

Ryan David Sweeder

Curriculum Vitae

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ResearcherID: [O-7440-2019](#); [Publons page](#)

Academic Experience

Michigan State University, East Lansing, MI

Lyman Briggs College Associate Dean for Research and Faculty Affairs (2021-2023)

Lyman Briggs College Interim Assistant Dean of Faculty Affairs (Feb – May 2021)

Director of SEIMIC at MSU (2020-present)

Professor of chemistry (2020-present)

Lyman Briggs College, 2004-present

Hub for Innovation in Learning and Technology, 2020-present

MSU Director of SEISMIC, 2020-present

CREATE for STEM, 2013-present

Division of Science and Math Education, 2005-2011

Center for Research on College Science Teaching and Learning Member 2007- 2013

Associate Professor of chemistry (2011-2020)

Assistant Professor of chemistry (2005-2011)

Visiting Assistant Professor of chemistry in Lyman Briggs School of Science, 2004-2005

Dutton Fellow, Aug 2004-2007

Massey University, Palmerston North, New Zealand

Visiting Researcher with the Institute for Fundamental Science, 2014

Cornell University, Ithaca, NY

Postdoctoral Fellowship, 2003-2004

Advisor: Dr. Frank DiSalvo

University of Michigan, Ann Arbor, MI

Ph.D. in Chemistry, May 2003

Thesis: *New Reactions of Germylenes and Ketones and Assessment of Studio General Chemistry*

Active Member of CSIE (Chemical Sciences at the Interface of Education), Regents Fellow

Co-authored funded ACS-PRF research grant (2002-2004); Authored 6 peer reviewed papers

Instructed General Chemistry recitation and laboratory as a Graduate Student Instructor; helped develop Studio General Chemistry

Advisor: Dr. Mark Banaszak Holl

Albion College, Albion, MI

Bachelor of Arts in Chemistry and Math, Dec, 1996 (ACS certified)

Graduated Summa Cum Laude, Phi Beta Kappa, with Departmental Honors in chemistry,

Trustee Scholar, Dow Scholar in Chemistry

Funded Proposals

External

NSF IUSE Award DUE-1702592 “Collaborative Research: Optimizing learning from chemistry simulations: Comparing attention allocation and learning outcomes for assignments with and without instructor screencasts” PI-Ryan Sweeder, \$94,695. Funded 8/15/17-7/31/22. Collaboration with Deborah Herrington, Jessica VandenPlas at Grand Valley State University \$300,000 total grant).

NSF – IUSE Award DUE-1725520 “Collaborate Research: Extending a Coherent Gateway to STEM Teaching and Learning” PI – Melanie Cooper, Co-PI Marcos Caballero, Diane Ebert-May, Cori Fata-Hartley, Rebecca Matz, Senior Personnel – Ryan Sweeder (among others). \$1,323,499 (MSU portion only) Funded 9/1/17-8/31/22.

NSF S-STEM Award DUE-1564745 “SPRING 3: Scholarship Program for Retaining, Inspiring, and eNabling Graduates” PI-Ryan Sweeder, Co-PI Mark Largent, Sean Valles, Samantha Cass, Rick Shipman \$649,279. Funded 4/1/16-3/31/22.

NSF S-STEM Award DUE-1153778 “Science Scholarship Program at Lyman Briggs College Phase 2” PI-Kelly Millenbah, Co-PI Ryan Sweeder (assumed PI responsibility Jul 2014), Aklilu Zeleke, Robert LaDuca, Rick Shipman \$599,556. Funded 1/15/2012-12/31/2016.

NSF-CCLI (Phase II) Proposal “BRAID 2.0: Bringing Relationships Alive through Interdisciplinary Discourse” PI -Ryan Sweeder, Co-PIs Doug Luckie, Richard Bellon, Elizabeth Simmons \$249,959. Funded 8/01/11 - 7/31/15. Award #1022754

NSF S-STEM Proposal “Science Scholarship Program at Lyman Briggs College” PI-Ryan Sweeder, Co-PI Philip Strong, Jonelle Golding, Rick Shipman \$598,576. Funded 04/01/2009-03/31/2014. Award #0849911

Central Association of Advisors for the Health Professions, Inc. Advisor Research Grant, “Analyzing Student Performance on the MCAT to Enhance Premedical Student Advising” PI – Heidi Lang, Co-PI Ryan Sweeder \$500. Funded 3/1/13 - 2/28/14.

NSF-CCLI (Phase I) Proposal “BRAID: Bridging the Disciplines with Authentic Inquiry & Discourse” PI -Ryan Sweeder, Co-PI Doug Luckie, Co-PI Elizabeth Simmons \$149,904. Funded 06/01/07 - 06/01/11. Award #0633222

Internal

Lyman Briggs College Trajectory Fund Proposal “Getting the greatest learning from online simulations – testing student directed interactions vs. screencasts” \$9,600 Funded 5/16/2016-5/15/2017.

MSU-Quality fund Proposal “BRAID: Bridging the Disciplines with Authentic Inquiry & Discourse” PI Doug Luckie, Co-PI Ryan Sweeder. \$131,761 Funded 2006-2008.

Michigan State University Federal Credit Union Dean Choice award: “Lyman Briggs College Research Symposium Award” –author of award, \$2500 *each year from 2013-2020*; to supply financial awards to students’ presentations at the annual LBC Research Symposia.

Publications – Educational Research

Undergraduate students underlined

Peer Reviewed Research Articles

Jessica R. VandenPlas, Deborah G. Herrington, Alex Shrode, **Ryan D. Sweeder** “Students’ Independent Use of Screencasts and Simulations to Construct Understanding of Atomic Interactions”, *Journal of Chemical Education*, (2021) DOI: [10.1021/acs.jchemed.0c00470](https://doi.org/10.1021/acs.jchemed.0c00470)

Brianna L. Martinez, **Ryan D. Sweeder**, Jessica R. VandenPlas, Deborah G. Herrington “Improving conceptual understanding of gas behavior through the use of screencasts and simulations” *International Journal of STEM Education*, **8**, 5 (2021). DOI: [10.1186/s40594-020-00261-0](https://doi.org/10.1186/s40594-020-00261-0)

Ryan D. Sweeder, Merve N. Kursav, Sean A. Valles “A Cohort Scholarship Program that Reduces Inequities in STEM retention” *Journal of STEM Education*, **22**, 1 (2021). Available [here](#). Open Access

Kinsey Bain, Lydia Bender, Paul Bergeron, Marcos D. Caballero, Justin H. Carmel, Erin M. Duffy, D. Ebert-May, Cori L. Fata-Hartley, Deborah G. Herrington, James T. Lavery, Rebecca L. Matz, Paul C. Nelson, Lynmarie A. Posey, Jon R. Stoltzfus, Ryan L. Stowe, **Ryan D. Sweeder**, Stuart H. Tessmer, Sonia M. Underwood, Mark Urban-Lurain, Melanie M. Cooper (2020) Characterizing college science instruction: The Three-Dimensional Learning Observation Protocol. PLoS ONE 15(6): e0234640. DOI: [10.1371/journal.pone.0234640](https://doi.org/10.1371/journal.pone.0234640) - Open Access

Ryan D. Sweeder, Deborah G. Herrington “Formative assessments using text messages to develop students’ ability to provide causal reasoning in general chemistry,” *Canadian Journal of Chemistry*, 2020, 98(1) 15-23. DOI: [10.1139/cjc-2019-0291](https://doi.org/10.1139/cjc-2019-0291) - Editor’s Choice, Open Access

Ryan D. Sweeder, Merve N. Kursav, Samantha M. F. Cass, Rebecca L. Matz “Understanding the impact of learning community support for STEM students with low mathematics placement”, *Learning Communities Research and Practice*, 7(2), Article 2 (2019). Available [here](#), Open Access

Ryan D. Sweeder, Deborah G. Herrington, Jessica R. VandenPlas “Students’ Independent Use of Screencasts and Simulations to Construct Understanding of Kinetics”, *Chem Ed. Res. Pract.* (2019) DOI: [10.1039/C9RP00008A](https://doi.org/10.1039/C9RP00008A)

Kathleen A. Jeffery, Samantha M. F. Cass, **Ryan D. Sweeder**, “Comparison of students’ readily accessible knowledge of reaction kinetics in lecture- and context-based courses”, *Journal of STEM Education* (2019), 19(5) 5-13. Available [here](#), Open Access

Deborah G. Herrington, **Ryan D. Sweeder** “Using Text messages to Encourage Meaningful Self-assessment Outside of the Classroom”, *J Chem Educ* (2018) DOI: [10.1021/acs.jchemed.8b00361](https://doi.org/10.1021/acs.jchemed.8b00361)

Deborah G. Herrington, **Ryan D. Sweeder**, Jessica R. VandenPlas “Students’ Independent Use of Screencasts and Simulations to Construct Understanding of Solubility Concepts”, *J Sci Educ Technol* (2017), 26(4) 359-371. DOI [10.1007/s10956-017-9684-2](https://doi.org/10.1007/s10956-017-9684-2)

Alexandra Collins-Webb, Kathleen A. Jeffery, **Ryan D. Sweeder** “Improving the students’ transition from general chemistry to organic chemistry” *Journal of STEM Education* (2016), 17 (2), 52-59. Available [here](#), Open Access

Douglas B. Luckie, Aaron M. Rivkin, Jacob R. Aubry, Benjamin J. Marengo, **Ryan D. Sweeder** “Socratic "verbal final" exam enables higher-level assessment and yields significant gains in student learning and engagement in large introductory science courses”, *CBE Life Sciences*, (2013), 12, 515-529. Available [here](#)

Douglas B. Luckie, **Ryan D. Sweeder**, Richard Bellon, “Bringing Relationships Alive through Interdisciplinary Discourse (BRAID)” *International Journal of Pedagogy and Curriculum* (2013), 19 (3) 133-144. DOI: [10.18848/2327-7963/CGP/v19i03/48920](https://doi.org/10.18848/2327-7963/CGP/v19i03/48920)

Ryan D. Sweeder, Kathleen A. Jeffery “A Comprehensive General Chemistry Demonstration” *Journal of Chemical Education* (2013), 90 (1), 96-98. DOI: 10.1021/ed300367y

Ryan D. Sweeder, Philip E. Strong, “Supporting Undergraduate Students in Earning a STEM Degree” *International Journal of Learning in Higher Education* (2013), 19 (3), 83-90. <https://doi.org/10.18848/2327-7955/CGP/v19i03/48657>

Ryan D. Sweeder, Kathleen A. Jeffery, and Aaron M. McCright “Lyman Briggs College: an Innovative Living-Learning Community for STEM Education” *Quality Approaches in Higher Education* (2012), 3 (2), 7-14. Available [here](#), Open Access

Leah E. Creech, **Ryan D. Sweeder** “Gender Performance Differences in Life Science Courses” *CBE Life Sciences Education* (2012), 11, 386–391. Available [here](#) doi:10.1187/cbe.12-02-0019

Ryan D. Sweeder, Philip E. Strong, “Impact of a Sophomore Seminar on STEM Majors Desire to Pursue a Science Career” *Journal of STEM Education*, 13(3), 52-61 (2012). Available [here](#), Open Access

Douglas B. Luckie, Richard Bellon, **Ryan D. Sweeder** “The “BRAID”: Experiments in Stitching Together Disciplines at a Big Ten University” *Journal of STEM Education*, 13(2), 6-14. (2012). Available [here](#), Open Access

Kristie Macrakis, Elizabeth K. Bell, Dale L. Perry, **Ryan D. Sweeder** “Invisible Ink Revealed: Concept, Context and Principles of “Cold War” Writing”, *Journal of Chemical Education*, **89**(4) 529-532. (2012) DOI: 10.1021/ed2003252

Matthew M. Rauschenberger, **Ryan D. Sweeder** “Gender Performance Differences in Biochemistry” *Biochemistry and Molecular Biology Education* **38**(6), 380-384 (2010).

Amy C. Gottfried, **Ryan D. Sweeder**, Jeffrey M. Bartolin, Jessica A. Hessler, Benjamin P. Reynolds, Ian C. Stewart, Brian P. Coppola, and Mark M. Banaszak Holl, "Design and Implementation of a Studio-Based General Chemistry Course at the University of Michigan" *Journal of Chemical Education*, **84**, 265-270 (2007).

Other Peer Review Publications (Commentaries, Conference Papers, etc.)

Rachel A. Barnard, **Ryan D. Sweeder** "Using online grading to stagger midterm exam feedback and create space for meaningful student reflection", *College Teaching*, Jan 2020. DOI: [10.1080/87567555.2020.1713041](https://doi.org/10.1080/87567555.2020.1713041)

Deborah G. Herrington, **Ryan D. Sweeder**, Patrick L. Daubenmire, Chris F. Bauer, Stacey Lowery Bretz, Diane M. Bunce, Justin H. Carmel, Renée Cole, Brittlund K. DeKorver, Resa M. Kelly, Scott E. Lewis, Maria Oliver-Hoyo, Stephanie A. C. Ryan, Marilyne Stains, Marcy H. Towns, Ellen J. Yeziarski "Supporting the Growth and Impact of the Chemistry Education Research Community" *J. Chem. Educ.*, 2019, 96 (3), pp 393–397 DOI: [10.1021/acs.jchemed.8b00823](https://doi.org/10.1021/acs.jchemed.8b00823) Included as part of the [Virtual Festschrift for Dorothy Gabel](#)

Valles, Sean A., Douglas B. Luckie, Georgina M. Montgomery, Elizabeth H. Simmons, **Ryan D. Sweeder**, Aklilu Zeleke (2016). "Updating the Two Cultures: How Structures Can Promote Interdisciplinary Cultures." *Change: The Magazine of Higher Learning* **48**(6): 28-35. doi: [10.1080/00091383.2016.1247580](https://doi.org/10.1080/00091383.2016.1247580)

Aaron M. McCright, Brian W. O'Shea, **Ryan D. Sweeder**, Gerald R. Urquhart, Aklilu Zeleke "Promoting Interdisciplinarity to Enhance Multiple Literacies" *Nature Climate Change* (2013), 3(8), 713-716. doi:[10.1038/nclimate1844](https://doi.org/10.1038/nclimate1844)

Ryan D. Sweeder, Aaron M. McCright "Lyman Briggs College: an Innovative Living-Learning Community for STEM Education" Conference Paper from 2012 ASQ Advancing the STEM Agenda in Education, the Workplace and Society, University of Wisconsin-Stout (2012). Available [here](#)

Ryan D. Sweeder, Philip E. Strong "Preparing Students for STEM Careers at the Lyman Briggs College" Conference Paper from 2012 ASQ Advancing the STEM Agenda in Education, the Workplace and Society, University of Wisconsin-Stout (2012). Available [here](#)

Kevin Haudek, Rosa A. Moscarella, Mark M. Urban-Lurain, John. E. Merrill, **Ryan D. Sweeder**, Gail Richmond (2009, April 17-21). Using lexical analysis software to understand student knowledge transfer between chemistry and biology. Paper presented at the National Association of Research in Science Teaching Annual Conference, Garden Grove, CA. Available [here](#)

Book Chapters

Elizabeth H. Simmons and **Ryan Sweeder**, "Lyman Briggs College: An Environment Supporting Change" in *Improving Undergraduate STEM Education at Research Universities: A Collection of Case Studies*. Research Corporation for Science Advancement (2016). Washington, DC. [Book Chapter]

Non-Peer Reviewed

ChemEd Exchange Post: Rachel Barnard, Samantha Cass, and **Ryan Sweeder** “A Highly-Scaffolded Activity for Helping Students Generate Exam Review Questions and See Patterns in Quantitative Problem Solving”, Jul 2021. Available [here](#)

Blog post: Deborah Herrington and **Ryan Sweeder**, “Chemistry Education Research (CER): Where we came from, where are we now, and where can we go?” for the American Chemical Society’s Division of Chemical Education YCES blog, Nov 2019. Available [here](#)

Publications – Synthetic Chemistry Research

Undergraduate students underlined

Caleb H. Springsteen, **Ryan D. Sweeder**, and Robert L. LaDuca “Ligand and Anion Effects on the Morphology of Aqueous Substructures Entrained within One-Dimensional [CuL₄X] Coordination Polymer Matrices (L) 2,4'-Bipyridine, 4-Phenylpyridine; X) SO₄²⁻, SiF₆²⁻)” *Crystal Growth and Design* **6**, 10, 2308-2314 (2006).

Catherine M. Oertel; **Ryan D. Sweeder**; Sonal Patel; Craig M. Downie; Francis J. DiSalvo *Inorganic Chemistry*, “Synthesis and characterization of hydrogen-bonded assemblies of W₆S₈L₆ clusters” **44**(7), 2287-96 (2005).

R. D. Sweeder, K. A. Miller, F. A. Edwards, M. M. Banaszak Holl, and J. W. Kampf *Organometallics*, "Exploring two reactions of ketones with Ge[CH(SiMe₃)₂]₂: CH and OH insertion" **22**, 5054-5056 (2003).

R. D. Sweeder, Z. T. Cygan, M. M. Banaszak Holl, and J. W. Kampf *Organometallics* “Germylene-induced Hydrogenation of Benzophenone” **22**, 4613-4615 (2003).

K. A. Miller, J. M. Bartolin, R. M. O’Neil, **R. D. Sweeder**, J. W. Kampf, M. M. Banaszak Holl, and N. J. Wells, *J. Am. Chem. Soc.* “C-H Activation of Ethers and Alkanes by Germylene-Aryl Halide Complexes,” **125**, 8986-8987 (2003).

R. D. Sweeder, R. L. Gdula, B. J. Ludwig, M. M. Banaszak Holl, and J. W. Kampf, *Organometallics* “Quinones Shed Light on Germylene-Phenone Equilibrium,” **22**, 3222-3229 (2003).

R. D. Sweeder, K. A. Miller, M. M. Banaszak Holl and J. W. Kampf, *Organometallics*, "A Quick, Efficient Method for Converting Phenones into Conjugated Trienes," **21**, 457-459 (2002).

K. E. Litz, J. E. Bender, **R. D. Sweeder** and M. M. Banaszak Holl, *Organometallics*, "Photochemistry of Organometallic Germylenes and Metallacycles," **19**, 186-189 (2000).

Publications Under Review

Merve N. Kursav, **Ryan D. Sweeder**, Sean A. Valles “Mechanisms of STEM retention: Lessons from Longitudinal Interview Data from High-risk Students”, Under review at *Journal of College Student Retention: Research, Theory & Practice*

Awards and Honors

MSU AAN Leadership Fellow (2020-2021, mentor Dean Prabu David)

Editors' Choice Award for "Formative assessments using text messages to develop students' ability to provide causal reasoning in general chemistry," *Canadian Journal of Chemistry*, (2020) [10.1139/cjc-2019-0291](https://doi.org/10.1139/cjc-2019-0291)

MSU AT&T Award in Instructional Technology Honorable Mention -Technology Enhance category (2020) – Joint award with Rachel Barnard

MSU STEM Gateway Fellow – AAU funded teaching fellowship (2016-2018)

Faculty Fellow to the Dean, Lyman Briggs College (2016-2018)

Distinguished Professor of the Year Award - Michigan President's Council of State Universities (2015)

MSU Alumni Association of Mid-Michigan Excellence in Undergraduate Education Award (2014)

MSU Curricular Service-Learning & Civic Engagement award (2012) – Joint award with Philip Strong

Dedication to the Enrichment of the Briggs Experience (2012, 2008)

Henry Dreyfus Teacher-Scholar Award Nominee (2012, 2013, 2015)

Dutton Fellow, Lyman Briggs College, Michigan State University (2004-2007)

Presentations

Presenter(s) underlined

Invited Talks

Timothy McKay, Ryan Sweeder, Michael Dennin, Presentation on SEISMIC to the Association of American Universities (AAU) Arts and Sciences Deans Meeting April 2021.

Ryan D. Sweeder, Deborah G. Herrington, Jessica R. VandenPlas, "Using a simulation out-of-class to help students gain basic understanding of collision theory" 2019 American Chemical Society Great Lakes Regional Meeting, Lisle, IL, May 2019.

Ryan D. Sweeder, Deborah G. Herrington "Meeting our students where they are: Using text messaging to support students learning and formative assessment in introductory chemistry" 2019 American Chemical Society Great Lakes Regional Meeting, Lisle, IL, May 2019.

Ryan D. Sweeder, "Food For Thought" inaugural LBC@LBC speaker series presenter. Lansing, MI Nov 2018.

Deborah G. Herrington, Ryan D. Sweeder, & Jessica P. VandenPlas "Helping Students Construct Understanding of Chemistry Concepts with Online Simulations" 44th College Chemistry Canada Conference, Toronto, ON Canada, May 25-27, 2017. (Plenary Talk)

Jessica P. VandenPlas, Ryan D. Sweeder, Deborah G. Herrington "Implementation and evaluation of screencasts and simulations for online learning." 253rd ACS National Meeting, San Francisco, Apr 2017.

Deborah Herrington, Ryan Sweeder, Jessica VandenPlas, "Screencasts vs. Simulations for Chemistry Learning", 99th Canadian Chemistry Conference and Exhibition, Halifax, Canada, Jun 2016.

Ryan D. Sweeder "How to engage and retain university STEM students: lessons from Michigan State University" University of Canterbury, Nov 2014.

Ryan D. Sweeder "Lyman Briggs College: an innovative living-learning community for STEM education" University of Canterbury, Nov 2014.

Ryan D. Sweeder "More learning through less teaching" Massey University's (New Zealand) Institute for Fundamental Sciences, Apr 2014.

Ryan D. Sweeder "Lyman Briggs College: an innovative living-learning community for STEM education" Massey University's (New Zealand) Institute for Fundamental Sciences, Mar 2014.

Ryan D. Sweeder "Connecting the Sciences for Students" Albion College, Dec 3, 2010.

Ryan D. Sweeder, "Re-envisioning the relationship between general and organic chemistry" University of Michigan, Jan 27, 2010.

Ryan D. Sweeder, "Re-envisioning General Chemistry" Grand Valley State University, Nov 14th, 2008.

Ryan D. Sweeder, Mark M. Banaszak Holl "Organometallic Germylene and Educational Research." Invited Seminar Mar 2002, Albion College, Albion, MI.

International, National or Regional Conference Presentations

Deborah Herrington, **Ryan D. Sweeder** "Using Simulations and Screencasts to Understand Energy in Bonding", X-DBER Online Conference March 1-3, 2021.

Ryan Sweeder, Merve Kursav, Sean Valles, Samantha Cass, Rebecca Matz, "SPRING Scholars - Supporting STEM Students with Low Math Placement Scores", NSF S-STEM PI meeting, Washington DC, Sept 2019.

Deborah G. Herrington, **Ryan D. Sweeder**, Patrick L. Daubenmire, "Meeting our students where they are: Text messaging to promote student self-assessment and provide formative assessment in introductory chemistry" Gordon Research Conference in Chemistry Education Research & Practice, Lewiston, ME, June 16-21, 2019.

Ryan D. Sweeder, Merve Kursav, Samantha M.F. Cass, Rebecca L. Matz "INQUIRE: Supporting students with low math placement in Lyman Briggs" Gordon Research Conference in Chemistry Education Research & Practice, Lewiston, ME, June 16-21, 2019.

Deborah G. Herrington, Patrick L. Daubenmire, **Ryan D. Sweeder**, "Leveraging technology to support three-dimensional instruction and assessment", 257th American Chemical Society National Meeting, Orlando, FL, April 2019.

Ryan D. Sweeder, Deborah G. Herrington, Jessica R. VandenPlas, "Helping students construct understanding of kinetics with an online simulation", 257th American Chemical Society National Meeting, Orlando, FL, April 2019.

Brianna Martinez, **Ryan D. Sweeder**, Deborah G. Herrington, Jessica R. VandenPlas, “Use of an online simulation to help students understand gas behavior”, 257th American Chemical Society National Meeting, Orlando, FL, April 2019.

Kinsey Bain, Melanie Cooper, Lydia Bender, Marcos D. Caballero, Justin Carmel, Erin M. Duffy, Diane Ebert-May, Cori L. Fata-Hartley, Deborah G. Herrington, James T. Lavery, Rebecca L. Matz, Lynmarie Posey, Jon Stoltzfus, Ryan Stowe, **Ryan D. Sweeder**, Stuart Tessmer, Sonia M. Underwood, Mark Urban-Lurain “Characterizing instruction in undergraduate science courses: the Three-dimensional learning observational protocol”, 257th American Chemical Society National Meeting, Orlando, FL, April 2019.

Samantha M. F. Cass, **Ryan D. Sweeder** “The INQUIRE Program (INstilling QUantitative and Integrative REasoning)” 25th Biennial Conference on Chemical Education, University of Notre Dame, South Bend, IN, Aug 2018.

Kinsey Bain, Rebecca Matz, Cori Fata-Hartley, Marcos Caballero, Deborah Herrington, Diane Ebert-May, Erin Duffy, Jon Stoltzfus, J.T. Lavery, Justin Carmel, Lydia Bender, Lynmarie Posey, Mark Urban Lurain, Ryan Stowe, **Ryan Sweeder**, Sonia Underwood, Stuart Tessmer, Melanie Cooper, “Characterizing college science instruction: The three-dimensional learning observational protocol.” 25th Biennial Conference on Chemical Education, University of Notre Dame, South Bend, IN, Aug 2018.

Deborah Herrington, **Ryan D. Sweeder**, Jessica VandenPlas “Reimagining the Classroom: Meeting our students where they are” 25th International Conference on Chemistry Education (ICCE 2018), Sydney, Australia, July 2018.

Jessica VandenPlas, Deborah Herrington, & **Ryan Sweeder** “Modeling split attention during simulation use”, 255th American Chemical Society National Meeting, New Orleans, LA, March 2018.

Deborah Herrington, Patrick Daubenmire, **Ryan Sweeder** “Meeting our students where they are: Using text messaging to both promote effective studying and provide formative assessment in introductory chemistry”, 255th American Chemical Society National Meeting, New Orleans, LA, March 2018.

Ryan D. Sweeder, Deborah Herrington, Jessica VandenPlas “Simulation use in general chemistry: Improving student conceptual understanding” 255th American Chemical Society National Meeting, New Orleans, LA, March 2018.

Ryan D Sweeder, presentation at Gordon Research Conference: Chemistry Education Research and Practice, Bates College, Lewiston, ME, Jun 2017.

Ryan D. Sweeder, Deborah Herrington, Jessica VandenPlas “Student’s use of online chemistry simulations and their conceptual learning”, 48th Central Regional Meeting of the ACS, Dearborn, MI Jun 2017.

Deborah G. Herrington, **Ryan D. Sweeder** “3D Assessments: Assessing what we value”, 100th Canadian Chemistry Conference, Toronto, May 2017.

Ryan Sweeder, **Deborah G. Herrington**, **Jessica P. VandenPlas** “Using Simulations and Screencasts to Promote Student Learning of Atomic Interactions”, 100th Canadian Chemistry Conference, Toronto, May 2017.

Ryan Sweeder “Verbal Final Exams in a General Chemistry Course”, 100th Canadian Chemistry Conference, Toronto, May 2017.

Deborah G. Herrington, **Ryan D. Sweeder**, & **Jessica P. VandenPlas** “Effective use of Screencasts and Simulations for Online Learning” Michigan Science Teachers Association Annual Conference, Novi, MI, Mar 2017.

Ryan Sweeder, **Philip Strong**, **Aklilu Zeleke**, “Understanding the Impact of a Residential Experience on Students”, 3rd Annual Residential College Symposium, Vanderbilt University, Nashville, TN, Oct 2016.

Ryan D. Sweeder, Samantha Cass “Development of and results from the INQUIRE (INstilling QUantitative and Integrative REasoning) program”, Biennial Conference on Chemical Education, University of Northern Colorado, Greeley, CO, Aug 2016.

Ryan D. Sweeder “Verbal final exams in a general chemistry course”, Biennial Conference on Chemical Education, University of Northern Colorado, Greeley, CO, Aug 2016.

Deborah G. Herrington, **Ryan D. Sweeder**, **Jessica P. VandenPlas** “Student understanding of molecular interactions: Impact of simulation vs. screencast use”, Biennial Conference on Chemical Education, University of Northern Colorado, Greeley, CO, Aug 2016.

Teena Gerhardt, **Kristin Getter**, **Ryan Sweeder**, Stuart Tessmer, **Pat Walton**, “STEMSU: Innovations in Undergraduate STEM Education” Transforming STEM Education Conference, Boise State University, Apr 2016.

Deborah Herrington, **Jessica VandenPlas**, **Ryan Sweeder**, “Student understanding of atomic interactions: Impact of simulation vs. screencast use” 251st ACS National Meeting, San Diego, CA 2016. Mar 2016.

Deborah Herrington, **Jessica VandenPlas**, **Ryan Sweeder**, “Screencasts vs. simulations for chemistry learning”, Pacifichem, Honolulu, HI, Dec 2015.

Doug Luckie, **Ryan Sweeder**, Catherine Westfall, Gerd Kortemeyer, Lilly seminar “Interdisciplinary Teaching and Learning at MSU” - With Doug Luckie described the BRAID as one of three interdisciplinary case studies. MSU, Nov 2015.

Ryan D Sweeder, presentation at Gordon Research Conference: Chemistry Education Research and Practice, Bates College, Lewiston, ME, Jun 2015.

Samantha Cass, **Ryan Sweeder** “Development of the INQUIRE (INstilling QUantitative and Integrative REasoning) program” Joint Great Lakes and Central Regional Meeting, Grand Rapids, MI, May 2015.

Ryan D Sweeder, presentation at Gordon Research Conference: Chemistry Education Research and Practice, Salve Regina University, Newport, RI, Jun 2013.

Ryan D. Sweeder and Kathleen Jeffery “A comprehensive chemistry demonstration” at CERM (American Chemical Society Regional meeting), May 2013, Central Michigan University.

Ryan D. Sweeder and Philip E. Strong “Preparing Students for STEM Careers” The Learner: 19th International Conference on Learning, London, England Aug 2012.

Douglas Luckie and **Ryan D. Sweeder** “Bringing Relationships Alive through Interdisciplinary Discourse (BRAID)” The Learner: 19th International Conference on Learning, London, England Aug 2012.

Ryan D. Sweeder and Philip E. Strong “A three year qualitative study of a STEM student cohort” 2012 ASQ Advancing the STEM Agenda in Education, the Workplace and Society, University of Wisconsin-Stout. Jul 2012.

Ryan D. Sweeder and Aaron M. McCright “Lyman Briggs College: an innovative living-learning community for STEM education” 2012 ASQ Advancing the STEM Agenda in Education, the Workplace and Society, University of Wisconsin - Stout. Jul 2012.

Ryan D Sweeder, presentation at Gordon Research Conference: Chemistry Education Research and Practice, Davidson College, Jun 2011.

Ryan D Sweeder, **Douglas Luckie** “BRAIDing together the science disciplines” oral presentation to Center for Research on College Science Teaching and Learning, Michigan State University, Feb 2011.

Ryan D Sweeder, Douglas B. Luckie, Richard Bellon “BRAIDing together the science disciplines” oral presentation and poster presentation at Sci-Mix at 240th ACS National Meeting, Boston, Aug 2010 CHED 477.

Ryan D Sweeder, Douglas B. Luckie, Richard Bellon “BRAIDing together the science disciplines” presentation at Biennial Conference on Chemical Education 2010 Denton, TX, Aug 2010.

Ryan D Sweeder, Matthew M. Rauschenberger “Quantitative impact of general chemistry on organic chemistry performance” presentation at Biennial Conference on Chemical Education 2010 Denton, TX, Aug 2010.

Ryan D Sweeder, Matthew M. Rauschenberger, Alexandra Collins-Webb “Advantages of including organic chemistry in a general chemistry class” presentation at 238th ACS National Meeting Washington DC, Aug. 2009 CHED 413.

Ryan D Sweeder, presentation at Gordon Research Conference: Chemistry Education Research and Practice, Colby College, Jun 2009.

Ryan D. Sweeder, Matthew M. Rauschenberger, Douglas B. Luckie, “BRAID: BRIdging the disciplines with authentic Inquiry and Discourse”, poster, NSF-CCLI PI conference, Washington, DC, Aug 2008.

R. D. Sweeder, K. Macrakis, E. K. Bell “Invisible ink revealed: Chemistry and history in a chemistry lab,” Mar 2007 ACS National Meeting, Chicago, IL.

Kristie Macrakis, **Ryan D. Sweeder**, Elizabeth K. Bell, “Invisible Ink Revealed: Concept Context and Catalysis” Poster presented at Sigma Xi Annual Meeting and Student Research Conference, Detroit Michigan, Nov 2006.

Ryan D Sweeder “New Reactions of Germylenes and Ketones and Assessment of Studio General Chemistry” Thesis Defense May 2003, Ann Arbor, MI.

A. C. Gottfried, **J. A. Hessler**, **R. D. Sweeder**, **J. M. Bartolin**, **B. P. Coppola**, **M. M. Banaszak Holl** "Studio 130: Assessment" Poster Mar 2003 225th ACS National Meeting, New Orleans, LA.

Ryan D Sweeder, Robyn Gdula, Mark M. Banaszak Holl Jeff K. Kampf "Germylenes and Quinones—Non-reversible insertions" Mar 2003 225th ACS National Meeting, New Orleans, LA.

Ryan D Sweeder, Mark M. Banaszak Holl “Germylenes: Opening Up Chemistry on Aromatic Rings.” Poster Aug 2002 224th ACS National Meeting, Boston, MA.

Mark M. Banaszak Holl, **Ryan D. Sweeder**, **Jeffery M. Bartolin** “Interactive Teaching in the Science Classroom” Seminar May 2002, Wakonse Conference on College Teaching, Ludington, MI.

Ryan D Sweeder “Aromatic Activation of Phenones with a Stable Germylene.” Poster Aug 2001, 222nd ACS National Meeting, Chicago, IL.

Ryan D Sweeder, Mark M. Banaszak Holl “Aromatic Activation of Phenones with a Stable Germylene.” Seminar Jun 2001, 33rd ACS Central Regional Meeting, Grand Rapids, MI.

Local Presentations

Ryan D. Sweeder, Deborah G. Herrington “Meeting our students where they are: Using text messaging to support students learning and formative assessment in introductory chemistry” LBC Chemistry Spring Retreat, May 2019.

Ryan D. Sweeder, **Merve Kursav**, **Samantha M.F. Cass**, **Rebecca L. Matz** “INQUIRE: Supporting students with low math placement in Lyman Briggs”, 2019 Spring Conference on Student Learning and Success at Michigan State University, May 2019.

Rachel A. Barnard, **Ryan D. Sweeder** “Deliberately incorporating metacognitive reflection in debriefing from chemistry exams”, 2019 Spring Conference on Student Learning and Success at Michigan State University, May 2019.

Merve Kursav, **Ryan D. Sweeder**, Samantha M.F. Cass, Rebecca L. Matz “The INQUIRE program: Supporting students with low math placement in Lyman Briggs”, SUTL Conference, April 2019.

Ryan D. Sweeder, Samantha M.F. Cass, Merve Kursav, Rebecca L. Matz “INQUIRE – How’s it going and where should it go?”, LBC presentation, April 2019.

Ryan Sweeder “LB 171L/172L: General Chemistry Laboratories” HHMI LEVERS Summit, MSU May 2018. (Lightning talk)

Ryan Sweeder, Deborah Herrington, Jessica VandenPlas, “Screencasts vs. Simulations for Chemistry Learning”, CREATE for STEM Mini-conference, Feb 2016.

Ryan D Sweeder, Susan Codere, Melanie Cooper, College and Career Readiness – State of Michigan roll out meeting for Next Generation Science, East Lansing, MI May 2013

Rebecca Tauscher, Alexandra Collins-Webb, Lindsey Philips, **Ryan D. Sweeder** “Comparing the longitudinal impacts of three formats of MSU general chemistry courses” CREATE for STEM, May 2013, Michigan State University.

Ryan D. Sweeder and Jon Stolfus “Impact of assessment type on gender bias in biochemistry” CREATE-ing the Future of STEM Education, Michigan State University, May 2012.

Ryan D. Sweeder and Doug Luckie “BRAID 2.0: Bringing Relationships Alive through Interdisciplinary Discourse” CREATE-ing the Future of STEM Education, Michigan State University, May 2012.

Jon Stolfus and **Ryan D. Sweeder** “Open Ended Assessments in Biochemistry” oral presentation to Center for Research on College Science Teaching and Learning, Michigan State University, Jan 2012.

Ryan D Sweeder, “The Case for Organic Chemistry in General Chemistry” poster presentation at 1st annual Michigan State University SoTL Conference March 2010.

Ryan D Sweeder “MCAT Scores and Student Class Performance” Presentation to CNS Associate Dean’s office, LB Assistant Dean and Pre-professional Academic advisors, Michigan State University, Dec 2008

Ryan D Sweeder “BRAID Updated- Chemistry and Biology” Presentation to DQC group, Michigan State University, Nov 2008.

Ryan D Sweeder “Are Briggs Classes Better?” LBC Research Symposium, East Lansing, April 2008.

Ryan D Sweeder, Douglas B. Luckie “*BRAID: A look at instruction in Lyman Briggs*” Presentation to Center for Research on College Science Teaching and Learning, Sept 2007.

Ryan D Sweeder “3 Years of Doing What?” Presentation to Lyman Briggs College, Michigan State University, Nov. 2007.

Presentations by Undergraduate Students

Presenter(s) underlined

Shanna Hilborn, Lizzy Seilaff, **Ryan D. Sweeder**, Deborah Herrington “ChemSims: Anything but Basic - Using Screencasts to Support Student Understanding of Acids” GVSU Student Scholars Day Apr 2021, Allendale, MI (virtual).

Shanna Hilborn, Lizzy Seilaff, **Ryan D. Sweeder**, Deborah Herrington “ChemSims: Anything but Basic - Using Screencasts to Support Student Understanding of Acids” UURAF and 14th Annual LBC Research Symposium Apr 2021, East Lansing, MI (virtual).

Shanna Hilborn, Lizzy Seilaff, **Ryan D. Sweeder**, Deborah Herrington “ChemSims: Anything but Basic - Using Screencasts to Support Student Understanding of Acids” ACS Spring National Meeting Apr 2021 (virtual).

Lizzy Sielaff, Jessica R. VandenPlas, **Ryan D. Sweeder**, Deborah G. Herrington, West Michigan Regional Undergraduate Science Research Conference, Van Andel Institute, Grand Rapids, MI, "Chem Sims: Increasing the Rate of Student Understanding of Chemical Equilibrium", Academic. November 2019.

Brianna L. Martinez, Deborah. G. Herrington, **Ryan D. Sweeder**, Jessica R. VandenPlas “Use of an online simulation to help students understand gas behavior” 13th Annual LBC Research Symposium, April 2019

Lauren Miling, Stella Archiyan, Deborah G. Herrington, Jessica R. VandenPlas, **Ryan D. Sweeder** “Using screencast and simulation to help chemistry students understand equilibrium”, 257th American Chemical Society National Meeting, Orlando, FL, April 2019.

Brianna L. Martinez, **Ryan D. Sweeder**, Deborah Herrington, Jessica VandenPlas “Screencasts and simulations in the learning of solubility”, 48th Central Regional Meeting of the ACS, Dearborn, MI Jun 2017.

Alec D. Shrode, Brianna L. Martinez, Deborah. G. Herrington, **Ryan D. Sweeder**, Jessica R. VandenPlas “Effective scaffolding for students’ out of class use of chemistry simulations” 25th Biennial Conference on Chemical Education, University of Notre Dame, South Bend, IN, Aug 2018.

Alec D. Shrode, Brianna L. Martinez, **Ryan D. Sweeder** “Effective scaffolding for students’ out of class use of chemistry simulations”, UURAF Apr 2018, Michigan State University.

Brianna L. Martinez, **Ryan D. Sweeder**, Deborah Herrington, Jessica VandenPlas “Screencasts and simulations in the learning of solubility”, 48th Central Regional Meeting of the ACS, Dearborn, MI Jun 2017.

Alec D. Shrode, **Ryan D. Sweeder**, Deborah Herrington, Jessica VandenPlas “Screencasts and simulations in the learning of atomic interactions”, 48th Central Regional Meeting of the ACS, Dearborn, MI Jun 2017.

Brianna L. Martinez, **Ryan D. Sweeder**, Deborah Herrington, Jessica VandenPlas “Screencasts and simulations in the learning of solubility”, UURAF and 11th annual LBC Research Symposium Apr 2017, Michigan State University.

Alec D. Shrode, **Ryan D. Sweeder**, Deborah Herrington, Jessica VandenPlas “Screencasts and simulations in the learning of atomic interactions”, UURAF and 11th annual LBC Research Symposium Apr 2017, Michigan State University.

M. Biesbrock, D. Herrington, J. VandenPlas, & **R. Sweeder** “Using screencasts and simulations to help chemistry students understand chemical kinetics.” 253rd American Chemical Society National Meeting, San Francisco, CA, April 2-6, 2017

Alysha Machuta, **Ryan Sweeder**, Philip Strong “Peer Support Promotes Success in STEM” 10th annual LBC Research Symposium Apr 2016, Michigan State University.

Alec Shrode, Deborah Herrington, **Ryan Sweeder**, Jessica VandenPlas “Screencasts vs. Simulations for Chemistry Learning” UURAF and 10th annual LBC Research Symposium Apr 2016, Michigan State University.

Rebecca Tauscher, Alexandra Collins-Webb, Lindsey Philips, **Ryan D. Sweeder** “Comparing the longitudinal impacts of two formats of general chemistry courses” Michigan Undergraduate Research conference, Nov 2013, Van Andel Institute, Grand Rapids MI.

Madalyn Parker, Charlotte Lee, Shayna Taylor, Shannon Varner “Factors and trends affecting interest in STEM career paths between genders from grade school to college” UURAF and 7th annual LBC Research Symposium, April 2013, Michigan State University. (Student presentation as a result of LB 492 research project)

Rebecca Tauscher, Alexandra Collins-Webb, Lindsey Philips, **Ryan D. Sweeder** “Comparing the longitudinal impacts of three formats of MSU general chemistry courses” UURAF and 7th annual LBC Research Symposium, April 2013, Michigan State University.

Rebecca Tauscher, Alexandra Collins-Webb, Lindsey Philips, **Ryan D. Sweeder** “Comparing the longitudinal impacts of three formats of MSU general chemistry courses” poster presentation at CERM (American Chemical Society Regional meeting), May 2013, Central Michigan University.

Kathleen Jeffery, Samantha Frawley Cass, and **Ryan D. Sweeder** “Comparison of student understanding of reaction kinetics in lecture- and context-based courses” poster presentation at CERM (American Chemical Society Regional meeting), May 2013, Central Michigan University.

Leah R. Creech, **Ryan D. Sweeder**, “Gender Performance Differences in Life Science Courses”, Poster presentations at Lyman Briggs Research Symposium and University Undergraduate Research and Arts Forum, Michigan State University, Apr 2012.

Rachel Dee, Beverly Bell, Molly Brown, Cassandra Martin, “Vaccines: Misconceptions revealed”, Poster presentations at Lyman Briggs Research Symposium and University Undergraduate Research and

Arts Forum, Michigan State University, Apr 2012. –Presentation resulted from LB 492 senior seminar course.

Alexandra Collins-Webb, Ryan D. Sweeder, “Qualitative examination of the student transition to organic chemistry”, Poster presentation at Biennial Conference on Chemical Education 2010 Denton, TX, Aug 2010.

Alexandra Collins-Webb, Ryan D. Sweeder, “Qualitative examination of the student transition to organic chemistry”, Poster presentation at Lyman Briggs Research Symposium, Michigan State University, Apr 2010.

Alexandra Collins-Webb, Ryan D. Sweeder, “Qualitative examination of the student transition to organic chemistry”, Oral presentation at University Undergraduate Research and Arts Forum Michigan State University, Apr 2010.

Matthew Rauschenberger, Ryan D. Sweeder “Factors Affecting Student Performance in Organic Chemistry”, Poster presentation at Lyman Briggs Research Symposium, Michigan State University, Apr 2009.

Elizabeth K. Bell, Ryan D. Sweeder, Kristie Macrakis, “Invisible Ink Revealed: Chemistry and Secret Writing” Poster presented at ACS National Meeting, Chicago, IL, Mar 2007.

Elizabeth K. Bell, Ryan D. Sweeder, Kristie Macrakis, “Invisible Ink Revealed: Chemistry and Secret Writing” Poster presented at Sigma Xi Annual Meeting and Student Research Conference, Detroit Michigan, Nov 2006.

Courses Taught

General Chemistry I (LB 171, 4 credit ≈115 students) 2004-2011, 2013, 2015, 2018, 2020

General Chemistry II (LB 172, 3 credit, ≈100 students) 2005-2013, 2015-17, 2021

Class used ChemConnections Modules in 2009 and 2012

General Chemistry I lab (LB 171L, 1 credit) 2004-2007, 2019

General Chemistry II lab (LB 172L, 1 credit) 2005-2007, 2009, 2012, 2015, 2017-18, 2020

Interdisciplinary BRAID seminar (LB 290A, 1 credit, 10-18 students) –2009, 2011

SSTEM science engagement seminar (LB 290A, 1 credit, 15 students) –2010 (x2)

SSTEM development seminar (LB 490A, 1 credit, 15 students) –2011 (x2) – Careers in science focused

Senior capstone seminar “Understanding Environmental Issue” (LB 492, 4 credit 14-30 students) 2020 (Fall and Spring), 2021

Senior capstone seminar “Environmental and Health impacts of Food Choices” (LB 492, 4 credit, 10-20 students) 2007, 2008, 2010, 2016, 2019

Senior capstone seminar “The Advocate Scientist” (LB 492, 4 credit, 10-15 students) 2011, 2012, 2018

Science of the Foods We Love; an undergraduate research course (LB 494, 3 credit, 7-10 students)) 2012, 2013, 2015

Chemistry for Teachers (ISE 861, 3 credit, 3 students) 2013 – designed for in-service science teachers

Freshman Study Abroad (UGS 102, 1 credit, 15 students) in Ireland (2010) and New Zealand (2011)

Topic: Environmental and Health Impacts of our Food Choices

Freshman seminar (UGS 101, 1 credit 18 students) 2009 Discussions about careers in science

Workshops Led

ASQ STEM conference Advancing the STEM Agenda, “Implementing and Assessing STEM Learning Communities” (co-host Laurie Witucki, Grand Valley State University), Grand Valley State University Jun 2013. Invited workshop.

Dreyfus workshop (co-host Holly Bevsek) focused on utilizing chemistry demonstration in the classroom targeting high school teachers. Michigan State University, Sep. 2006.

Lilly workshop (co-host Holly Bevsek) focused on utilizing chemistry demonstration in the classroom. Michigan State University, Sep. 2006.

Mentorship

Research Advisor

Mentor for 14 undergraduate students (2004-present)

Research advisor for graduate student through SUTL program (2016, 2018-20)

National Science Foundation supported Scholarships in STEM program at LBC

Mentor for 90 undergraduate science students (2009-present)

Faculty Advisor

Alpha Chi Sigma (chemistry profession fraternity, 2004-2012)

MSU Men’s Volleyball (2012-present)

Holmes Environmental Awareness Team (2007-2009)

MSU Curling Club (2009-2011)

Program Participation

The Inclusive STEM Teaching Project MOOC participant (Summer 2021) – 5 week online course

The Interculturalist training to develop greater intercultural awareness (2021)

MSU Summer Online Instruction Readiness for Educational Excellence (SOIREE) Participant (2020) - weeklong intensive training

Gordon Research Conference: Chemistry Education Res. and Prac. Participant 2009, 2011, 2013, 2015, 2017, 2019 (Discussant)

NSF S-STEM Projects Meeting, Washington, DC 2019

2016 Summit for Transforming STEM Teaching in Higher Education, Boise ID - MSU rep.

NSF S-STEM Projects Meeting, Washington, DC 2012

NSF CCLI – Projects Meeting, Washington DC 2008

CREATEing the future of STEM Education Participant, Michigan State University, 2012

Conference on Interdisciplinary Teaching and Learning Participant, Michigan State University, 2012

ACS Green Chemistry Workshop Participant, University of Oregon 2009

SENCER Workshop Participant, Santa Clara University, MSU representative, 2007

BioQUEST Workshop Participant, Beloit College 2005

Memberships

American Chemical Society member 1998-present

Division of Chemical Education 2004-present

Honors Societies

Phi Beta Kappa (1996)

Sigma Xi (1996)

Kappa Mu Epsilon (1995)

Alpha Lambda Delta (1994)

Research Awards To My Students

Shanna Hilborn, Undergraduate Research Award Winner Spring 2020

Alysha Machuta, Undergraduate Research Award Winner Spring 2016, Fall 2016

Rebecca Tauscher, Undergraduate Research Award Winner in Fall 2013, Fall 2012, and Spring 2013.

Bo Parsons, Undergraduate Research Award Winner in Fall 2012.

Leah Creech, 1st place award at University Undergraduate Research and Arts Forum 2012,

Undergraduate Research Award Winner in Fall 2011 and Spring 2012.

Alexandra Collins-Webb, 1st place award at University Undergraduate Research and Arts Forum 2010,

Undergraduate Research Award Winner in Summer 2009.

Reviewer/Consultant/Evaluator

Journals

Journal of Chemical Education Reviewer 2008-present

CBE Life Science Education Reviewer 2013-present

Science Advances Reviewer 2018-present

Chemistry Education Research and Practice 2019-present

Computers and Education 2019

Frontiers in Ecology and the Environment 2016

Associate Editor for The International Journal of Science, Mathematics, and Technology

Learning volume 19, issue 2. 2013

Proposals

NSF proposal reviewer 2007, 2009, 2016, 2019

Reviewer for ASQ 2012 Advancing the STEM Agenda Conference

Books, Textbooks and Online problems

Mastering Chemistry by Pearson – Problem Reviewer 2017

Book reviewer for Penguin Books 2009, 2011

Book reviewer for Oxford Press 2011

Reviewer for Exams Institute 2009

Textbook reviewer Pearson-Prentice Hall 2008, 2015

Textbook reviewer McGraw Hill 2002-2007

Other

External Project Evaluator for “SURIEM (Summer Undergraduate Research Institute in Experimental Mathematics)” at Michigan State University. Funded by NSA and NSF, PI-Aklilu Zeleki (MSU) 2010- 2013.

State of Michigan Lead Team member for Next Generation Science Standards 2012-2013

M.J. Murdock Charitable Trust, 2010

MCAT content consultant – MSU representative 2010
Consultant for I-Clickers 2009

Michigan State University Service

Council of Faculty Affairs Deans member (2021-present)
Council of Research Deans member (2021-present)
University Committee on Academic Governance (2020)
University Hearing Board (2018-present)
University Committee on Undergraduate Education (2011-2013, 2015, **vice chair** 2012-13)
University Committee on Curriculum (2007-2011, **subcommittee A chair** 2009-2011)
Associate Provost for Academic Support Services search committee member (2013)
Associate Provost for Undergraduate Education 5 year evaluation committee member (2013)
Center for Research on Science Teaching and Learning Advisory Committee (2009-2011)
Military Education Advisory Committee member (2008-2009, 2013-2015)
Reviewer for Honors College Thesis Award (2015)
Faculty judge at University Undergraduate Research and Arts Forum (2006-2007)

Lyman Briggs College Service

Annual Performance Review Committee (2020)
Ad Hoc committee to revise performance review process (2020)
Briggs Awards Committee (2020-2022)
Briggs Advisory Committee (2016-19, **Secretary** 16-17, **chair** 17-19)
Academic Program Review Committee, Lyman Briggs College (2011-2012, **chair**)
Lyman Briggs Educational Policy Committee (2005-2011, **chair, vice-chair, secretary**)
Lyman Briggs Research Symposium Committee (1st through 12th annual excluding 8th) (2007-2013, 2015-2019 **chair**)
Lyman Briggs S-STEM program director (2009-present)
LBC S-STEM Scholarship Selection Committee **Chair** (2009-2014, 2016-2018)
Committee member for Clark Fund for Science Communication Award (2015)
Search Committees
 Fixed Term Academic Specialist (2020, **chair**)
 Chemistry Academic Specialist (2017, **chair**)
 Director of Student Affairs and Academic Advising (2016, **chair**)
 Chemistry Academic Specialist (2015-2016, **chair**)
 Global Initiative in STEM, tenure track (2015-2018, **diversity advocate**)
 HPS of Science Communication, tenure track (2014-2015, **diversity advocate**)
 Fixed Term Chemistry position (2006, 2014, 2015)
 Environmental Philosopher, tenure track (2012-2013)
 Medical Sociologist, tenure track (2011-2012)
 Chemistry Academic Specialist (2010)
 Academic advisor (2008)
 Chemistry/Physics technician (2007)
 Recruitment coordinator specialist (2007)
Center for Research on College Science Teaching and Learning Director (CRCSTL) Selection Committee member (2009)

Lyman Briggs Metrics Committee (2007, **chair**)
Lyman Briggs Seminar Series Committee (2006-2007)
Lyman Briggs Transition to College Committee-relationship to CNS (2006, **chair**)
College of Natural Science Grievance Hearing committee member (2009)

Professional Service

American Chemical Society – Division of Chemical Education – Program Committee Member (2018-2022)
Symposium Organizer and Presider with Deborah G. Herrington and Olivia Crandall “Supporting the Growth & Impact of the Chemistry Education Research Community” – Biennial Conference on Chemical Education, Corvallis OR 2020. --- Conference Cancelled
Symposium Organizer and Presider with Patrick L. Daubenmire and Deborah G. Herrington “Supporting the Growth & Impact of the Chemistry Education Research Community” – Biennial Conference on Chemical Education, South Bend, IN 2018.
Symposium Organizer with Jessica VandenPlas and Deborah G. Herrington “Visualizations in chemistry” National Meeting – American Chemical Society, San Francisco, Mar 2017.
Conference on Interdisciplinary Teaching and Learning 2012 (Steering committee member)

Other Outreach/Service

City of Williamston Parks and Recreation Commissioner (2006-2011, vice chair 2007-8, chair 2008-10)

- Led update of City of Williamston Park Masterplan (2010-2014)
- Primary author of DNR grant for McCormick Park refurbishment received 2009 (\$391,000)
- Primary author of DTE grant for tree replacement in McCormick Park 2008 (\$2,000)

Science Olympiad Chemical Preparation Coordinator, state level competition (2007-2017)
Science Olympiad Event Coordinator, state level competition (2008)
Volunteer at Science Olympiad, state level competition (2006)
Faculty presenter during at National Heritage Academy summer program, MSU (2005)
Volunteer at Boy/Girl Scout Merit Badge Day, East Lansing, MI (2004-2006)
Volunteer at Chemistry Day at Impressions 5, Lansing, MI (2004-2010)