Using recording and note-taking devices to improve math instruction*. Workshop presented at the annual meeting of the Ohio Council of Teachers of Mathematics: Columbus, OH.

Kearns, J., Faye, C., **Holliday, G.M.**, & Michaels, J. (2015, March). *Focusing on field trips: Partnering with local high school teachers*. Panel presentation at the annual meeting of the Ohio Museums Association: Cleveland, OH.

Makki, N., Plaster, K., & **Holliday, G.** (2016, December). *Shaping teaching practice through action research*. Presentation at the regional meeting of the National Science Teachers Association: Columbus, OH.

Holliday, G.M., & Maguth, B. (2019, October). *Teaching the Holocaust: The economics and science of hate.* Paper presented at the annual conference of the Ohio Council for the Social Studies: Dublin, OH.

Roketenetz, L., **Holliday, G.M.**, & Kolodziej, M. (2022, September). *Discovering the UA Museum of Zoology*. Presentation at the annual conference of the New Explorations in Teaching: Akron, OH.

Roketenetz, L., & Holliday, G.M. (2024, April). *Discovering the UA Museum of Zoology through scientific collections*. Presentation at the annual conference of the Environmental Education Council of Ohio: Salt Fork State Park Lodge, OH.

Invited Presentations

Holliday, G.M. (2008). *Assessing learning that occurs at informal science settings.* Paper presented at the Illinois Institute of Technology, Chicago, IL.

Holliday, G.M. (2009). *Informal Science Institutions (ISIs) have been recognized for providing quality professional development for K-12 classroom teachers (NSTA, 1998). However, what is the current ISI professional development model and is this model adequate for the needs of*

K-12 classroom teachers? Paper presented at the Illinois Institute of Technology, Chicago, IL.

Holliday, G.M. (2009). *Museum educators' views about nature of science.* Paper presented at the Illinois Institute of Technology, Chicago, IL.

Holliday, G.M. (2010). *Professional development at an informal science institution: Its impact upon elementary and middle school teachers' learning of science content and their content related social interactions (Dissertation Proposal).* Paper presented at the Illinois Institute of Technology, Chicago, IL.

Holliday, G.M. (2011). *The impact of professional development in informal science contexts on teachers' content knowledge and discourse.* Paper presented at the University of Akron, Akron, OH.

Holliday, G.M. (2014, March). *Using Excel to analyze and code qualitative data.* Workshop presented for the Qualitative Methods course at the Illinois Institute of Technology, Department of Mathematics and Science Education: Chicago, Il.

Holliday, G.M. (2014, July). *Educational Technology in the Secondary Classroom.* Workshop presented for the Curriculum course at the Illinois Institute of Technology, Department of Mathematics and Science Education: Chicago, Il.

Holliday, G.M. (2015, March). *Focusing on field trips*. Invited presentation for Woodrow Wilson Teaching Fellowship professional development at the Great Lakes Science Center: Cleveland, OH.

Holliday, G.M. (2015, April). *Using Excel to analyze and code qualitative data.* Presentation for 5100:745 - Qualitative Methods II at the University of Akron, Akron, OH.

Dissertation Committees

Graduate Faculty Status Category III (which enables direction of dissertation committees) valid through August 31, 2027.

Member, Amy Hollingsworth, Dissertation Title: *Q Methodology as a needs assessment tool for Biology graduate teaching assistants participating in an instructional training program*. (November 2013).

Member, Constantine George Farmakidis, Dissertation Title: *Implications of using a technology integration model*. (October 2013).

Member, Jennifer Bozeka, Dissertation Title: *The professional development experiences of four nationally board certified teachers of reading-english language arts*. (May 2015).

Chair, Jennifer Groman, Dissertation Title: *From calling to crisis: The growth process of teacher through crisis-like incidents*. (June 2015).

Co-Chair, Amy R. Owens-Hartman, Dissertation Title: *A case study of technology choices by high school students*. (December 2015).

Member, Karl Rishe, Dissertation Title: *A case study: The investigation of how the catholic mission and identity at a small, private, catholic, liberal arts institution is manifested in the institutional culture*. (December 2015).

Chair, Jennifer Warren, Dissertation Title: *Diversity in dietetics matters: Experiences of minority female registered dietitians in their route to practice*. (May 2017).

Chair, Huda Bajamal, Dissertation Title: *Saudi third culture kids: A phenomenological case study of Saudis' acculturation in a northeast Ohio elementary school.* (May 2017).

Member, Rachele Kappler, Dissertation Title: *Changes in physical activity with the use of motivational interviewing in law enforcement officers: a case study*. (May 2017).

Member, Abdulmonem Alghamdi, Dissertation Title: *Jigsaw as a cooperative learning instructional strategy and the achievement and attitudes of Saudi Arabian male high school science students*. (May 2017).

Member, Andrew E. Milks, Dissertation Title: *Social support factors affecting engineering technology student intent to persist.* (December 2018).

Member, Kristen Karasek, Dissertation Title: *Exploring the impact of bridge program participation on students' sense of belonging.* (December 2018).

Methodologist, Barbara Milliken, Dissertation Title: *Determining critical content for online faculty professional development focused on serving veterans in the classroom environment.* (May 2018).

Member, Thomas Beatman, Dissertation Title: *Integrating game-design knowledge and education theory to communicate biology content*. (August 2019).

Member, Sha Li Swiger, Dissertation Title: *Technology Use and Integration by Six Sheltered-Instruction Trained Teachers*. (May 2020).

Member, Angela M. Adkins, Dissertation Title: *What they take out of the classroom: Values, compassion, and lessons that last*. (August 2020).

Member, Piya Chatterjee, Dissertation Title: *Elusive attitudes and perceptions of inclusion of dual licensure candidates in early childhood inclusive teacher preparation program.* (August 2020).

Member, Sarah McInerney, Dissertation Title: *Biomimicry in business: Advancing the narrative of corporate sustainability through design and behavior*. (December 2021)

Chair, Gabor Smith, Dissertation Title: *The education of the lion: A qualitative visual research exploration of mentorship in higher education.* (July 2022).

Co-Chair, Rebecca Eagle-Malone, Dissertation Title: *Connecting people with nature: An interdisciplinary approach in environmental education*. (July 2022).

Co-Chair, Julie Miller, Dissertation Title: *College faculty and the experience of job satisfaction: a phenomenological approach.* (December 2022).

Member, Leann Schaeffer, Dissertation Title: *The skills essential for dietetic students to meet current competency 1.12 in demonstrating knowledge of and being able to manage food preparation techniques.* (December 2022).

Honors Projects (Undergraduate)

Reader, Brad J. Gasser, *An examination of district goals across cultures* (2015).

Reader, William W. Fleming Jr., *Best practices in museum education* (2016).

Sponsor, Karlie M. Lieberth, *The takeover of standardized tests* (2016).

Reader, Allie Bednarz, *The segregation of Black students and White students in Cuyahoga and Summit County public schools* (2018).

Reader, Emma McHale, *Defining bullying* (2018).

Sponsor, Harvey Kenworthy, *Cyberbullying in education: A literature review* (2019).

Sponsor, Lexington Sauder and Dana Suchy, *Teaching to the test culture and teachers today: Effects of standardized testing on curriculum and the educational community* (2019).

Reader, Alexis Ropchock, *Teaching science through active learning: Sports* (2019).

Sponsor, Ryan Neubauer, *Designing classrooms for learning* (2019).

Reader, Nina Barnes, *A unit in Victorian literature* (2020).

Reader, Carson Moore, *Global Education: The Caribbean realm* (2021).

Reader, Harlee Garlock, *A teacher's perspective on the effectiveness of homework at various grade levels* (2021).

Sponsor, Hannah Hartzler, *The issue of cyberbullying: A Literature review* (2021).

Reader, Collin Ryan, *Impact of recycling on environmental attitudes or behaviors of students* (2022).

Sponsor, Lauren Reynolds, *The effectiveness of incorporating physical activity into the classroom: A literature review* (2022).

Sponsor, Ryan Moellendick, *Incorporation of citizen science in classrooms to enrich learning* (2025).

Capstone Projects for Museum/Archives Certificate
Ellen Mitchell (Exploratory, 2016).
Amanda Leach (Multidisciplinary, 2019).
Grace Thansiu (History, 2021).
Faith Rush (Art, 2022).
Maxwell Ott (Exploratory, Summer 2022).
Jason Rodkey (Education, Spring 2024).

Review Responsibilities

Editorial Board Member
Journal of Science Teacher Education
International Journal of Informal Science and Environmental Learning
International Journal of Science Education

Reviewer

2005	NARST Annual Meeting, Strand 4, "Pre-service Teacher Education,"
2007-present	NARST Annual Meeting, Strand 6, "Science Learning in Informal Contexts".
2008-present	*International Journal of Science Education*.
2009-present	NARST Annual Meeting, Strand 8, "In-service Science Teacher Education".
2010	NARST Annual Meeting, Strand 13, "History, Philosophy, and Sociology of Science"
2010	AERA Annual Meeting, Division C, "Learning and Instruction"
2010-present	*International Journal of Science and Mathematics Education.*
2012-2014	AERA Annual Meeting, SIG - Out-of-School Time
2012-2019	AERA Annual Meeting, SIG - Informal Learning Environments Research
2013-present	*Journal of Science Teacher Education*
2014	*European Journal of Psychology of Education*
2014	*Routledge/Taylor & Francis*
2014	*School Science and Mathematics*
2014-present	*Science Education*
2019	*Journal of Research in Science Teaching*
2020	*Educational Research for Policy and Practice*
2021-present	*International Journal of Informal and Environmental Education.*

Invited Panel Member
National Science Foundation grant proposal review for the Advancing Informal STEM Learning (AISL) program (Virtual, March 5 & 6, 2019).

Professional Activities

National

Contributor, Write It \ Do It Event, Rhode Island Science Olympiad, Rhode Island College (1996-2000).

Council for Elementary Science International workshop presenter at NSTA, 2008 "Make-and-Take".

Presider, Global Conversations in Science Education Conference during the 2011 NSTA

National Conference (San Francisco, CA, March).

Presider, Global Conversations in Science Education Conference during the 2013 NSTA National Conference (San Antonio, TX, April).

Consultant, Greater Cleveland Aquarium, 2013.

Grant Consultant, Institute of Museum and Library Services, *Focusing on Field Trips: Engaging High School Audiences in the History of the Human Sciences*, University of Akron, OH, 2013.

Consultant, National Professional Development Grant funded by the U. S. Department of Education, 2013.

Co-Coordinator, Strand 6, Science Learning in Informal Contexts for the National Association for Research in Science Teaching (NARST) annual meeting, 2014-2016.

Member, Early Career Research Award Committee for National Association for Research in Science Teaching (NARST), 2014-2017.

Member, Program Committee for the National Association for Research in Science Teaching (NARST) annual meeting, 2014-2016.

Presider, Strand 6 sponsored session *Translating Theory into Practice in Informal Settings* during the 2015 NARST international conference (Chicago, IL, April).

Presider, Strand 6 *Administrative Sponsored Symposium - Global Perspectives on Trends in Informal Science Education Research* during the 2016 NARST international conference (Baltimore, MD, April).

Presenter, Graduate Student Forum during the 2016 NARST international conference (Baltimore, MD, April).

Presenter, Graduate Student Forum during the 2017 NARST international conference (San Antonio, TX, April).

Coordinator, *Mentor-Mentee Nexus* during the 2018 NARST international conference (Atlanta, GA, March).

Coordinator, *Mentor-Mentee Nexus* during the 2019 NARST international conference (Baltimore, MD, April).

Facilitator, Graduate Student Forum during the 2019 NARST international conference (Baltimore, MD, April).

Panel Member, National Science Foundation grant proposal review for the Advancing Informal STEM Learning (AISL) program (Virtual, March 5 & 6, 2019).

Member, Membership Committee for the National Association for Research in Science Teaching

(NARST), 2017-2020.

Coordinator, *Mentor-Mentee Nexus* during the 2020 NARST international conference (Portland, OR, March).

Member, Vertical Training Advisory Board, National Speleological Society Vertical Training Commission, 2022.

State

State University Education Deans (SUED) Representative (appointed by Chancellor Randy Gardner, Ohio Department of Higher Education), Ohio Educator Standards Board, Ohio Department of Education, 2021-2025.

Educator Standards Board Representative, State University Education Deans Committee, 2021-2025.

Member, Rooted in Community Advisory Committee (a partnership with the Cuyahoga Valley National Park), 2022 to present.

Member, Blue Sky Think Tank planning group, Conservancy for Cuyahoga Valley National Park, 2021.

Completed an external review for Dr. Sami Kahn who was seeking tenure and promotion in the Department of Teacher Education at Ohio University in September 2018.

Member, Chamber Music Society of Ohio Board of Trustees, 2015 to 2024.

University/College/School

Member, Technology Committee, The University of Akron, OH, 2012-2015.

Co-Chair, Technology Committee, The University of Akron, OH, 2014-2015.

Faculty Advisor, STEMucators student organization, The University of Akron, OH, 2012.

Member, Search Committee for Visiting Assistant Professor in Social Studies, The University of Akron, OH, 2012-2013.

Member, Search Committee for Program Assessment and Support Facilitator (PASF), The University of Akron, OH, 2014-2016, 2017.

Member, Faculty Senate, The University of Akron, OH, 2013-2016.

Member, Faculty Research Fellowship Committee, The University of Akron, OH, 2013-2022.

Member, Provost's Advisory Committee, The University of Akron, OH 2014-2015.

Member, College of Education Executive Committee, The University of Akron, OH, 2014-2015.

Member, Professional Education Council, The University of Akron, OH, 2014-2017.

Member, Search Committee for High Institute of Elastomer Industries Module Developer, The University of Akron, OH, 2017-2018.

Panel Participant, Gun Violence in America's Schools: A Town Hall Forum, LJFF COE, The University of Akron, OH, 2018.

Founding team member for the Urban STEM Center at the University of Akron, 2018.

Volunteer, The University of Akron Northeast Ohio FIRST LEGO League, 2018 & 2019.

Member, Graduate Council, The University of Akron, OH, 2016-2022.

Co-Chair, Graduate Faculty Status Committee, The University of Akron, OH, 2016-2018.

LJFFCOE Representative, Academic Program Review Committee, The University of Akron, OH, 2017-2018.

Chair, NTT RTP Evaluation Committee, The University of Akron, OH, 2018-2020.

LJFFCOE/SOE Representative, Program Review Committee, The University of Akron, OH, 2019-2022.

Lead, College of Education self-study for Program Review, The University of Akron 2020.

Chair, Graduate Faculty Status Committee, The University of Akron, OH, 2021-2022.

Member, Biomimicry Research and Innovation Center (BRIC), The University of Akron, OH, 2019-Present.

Member, UA Arts and Culture Council, The University of Akron, OH, 2021-2022.

Member, Faculty Research Committee, The University of Akron, OH, 2019-2022, renewed through 2025.

Member, Faculty Senate ad hoc Interdisciplinary Committee, The University of Akron, OH, 2023-2025.

Member, Search Committee for Assistant Director of the EX[L] Center for Community Engaged Learning, The University of Akron, OH, 2023.

Member, Barker Center for Economic Education Advisory Board, The University of Akron, OH, 2024 to present.

Professional Development

Why the Holocaust Matters Today (10 Hours), The Ohio Council on Holocaust & Genocide Education, June 2018.

Practical Geometry Presentation: The Meetinghouse at Hale Farm & Village, June 2018.

2019 International Conference for the Association for Science Teacher Education (ASTE) – January 2-5, 2019.

Why Zoos and Aquariums Matter, Center for Advancement of Informal Science Education (CAISE), March 2019.

Designing and Developing Your Online Course Workshop (2 weeks), Design and Development Services, University of Akron, June 2020.

Certified Educator Project WILD, Ohio Department of Natural Resources, Division of Wildlife, UA Martin Center for Field Studies and Environmental Education, Spring 2020.

Certified Wonder of Wetlands Educator, UA Martin Center for Field Studies and Environmental Education, Spring 2020.

Quality Matters, Independent Applying the QM Rubric - Virtual (APPQMR): (Statewide Systems), June 2020.

Introduction to Communication Science - Coursera/University of Amsterdam (10 Hours), Spring 2021.

Communication Theory: Bridging Academia and Practice – Coursera/HSE (Higher School of Economics) University, Russia (21 Hours), Spring 2021.

Science Communication and Public Engagement - Future Learn/EIT Food, University of Turin, Universidad Autónoma de Madrid and European Institute of Innovation and Technology (EIT) (6 Hours), Spring 2021.

Citizen Science Projects: How to Make a Difference (Future Learn) by University of Dundee and WeObserve (12 Hours), Spring 2021.

Science Literacy – Coursera/University of Alberta (16 Hours), Spring 2021.

Spring/Summer 2021 Book study with LJFF School of Education faculty – "We Want to Do More Than Survive" by Bettina Love (2019).

2021 Virtual Conference for the Association for Science Teacher Education (ASTE) – January 14 & 15, 2021.

2021 Virtual International Conference for the Korean Association for Science Education (KASE) – January 28 & 29, 2021

2021 Virtual Conference for the Ohio Museums Association (OMA) – April 11-13, 2021.

Google Certified Educator Level 1, Google for Education, valid through July 22, 2022.

2022 Virtual Conference for the National Association for Research in Science Teaching, March 27-30, 2022.

Ohio Teacher Leadership Summit (5 Hours), Columbus, OH, June 8, 2022.

Teaching Endorsement, Teaching for Inclusive Excellence, The University of Akron, Summer 2023.

Professional Honors

College of Education Outstanding Faculty Teaching Award, University of Akron, 2014.

Ohio Magazine, Excellence in Education, 2014.

College of Education Outstanding Faculty Research Award, University of Akron, 2015.

EX[L] Center for Experiential Learning Faculty-Community Partnership Award with Dr. Kathy Feltey, Dr. Rebecca Erickson, Dr. Susie Kushner-Benson, Dr. Elisa Gargarella, the teachers and students of the I Promise School, and the UA student group Zips Precious Plastics (ZPP), 2020.

Nomination for the Supporting the Student Experience Award, 2022 University of Akron Achievement Awards.

Fellow, Akron Community Engaged (ACE) Scholar, EX[L] Center for Community Engaged Learning, The University of Akron, OH, 2023-2026.

EX[L] Center for Community Engaged Learning Excellence in Community-Engaged Teaching Award with Dr. Lara Roketenetz, 2023.

EX[L] Center for Community Engaged Learning Recognition for Community-Engaged Teaching with Dr. Lara Roketenetz, 2023.

Buchtel College of Arts and Sciences Outstanding Teaching Award, University of Akron, 2023.

Faculty Fellow for Inclusion, Diversity, Equity, and Belonging (IDEB), Buchtel College of Arts and Sciences, 2023-2024.

Memberships in Academic, Professional, and Scholarly Societies

Current
National Association for Research in Science Teaching (NARST)
National Science Teaching Association (NSTA)
Ohio Association of Teacher Educators (OATE)
Ohio Museum Association (OMA)
Previous
American Association for the Advancement of Science (AAAS)
American Education Research Association (AERA)
Association for Science Teacher Education (ASTE)

Cleveland Regional Council of Science Teachers (CRCST)
European Science Education Research Association (ESERA)
Science Education Council of Ohio (SECO)
Southern African Association for Research in Mathematics, Science, and Technology Education (SAARMSTE)
Member, Heritage Harbor Museum Special Events Committee, Providence (1998)
Member, Museum Alliance of Providence, Providence (1996)