
Education **University of Michigan** (Ann Arbor, MI)
Ph.D. Candidate, Resource Ecology and Management, School for Environment and Sustainability, anticipated defense: April 2022
Advisor: Dr. Jennifer Blesh
Committee: Dr. Don Zak, Dr. Ivette Perfecto, and Dr. Lesli Hoey

SUNY College of Environmental Science and Forestry (Syracuse, NY)
M.S., Water and Wetland Resource Studies, August 2016
Fields: Watershed Hydrology, Biogeochemistry, Environmental Studies

Furman University (Greenville, SC)
B.S., Earth and Environmental Science and Political Science, May 2014
Magna Cum Laude, Phi Beta Kappa, Omicron Delta Kappa

Publications **Bressler, A. S.**, M. Plumhoff, L. Hoey, and J. Blesh. 2021. Cover Crop Champions: Linking strategic communication approaches with farmer networks to support cover crop adoption. *Society and Natural Resources*. Accepted. In Press.

In Press
In Review **Bressler, A. S.**, R. M. Quintana, and M. Zint. 2021. Co-design of a Massive Open Online Course: Motives and Motive Fulfillment of Faculty and Students. *Journal of Computing in Higher Education*. In Review.

Peer Reviewed **Bressler, A. S.**, P.G. Vidon, P.D. Hirsch, and T.A. Volk. 2017. Valuation of Ecosystem Services of Commercial Shrub Willow (*Salix spp*) Woody Biomass Crops. *Environmental Monitoring and Assessment*. Vol 189. No 4.

Bressler, A. S., P.G. Vidon, and T.A. Volk. 2017. Impact of Shrub Willow (*Salix spp*) As a Potential Bioenergy Feedstock on Water Quality and Greenhouse Gas Emissions. *Water, Air, and Soil Pollution*. Vol 228. No 170.

Smith, E.S., and **A. Bressler**. 2013. Who Taught You to Talk Like That? The University and Civil Political Discourse: *Journal of Political Science Education*. Vol 9. No 4.

Conference Presentations w/ Published Abstracts **Bressler, A.**, M. Plumhoff, L. Hoey, J. Blesh. 2021. Cover Crop Champions: Linking strategic communication approaches with farmer networks to support cover crop adoption. *International Association for Society and Natural Resources Conference*. June 20-24. Virtual.

Bressler, A., M. Plumhoff, L. Hoey, J. Blesh. 2020. Cover Crop Champions: farmer-farmer messaging about cover cropping in the U.S. Midwest. MUSE Across Michigan (Great Lakes). *Michigan University-Wide Sustainability and Environment Conference 2020*. Feb 20-22. Ann Arbor, MI.

Bressler, A., R. M. Quintana, M. Zint. 2019. By learners, for learners, Reviewing a MOOC on Climate Change Co-designed by Students and Faculty. Innovating MOOC Pedagogies Structured Poster Session. *2019 Annual Meeting of the American Educational Research Association* Apr 5-9, Toronto, ON.

Bressler, A., J. Blesh. 2019. Managing cover crop mixtures to reduce soil N₂O flux while maintaining crop nitrogen assimilation. COS 84: Agriculture I. 2019 *Ecological Society of America Annual Meeting*. Aug 11-16. Louisville, KY.

Bressler, A., and J. Blesh. 2018. Ecological nutrient management with cover crop mixtures: impacts on nitrous oxide flux following soil disturbance. COS 108: Agriculture I. 2018 *Ecological Society of America Annual Meeting*. Aug 5-10. New Orleans, LA.

Bressler, A., and J. Blesh. 2018. Cover crop “cocktails” for conservation: ecological nutrient management in mixtures vs. monocultures. Sustainable Food and Agriculture Session. *Michigan University-Wide Sustainability and Environment Conference*. Feb 14-15. Ann Arbor, MI.

Bressler, A., and J. Blesh. 2017. Cover crop “cocktails” for conservation: nitrogen cycling processes in mixtures vs. monocultures. Poster. *Graduate Climate Conference*. Nov 10-12. Woods Hole, MA.

Bressler, A., P. G. Vidon, and T. A. Volk. 2016. Impact of shrub willow (*Salix* spp) as a potential bioenergy feedstock on environmental quality in Cape Vincent, New York, Graduate Student Presentations. *New York Society of American Foresters. 2016 Annual Meeting: Integrated Resource Management*. Jan 27-29. Syracuse, NY.

Bressler, A., P. G. Vidon, P.D. Hirsch, and T. A. Volk. 2016. Ecosystem Services of Shrub Willow Woody Biomass in Cape Vincent, NY, Poster Reception. *New York Society of American Foresters. 2016 Annual Meeting: Integrated Resource Management*. Jan 27-29. Syracuse, NY.

Bressler, A., P. G. Vidon, and T. A. Volk. 2015. Impact of shrub willow as a potential bioenergy feedstock on water quality and GHG emissions at the field scale, Topic Session: Agricultural Practices to Improve Nitrogen-Use Efficiency and Mitigate Greenhouse Gas Emission: II, *Synergy in Science: Partnering for Solutions, ASA, CSSA, SSSA 2015 Annual Meeting*. Nov 15-18. Minneapolis, MN.

Bressler, A., and W. Dripps. 2013. The chemistry of residential runoff and the utility of rain gardens in mitigating nutrient loads. Poster Reception. *Clemson Hydrogeology Symposium*. Apr 4, Clemson, SC.

Bressler, A., and W. Dripps. 2012. The chemistry of residential runoff and the utility of rain gardens in mitigating nutrient loads, *62nd Annual Meeting of the Southeastern Geological Society of America*, Abstract with Programs, Vol. 45, No. 2, p. 11. Mar 20-21. San Juan, PR.

Professional Memberships

International Association for Society and Natural Resources (IASNR)
Ecological Society of America (ESA)
American Geophysical Union (AGU)
POD Network

Grants, Fellowships, and Awards **North Central Region-Sustainable Agriculture Research and Education (SARE) Graduate Student Grant**, \$11,970. Project studies the impact of overwintering legume-grass cover crop mixtures on key nitrogen cycling processes that impact the sustainability and profitability of farms. 9/1/2018 – 8/31/2021

DOW Doctoral Fellowship, \$15,000. Dow Sustainability Fellows Program at the University of Michigan funds Fellows to support interdisciplinary, actionable, and meaningful sustainability solutions on local-to-global scales. 2020.

Elizabeth M Duseau Scholar, \$5,000. Center for the Education of Women. Scholarship for women in sciences. 9/1/2019-4/30/2020.

Rackham Graduate Student Research Grants, \$4,500, University of Michigan Rackham Graduate School funding for N₂O flux pilot study and laboratory analysis of particulate organic carbon. Winter 2019 and Summer 2017.

Glancy Climate Innovation Award, \$3,500, University of Michigan. School for Environment and Sustainability. Glancy supports student research into non-traditional approaches to addressing climate change. Spring 2019.

Research Funding for Conservation Studies, \$2,000. University of Michigan, Matthaei Botanical Gardens. Funded cover crop mixture pilot study experiment at the University of Michigan Campus Farm. 5/1/2018-10/1/2018.

Teaching Experience **Graduate Student Instructor**, University of Michigan (Ann Arbor, MI)

Introduction to Environmental Science – Winter 2020 and Winter 2021. Earth and Environmental Sciences Department. Prepared lab materials and taught small group lab sections. Taught students about human-natural systems, tradeoffs when solving wicked environmental problems, data collection and analysis, and how to operationalize the scientific method.

Ecology – Fall 2019 and Fall 2020. School for Environment and Sustainability. Taught inquiry-based, hands-on, field ecology labs for Masters' students with backgrounds in social science, guiding students through independent research projects, and grading essays and exams. In 2020, half of this course was on Zoom. I taught outdoor, in-person labs and guided students through remote labs on Zoom. Nominated for SEAS student teaching award by students in this course.

Introduction to Geology – Winter 2018 and Winter 2019. Earth and Environmental Sciences Department. Prepared lab materials, planned curriculum, and taught small group lab and discussion sections to accompany large lecture course. Used inquiry-based learning methods to teach basic geology concepts and taught 1st year students how to study effectively for science courses. Applied new pedagogical practices I learned in a course about Teaching College Science to my Winter 2019 classes.

Curriculum Design **Act on Climate**, 2017, Participated in collaborative team to write climate change action curriculum for an online course (Coursera – launched June 2017). Project manager for *Campus of the Future* competition to showcase course (finalist). Co-authoring paper that analyzes fulfillment of motivations of participants in course co-design.

Teaching Certification **University of Michigan Graduate Teacher Certificate**, 2021, Competencies in community engaged pedagogy, anti-racist pedagogy, and introductory college biology pedagogy (trained by Dr. Jo Kurdziel). Completed mentorship training with Dr. Sheila Schueller who provided feedback on my guest lecture in an introductory environmental studies course, my weekly hands-on lab teaching in an introductory field ecology course, and my upper-level agroecology syllabus that utilizes inclusive teaching principles.

Mentoring Experience **Students mentored:**
Sabrina Acosta and Rose Paretto (Research Interns, Current, UM)
Carol Waldmann Rosenbaum (PhD Application Process, 2021, UM)
Marta Plumhoff (Research Intern 2019, Master's Thesis, 2021, UM)
Thea Louis (Doris Duke Scholar, 2019, UM)
Rhona Garry (May Research Experience, 2019, UM)
Samara Almonte (Doris Duke Scholar, 2018, UM)
Danielle Falling (Advisor, 2018-2020, UM)
Kristen Hayden (Summer Research Experience, 2018, UM)
Sydney Fuller (Doris Duke Scholar, 2017, UM)
Nicole Rhoads (Undergraduate Research Opportunities Project, 2017, UM)
Obad Varguese (Undergraduate Thesis, 2016, SUNY-ESF)

Research Competencies **Social Science Methodology:** Case Study and Program Evaluation

Data Analysis Software

Qualitative: NVivo, Dedoose

Quantitative: R-studio, JMP, Minitab, Excel

Data Management

Accessing and analyzing long-term data sets

Organization and formatting data with metadata and for importing into software

Best practices for storing data in central storage locations

Field Experiment Design: randomized complete block design.

Field Equipment: planting small scale experiments with a grain drill. Experience working collaboratively with farmers and experimental site farm staff to plant, manage, and harvest experiments.

Field Sampling:

Soil: soil sampling to 20 cm, deep core sampling to 3 m, in-situ N mineralization

Water: well installation and sampling, surface water and groundwater sampling, macro-rhizon installation and soil pore water sampling

Biomass: above ground sampling for mass, height, leaf area, and phenology, fine and coarse root sampling using various experimental methods

Gas: greenhouse gas sampling using static chamber method

B-value experimental design, management, sampling, and sample preparation

Rhizo box experimental design, management, sampling, and sample preparation

Soil Analysis: bulk density, soil texture analysis, extractable nitrate and ammonium,

lab incubations for potentially mineralizable nitrogen, denitrification potential, fine and occluded particulate organic matter separation and sample preparation, and gravimetric soil moisture

Instruments:

LECO TruMac CN Analyzer to measure total C and N in plant and soils
AQ2 (Seal Analytical) colorimetry for $\text{NO}_3^- + \text{NH}_4^+$ extracted from soil
Gas chromatography (N_2O , CO_2 , CH_4)

Familiarity with procedures and paperwork required for conducting research in the Long-Term Ecological Research and the Long-Term Agroecosystem Research Networks.

**University
Service**

Fall Preparedness Task Force, Ann Arbor, MI, Summer 2020. Served as the PhD representative on a task force with faculty, staff and the Academic Dean in the School for Environment and Sustainability to create an actionable plan for safely re-engaging in teaching, learning, and research in Fall 2020.

Student Task Force, Ann Arbor MI, Summer 2020. Served as the PhD representative on a task force with master's students and the academic programs director in the School for Environment and Sustainability to prepare remote outreach and community building experiences for the incoming class of master's students.

Graduate Student Assistant to Faculty Transition to Online Teaching, Ann Arbor MI, July-Aug 2020. Assisted faculty transition to online learning on the Academic Dean's team. I developed guidelines for inclusive online teaching, COVID specific syllabi recommendations, Zoom and BlueJeans guides, best practices for in-person and remote field labs, and assisted individual faculty transition curriculum online by creating digital course content including slideshows and videos.

Doctoral Organizing Committee, Ann Arbor, MI, 2019. Founded the position and served as the community service chair. Organized group trips for PhD students to engage in community service at the UM Campus Farm and Recycle Ann Arbor.

Sustainable Development Conference, Ann Arbor, MI, Nov. 10-11, 2018, Oct. 11-14, 2019. Volunteered as coordinator and room monitor for conference. Helped participants who traveled to Ann Arbor from all over the world navigate the University of Michigan.

Faculty Search Committee, Ann Arbor MI. Jan 2019, PhD student representative. Evaluated candidates for the Spatial Sciences Coupled Natural-Human Systems faculty positions.

**Professional
Development**

Preparing Future Faculty, Ann Arbor MI, Spring 2021. This 5-week program provided me with a structure to write new syllabus for a 1st year seminar about sustainable food systems using backwards design principles and best practices for inclusive teaching and assessment.

Engaged Pedagogy Initiative Fellow, Ann Arbor MI, Fall 2020. Semester long community engaged learning workshop to learn the theoretical foundations and

ethical implications of community-engaged learning. Produced a syllabus, assignments, and rubrics for a course called “Agroecology in Action.”

Journal Reviewer, serve as a reviewer for the journals: *Biomass and Bioenergy* and *Environmental Monitoring and Assessment*.

Graduate Student Leadership Conference, Minneapolis, MN
ASA, CSSA, and SSSA International Annual Meeting, Nov. 14-15, 2015
Classified as a DC (DiSC Leadership Assessment): strengths are facing challenges head-on, a willingness to challenge the status quo, expecting competency, adhering to high standards, and being driven to achieve quality results. Worked in teams with graduate students to learn how to communicate with colleagues with different approaches to addressing conflict and communication styles in group work settings.

ComSciCon-Cornell 2015: A Science Communication Workshop, Ithaca, NY,
Networked with science magazine editors, science communications professors, institute directors, and journalists. Workshopped a writing piece with science journalist Molly Webster from WNYC’s Radiolab.

Sierra Club, Washington, D.C., Beyond Oil Campaign Lobbyist Intern, 2014
Worked with front line communities to bring representatives to D.C. and organized a week-long occupation of the National Mall to protect water rights of indigenous people in the Upper Midwest. Contributing writer and fact checker for the testimony of Michael Brune, Executive Director of the Sierra Club, before the U.S. Senate Committee on Foreign Relations with regards to the Keystone XL tar sands pipeline.

- Scientific Outreach** **Science Communication Fellow** (Ann Arbor, MI) 2019 – March 2020
Developed a tabletop exhibit about soil health with staff at the University of Michigan Natural History Museum and present for a K-8 audience and their parents at Science Olympiads and the Natural History Museum. Developed half hour talk on soil health and cover crops for the Science Forum at the museum.
- Matthaei Botanical Gardens**, Fall Curator’s Tour, 9/29/18 (Ann Arbor MI)
Presented at one of three stops on a tour for donors to showcase research at the University of Michigan Campus Farm. Discussed sustainable agriculture and the utility of cover crops on working grain farms in the Midwest.
- Science Fair Judge** (Washington, DC & Syracuse, NY) 2014-2016
Volunteer judge for middle, high school, and college science fairs with an emphasis on encouraging young people to pursue careers in the sciences.
- Alchemical Nursery** (Syracuse, NY) Volunteer – Fall 2014 – Summer 2016
Maintained community gardens to foster a sense of community in an economically depressed neighborhood. Taught children about permaculture gardening and introduced them to edible plants in community gardens in their neighborhoods.
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