Sarah K. Fortner, Ph.D.

Education

University of Wisconsin, Madison, Wisconsin
Bachelor of Science, Geology and Geophysics 1999

The Ohio State University, Columbus, Ohio
Master of Science, Earth Sciences, 2002

The Ohio State University, Columbus, Ohio
Doctor of Philosophy, Earth Sciences, 2009

Employment

2021	**Science Education Associate, Science Education Resource Center***, Carleton College*
2017-2020	**Director of the Environmental Science Program,** *Wittenberg University*
2018	**Director of Wittenberg in Wittenberg Germany Study Abroad**
2017-	**Associate Professor of Geology and Environmental Science**, *Wittenberg University,*
2017-2018	**Geological Society of America Scholar in Residence** *(Funded Sabbatical)* at the *American Geosciences Institute, Washington, D.C.*
2016-Present	**Faculty and Academic Research and Curriculum Council**, *Juneau Icefield Research Program*
2011-2017	**Assistant Professor of Geology and Environmental Science**, *Wittenberg University*
2009-2011	**Postdoctoral Researcher**, **Climate Water & Carbon Program**, *Ohio State University*
2009	**Earth Science Instructor,** The Ohio State University
2006	**Girls on Ice Instructor** (http://girlsonice.org/instructors/)
2002-2004	**GIS and Fisheries Research Specialist, Ohio Division of Natural Resources**

Honors & Awards

- Excellence in Community Service, Wittenberg University Honors (2020)
- Excellence in Community Service, Wittenberg University Honors (2020)
- Top Contributor, Teach the Earth (www.serc.edu/tte) (2019)
- Wittenberg Environmental Science, AAC&U recognized program model for civic engagement (2018)
- Council on Undergraduate Research Volunteer of the Year for leading innovation and collaboration (2016)
- Lou Laux Environmental Sustainability Award, Wittenberg University Honors (2015)
- Antarctic Service Medal (2002)
- NSF Graduate K-12 Fellowship paring STEM graduate students with urban K-12 teachers (2006)
- USGS Ecological Survey Leadership Excellence
- NASA Young Scholar Award, Funding to Participate in the Juneau Icefield Research Program

Grants & Direct Funding Received ($3.8 Million)

2021	Dayton Power and Light Grant for PBS Redlining: Mapping Inequality in Dayton and Springfield ThinkTV PBS Documentary ($75,000) *(Collaborator, advising project development & finding partners)*
2020	McCain Acres: Increasing access to local foods and growing community self-reliance and resilience through urban agriculture and education (USDA, $399,400 & $815,400 with match), Susan Jennings, Community Solutions (PI) (*Collaborator, my role writing education & evaluation plan*)
2019	Creating Healthy Communities, Ohio Department of Health ($100,000) (*Collaborator, developed land ue education for programs*)
2019-2023*	NSF-Improving Undergraduate STEM Education BASICS: Business And Science: Integrated Curriculum for Sustainability ($2.4 Million across programs, $369,000 Wittenberg) (*Co-PI*, with Dave Szymanski PI, *project continued through SERC role*)
2019	American Geophysical Union 100 Grant, Empowering environmental lead pollution science and advocacy with the Springfield Promise Neighborhood ($5,000) *(Lead & Coordinator)*
2012-2020	11 Wittenberg Faculty Development Board Travel Awards ($6,000)
2017	1 Faculty Development Board Research Project Award *Engaging Climate Change in the National Parks* ($3,000)
2014-2016	NSF InTeGrate Sustainability Implementation Program (subaward of the NSF InTeGrate STEP Award $85,000, including a 35,000 institutional match).
2014	Wittenberg Campus Rain Garden, City of Springfield ($50,000) *(Initiated, Collaborator)*
2014	Handheld XRF and Soil Sample Kit Awarded from HUD award for lead abatement education ($85,000)
2013	NSF-COSI Portal to the Public Award: Disseminate Science ($10,000) *(Collaborator)*
2013	NSF- CC-NIE Networking Infrastructure ($50,000) *(Co-PI)*
2013	NSF-InTeGRATE Agricultural Teaching Module *(*$15,000) (subaward of the NSF InTeGrate STEP Award)
2013	GroundWater Guardian Campus Water Quality ($1,500) (awarded for student mentee audit)
2012	OSU Agroecosystems Seed Grant ($50,000) *(Co-PI)*
2012	Lily Foundation Natural Springs Assessment Grant ($1,500)
2012	Springfield Conservancy Award to Purchase Ion Chromatograph & autosampler for Water Quality ($85,000)

Professional Society Members, *Leadership Activities listed*

American Geophysical Union (AGU)

- AGU GeoHealth Leadership & Policy Committee, Co-Chair (2021-)
- AGU-NSF Climate Solutions Planning, Contributor to funding vision (2021)
- Science to Action Committee, Collaborator (2020)

American Association for the Advancement of Science (AAAS), 2017-present

Geological Society of America (GSA), 2002- present

- Pardee Session Climate Solutions Panelist (2020)
- Hydrology & Education Section MemberCo-chaired 3 sessions of GSA (Education & Geochemistry) (2009, 2015, 2017)
- Geo-CVD participant in advocacy group in collaboration with GSA president

Council for Undergraduate Research, 2011-2021

- Chair of the Innovation & Collaboration Committee (2014-2018)) Surveyed the innovative & collaborative practices of 200+ CUR members & led backward design workshops to expand practitioners
- Collected & disseminated vignettes of innovation & collaboration shared through the CUR website.

- Geoscience Councilor (2012-2018) Drafted a memorandum of understanding with the American Geophysical Union to build and sustain the global science talent pool. https://eos.org/agu-news/agu-signs-agreement-with-council-on-undergraduate-research
- Served as a Poster on the Hill Reviewer (2014, 2015, 2016)
- Created and vetted CUR Geoscience Mentor Award candidates (2012-2018)
- Ran CUR recruitment & resource booth at GSA (2012-2018)
- Expanded CURs presence at GSA conferences to include poster sessions at all regional GSAs (2013-on)
- Established a collaborative relationship with the American Geoscience Institute that will produce GeoLEAD, a one-stop geology resource center for undergraduates to support their success & career navigation in partnership with the American Geophysical Union
- Won best CUR Division (2012) for our exceptional service & partnerships (AGU, AGI, GSA)

Geochemical Society, 2009-2018

International Association for GeoChemistry, 2009-2016

- Led session on trace elements in the environment (2011) that resulted in a special issue of *Applied Geochemistry* that I co-edited.

National Association for the Advancement of Colored People 2017-

- Attended health equity & food meetings, shared soil lead & other lead health concerns

N**ational Association of Geoscience Teachers,** 2014-

- Coordinated collaborative writing contribution on ICON in geoscience education for a special collection across geoscience disciplines
- Traveling Workshop Leader https://nagt.org/nagt/profdev/twp/index.html (2016-Present), Oversaw course and program development workshop planning in the geosciences, primarily creating sustainability and environmental justice content.Led 14 course and program development workshops and webinars including 5 campus visits at HBCU, liberal arts, & R1 campuses
- Identified outside expertise in DEI to assist with ethical training and role playing sessions at workshop for facilitators & early career workshop

Teach The Earth (Chair 2019) https://serc.carleton.edu/teachearth/index.html

- Ongoing input into website development and use, especially the engagement of newly funded projects, sustaining built educator communities of practice, and supporting increased participation and access/use of strong materials.
- Multiple webinars, talks, and material review camps.

Union of Concerned Scientists, 2017- present

- Active in the Science-to-Action division including invited speaker in AGU Session, collaborator at AAAS Human Rights Session, and guest blogger. Ongoing planning conversations about scaling undergraduate education forms of advocacy.

Advisory Roles

- **NAS Committee to Advise the U.S. Global Change Research Program** (2021-
- **NAS U.S. National Committee for Geological Sciences** (2022-
- **AAC&U Advisory Committee Civic Prompts in the Major: Designs in Social Responsibility and the Public Good** (2019-2020) (https://www.aacu.org/events/2020-institute-civic-prompts-major-west/leaders)
- **School of Earth Sciences Alumni Advisory Board** (2019-)
  National Academies of Sciences and Engineering Steering Committee and White Paper Author for the Workshop on Service-Learning in the Undergraduate Geosciences (2016)

- **Associate Editor of Applied Geochemistry** (2012-2016)
- **Polar Curriculum Advisor** for **Polar Ice** (2015-2016)
- **Portal to the Public (NSF)** (2014-2016) Content creator & engaged undergrads in creating science museum demonstrations.

Project Leadership & Management

- **Midwest Climate Educator Community of Practice** (2021-Present) Co-developed and managed community meetings for educator community building in the Midwest (year 1), launched a steering committee to expand programming leadership focused on indigeneous knowledge and K-12 whole school approaches. Managed the recruitment timeline and web materials development. *~200 participants from more than 30 institutions across education types.*

- **Project EDDIE** (2021-) Co-developed and managed professional development (workshops, webinars, materials development experiences) focused on building a community of educators teaching inquiry and quantitative reasoning with open earth and environmental data. I specifically led module development workshops, helping faculty make materials development timelines and identifying faculty leaders for webinar series and leading the development of an AGU art & science workshop in collaboration with PIs and EDDIE community members. ~26 faculty developed materials in collaboration with me, *~200 people participated in broader curricular development activities including faculty mentoring and adopter workshops.*

- **Metal Redlining Network: EarthConnections** (2019-)
  https://serc.carleton.edu/earthconnections/networks/metal_redlining/index.html
  We collaborate around a shared research question: Has redlining resulted in an unjust metal burden? 8 cities explore the potential to co-achieve undergraduate education, biogeochemistry research, and community health equity and environmental justice outcomes through partnering and advocacy. *These interrelated projects at local to cross-city scales engaged ~1000 undergraduates, 120 faculty and staff (in curricular planning through the network or webinars), 20 community partners, and 500 community members in 2019-2020. 3 funded grants together (NEH, Healthy Communities, USDA) and 3 manuscripts. We have collaborated with frontline partners, the CDC, Union of Concerned Scientists, and NSF EarthConnections Communities.*

- **Business And Science: Integrated Curriculum for Sustainability (BASICS)** https://serc.carleton.edu/basics/index.html (2019-2021*), *transferred leadership to John Ritter 2021-2024) Project engages 8 faculty at Bentley, Wittenberg, and Northern Illinois in building a culture of transdisciplinary collaboration through an open source curriculum needed to address sustainable development goals.

- **McMurdo Long Term Ecological Research Program**, led by Berry Lyons, OSU (former) & Michael Gooseff, CSU (present), and many collaborators NSF Funded (2001-2002, 2004-2008, 2016-) http://mcm.lternet.edu/
  Investigating how increasing ecosystem connectivity drives ecosystem responses. I specifically explore glacier originating questions in this water scarce polar desert environment.

- **Terrestrial Records of Holocene Climate Change: Fire, climate and humans on the Juneau Icefield**, led by Natalie Kehrwald, USGS Funded (2016-)
  https://www.usgs.gov/centers/gecsc/science/terrestrial-records-holocene-climate-change-fire-climate-and-humans?qt-science_center_objects=0#qt-science_center_objects
  Exploring the fire climate signal in Alaskan glaciers and the change underway. Coordinated student field work.

- **Buck Creek Educational Corridor**, led by John Ritter, Wittenberg University (2011-2020). Monitoring and informing water and land use decision making on campus and in the community especially the ecological services of Buck Creek. Mentoring student research and action projects in service to community outcomes. *Annually we engage ~150 undergraduates, 20 community partners, and 200 community members in 2019-2020. Our students*

complete more than 2000 hours of research in and with community partners. We regularly generated community land instrumentation and internship opportunities. Donated consulting hours exceed $20,000 annually.

- **Project Lead for Sustainability from Curriculum to Community** (2014-2016), NSF InTeGrate Project Implementation Program. Since 2014, sustainability course offerings have doubled and participating programs have increased by more than 75%. All students at Wittenberg participate in sustainability curriculum because my team has developed a personal action project as part of our Freshmen Experience. We were one of 16 NSF InTeGrate Sustainability Implementation Programs (along with top-funded geoscience departments in the country: Pennsylvania State University & Stanford). My curricular resources have been used by more than 3000 students across institutional settings.

- **Agroecosystem Research Cluster** (led by Lyons, B., and Lal, R. and many collaborators in Carbon, Water & Climate Program at OSU), 2012-2017, Connecting soil, water, and carbon flux associated with land use in managed landscapes.

Workshops & Webinars

Convener, Program Chair, or Planning Committee

1. 2022, December, 2022 (forthcoming), Establishing collaborative partnerships for equity and justice, American Geophysical Union Virtual Workshop, 1st week of December. In collaboration with the AGU GeoHealth Leadership Committee, GeoHealth Policy Committee and the following conveners and panelists coordinated by me (Mónica Diane Ramírez-Andreotta, Leatra Harper, Karlos Marshall, Kelly Crawford, Melisa Diaz, Abby Kinchy, Ben Zaitchik, Rebecca Rehr, Jasmeet Dhaliwal, Jasmeet Dhaliwal. https://serc.carleton.edu/eddie/events/workshops/GeoHealth2022/index.html
2. 2022, April, 2022, Midwest Issues, Connecting to Lives (with: Lindsey Kirkland (Climate Generation), Mary Braun (University of Michigan), Seth Spencer (Climate Generation), and Michael Wysession (Washington University in St. Louis), https://serc.carleton.edu/midwestclimateeducation/community_mtg3/synthesis.html
3. 2022, March 2022, Education for Community Climate Action (with: Brittany Whitley, MOST Policy Institute), https://serc.carleton.edu/midwestclimateeducation/community_mtg2/synthesis.html
4. 2022, Feb 2022, Building a Midwest Education Climate Community (with Cathy Manduca, SERC at Carleton, Kelly Eskew, Indiana University Beth Martin, Washington University & Bradlee Cotton, SERC at Carleton) https://serc.carleton.edu/midwestclimateeducation/community_mtg1/synthesis.html
5. 2022, Project EDDIE, January 2022 Module Development & Community Building Experience https://serc.carleton.edu/eddie/events/workshops/jan2022/index.html (with: Catherine O'Reilly, Tom Meixner, Cailin Huyck Orr, Andrew Havales, Dax Soule, Monica Bruckner)
6. 2021, Defining Inclusive Excellence at Nebraska Wesleyan (with Jim Swartz), IINSPIRE-LSAMP, The Iowa, Illinois, Nebraska Louis Stokes Alliance for Minority Participation https://serc.carleton.edu/lsamp/workshops/june2021/index.html
7. 2021, Equity & Inclusion in your Course-based Undergraduate Research Experience (CURE) (with Jim Swartz), in collaboration with URREACCh Community College initiative led by Brian Ritter. https://serc.carleton.edu/lsamp/workshops/may2021/index.html
8. 2021, Project EDDIE, December 2021, Building Quantitative Literacy Through Science, Education, and Art, Virtual Workshop at the American Geophysical Union Meeting (with, Tom Meixner, Hannah Perrine Mode, Susan Erikkson) https://serc.carleton.edu/eddie/events/workshops/AGU2021/index.html
9. 2021, Project EDDIE, November 2021, Project EDDIE Module Adoption Workshop, https://serc.carleton.edu/eddie/events/workshops/nov2021/index.html (with Catherine O'Reilly, Alanna Lecher, Monica Bruckner, Sarah Fortner, Tadgh Moore, Rebekka Darner)
10. 2020, NSF Business And Sustainability: Integrated Curriculum for Sustainability, AAC&U Virtual Meeting (Workshop Facilitator)
11. 2020, AAC&U Institute on Civic Prompts in the Major, East Coast, George Washington University (with many) *https://www.aacu.org/civic-prompts*

12. 2019, Environmental Justice Session, Justice Boot Camp, Coretta Scott King Center, Antioch
13. 2019, Getting Started in Environmental Justice: Bridging Disciplines & Community Webinar with the National Association of Geoscience Teachers with Nancy McHugh)
14. 2016-Present, Multiple campus site visits and curriculum development for course, program, and transdisciplinary strategic planning through the *National Association of Geoscience Teachers* Traveling Workshop (2016-)
15. 2019, Human Rights, Environmental Justice, Social Justice, Faith Values and Ethics: Building stronger partnerships for the common good by understanding the differences, The Social Practice of Human Rights Conference at the University of Dayton (with Theresa Harris, Malcom Daniels, Leanne Jablonski)
16. 2019, Sustainability And Social Justice Curriculum Planning at Clark Atlanta University, Atlanta, GA (with Richard Gragg, FAMU, Ellen Metzger San Jose State), offered through the *National Association of Geoscience Teachers*, Traveling Workshop Program
17. 2018, Engaging Environmental Justice In The Geosciences, at the *American Geophysical Union*, Washington, D.C. (with Cathy Manduca, *SERC at Carleton*, Richard Gragg, *FAMU*, Rob Rohrbaugh, *El Paso Community College*).
18. 2018, Geoscience for Community Priorities (Moderator: Ben Mandler, *American Geosciences Institute*, Speaker: Raj Pandya, Thriving Earth Exchange, Natasha Udu-gma, *Thriving Earth eXchange*, Sarah Fortner, *Wittenberg University*, Cassaundra Rose, *American Geosciences Institute)*.
19. 2018, Addressing Critical Issues in Your Program: Examples for Introductory Courses (Moderator: Mitchell Awalt, Speakers: Sarah Fortner, Wittenberg University, Laura Guertin, Pennsylvania State University-Brandywine, Kenneth Brown, West Virginia University.), *American Geosciences Institute, Council on Undergraduate Research, Geological Society of America, National Association of Geoscience Teachers*.
20. 2016, How to How to Incorporate Service Learning in your Course and Curriculum, Earth Educators Rendezvous (Convener), https://serc.carleton.edu/earth_rendezvous/2016/program/afternoon_workshops/w3.html
21. 2016, Teaching Sustainability And Environmental Justice In The Humanities, *InTeGrate* (Moderator Rory McFadden, Speakers: Kate Darby, Western Washington University, Ruth Hoff, Wittenberg University, Sarah Fortner, Wittenberg University.
22. 2016, Innovation & Collaboration Without Reinventing The Wheel (Workshop Co-leaders: Cynthia Merriwether-DeVries, Sarah Fortner. Gretchen Edwalds-Gilbert, Jon, Grahe), C*ouncil on Undergraduate Research Biennial Workshop*.
23. 2016, Service Learning in the Undergraduate Geosciences, American Geophysical Union (Workshop Leader) https://agu.confex.com/agu/fm16/preliminaryview.cgi/Session13357, 2016.
24. 2015, The Role of Societal Issues in Your Course or Program, *Earth Educators Rendezvous*, Boulder, Co. (Workshop Leader). https://serc.carleton.edu/earth_rendezvous/2015/mini_workshops/mw7/index.html
25. 2014, Active Learning Strategies, Wittenberg Faculty Retreat (co-led with Margaret Goodman and Brooke Wagner)
26. 2014, Noyce Active Learning Strategies for Effective Teaching, invited by Gina Post, co-led by Amber Burgett
27. 2013, SERC InTeGrate, Sustainability Across the Curriculum at Wittenberg (Workshop Leader)

Participant

1. Humanities Education for Anti-Racism Literacy in the Sciences and Medicine, Anti-racism Training (4, 2 hour sessions), 2021-2022
2. URGE Unlearning Racism in the Geosciences, 2021, NAGT Traveling Workshop Session Participant (8, 2 hour sessions and homework)
3. Boot Camp for Social Justice, 2019-2021, Antioch College, Coretta Scott King Center
4. 2019, Anti-Racism Discussion Group with Cynthia Richards, Faculty Development Director at Wittenberg
5. 2019, Sustainability and Social Justice Curriculum Development at Clark Atlanta University (Workshop Facilitator)
6. 2018, 2 Traveling Program Development Traveling Workshops (Michigan & New York Colleges (Workshop Facilitator)
7. 2015, Increase the Impact Workshop (40-hour faculty development working webinar to draft more effective STEM Education Grants) http://www.increasetheimpact.com/ (Participant)

8. 2013, InTeGrate (Sustainability Curriculum) Materials Development Workshop (Participant)
9. 2013, Natural Springs Assessment Program (Participant)
10. 2013, Transforming Undergraduate STEM Education Grant Workshop (Participant)
11. 2008, SERC Becoming Future Geoscience Faculty (Participant)

Editorial Roles

Associate Editor of Applied Geochemistry (http://www.journals.elsevier.com/applied-geochemistry/) (2011-2017)

Co-editor of 'Sources, Transport and Fate of Trace and Toxic Elements in the Environment' – Special International Applied Geochemistry Society 2009 Issue of Applied Geochemistry (with LeeAnn Munk)

Journal Reviewer for: GeoHealth, Sustainability, Applied Geochemistry, Aquatic Geochemistry, Environmental Science & Technology, Hydrological Processes, Polar Research, Antarctic Science, Journal of Glaciology, Journal of Geoscience Education, Journal of Environmental Quality, Journal of Geoscience Education, Chemical Geology, Atmospheric Environments, G^3

NSF Reviewer of 16 proposals from multiple directorates in 2014-2022 including: Office of Polar Programs, Hydrological Sciences, Geochemistry, Earth Cube, Department of Undergraduate Education- Geology. Panelist for GEOPATHS in Arlington, VA in 2015.

Publications

Book Chapters, & Edited Volumes

1. Fortner, S. K. (2021). Erasing the Redline. Addressing lead poisoning and environmental racism through research, education, and advocacy. In AAC&U's Liberal Education. Winter 2021 Feature. https://www.aacu.org/liberaleducation/articles/erasing-the-redline
2. Fortner, S. K., Scherer, H. H., & Ritter, J. B. (2020). Community Engagement in the Earth Sciences: A Situated Learning Model at Wittenberg University. In *Preparing Students for Community-Engaged Scholarship in Higher Education* (pp. 361-378). IGI Global.
3. Fortner, S., and Munk, L. .Sources, Transport and Fate of Trace and Toxic Elements in the Environment – International Applied Geochemistry Symposium Special Issue 2009. https://doi.org/10.1016/j.apgeochem.2011.06.001

Journal Articles: *mentored undergraduate

1. Hoffman-Hall, A., Gorris, M. E., Anenberg, Susan, Bredder, Allison E., Dhaliwal, J. K., Diaz, M. A., Fortner, S. K., McAdoo, B. G., Reano, D., Rehr, R. C., Roop, H. A., Zaitchik, B. F., (submitted 8/22) A GeoHealth Call to Action: Moving Beyond Identifying Environmental Injustices to Co-Creating Solutions. *GeoHealth.*
2. O'Reilly, C. M., Josek, T., Darner, R. D., & Fortner, S. K. (2022). Pedagogy of teaching with large datasets: Designing and implementing effective data‐based activities. *Biochemistry and Molecular Biology Education.* https://iubmb.onlinelibrary.wiley.com/doi/full/10.1002/bmb.21663
3. Fortner, S.K., Manduca, C.A., Ali, H., Saup, C., Nyarko, S., Othus-Gault, S., Perera, V. Tong, V. H., Gold, A. U., Furman, T., Arthurs, L., Mulvey, B. K., St. John, K., Singley, J. G., Thomas Johnson, E., Witter, M., Batchelor, R., Carter, D., Damas, M. C., LeMay, L., Layou, K. M., Low, R., Wang, H.H., Olson-Sawyer, K., Pallant, A., Ryker, K., Lukes, L., LaDue, N., van Hoeven Kraft, K. J. (2022). Geoscience Education Perspectives on Integrated, Coordinated, Open, Networked (ICON) Science, *Earth and Space Science Open Archive.* https://agupubs.onlinelibrary.wiley.com/doi/full/10.1029/2022EA002298

4. Barnard, M. A., Emani, S. R., Fortner, S. K., Haygood, L., Sun, Q., White‐Newsome, J. L., & Zaitchik, B. (2022). GeoHealth Perspectives on Integrated, Coordinated, Open, Networked (ICON) Science. Earth and Space Science, e2021EA002157. https://agupubs.onlinelibrary.wiley.com/doi/full/10.1029/2021EA002157
5. Fortner, S.K., Scherer, H.H., Diaz, M.A., Brown, K.L., Fadem, C.M., Nezat, C.A., Latimer, J.C., Ebanks, S.C., and Landsbergen, K., (accepted). The Metal Redlining Network: Uniting Research, Education, and Community.*The Handbook of Broader Impacts*, eds. Van Egeren, L. and Renoe, S.
6. Fortner, S.K., Suffoleta, M.*, Vogt, L*., Brown, A., Diaz, M. (2021). An undergraduate soil lead research and partnering model to address systemic racism and the legacy of redlining. *Environmental Justice*, Special Issue: 6th University of Maryland Environmental Justice and Health Disparities Symposium. https://www.liebertpub.com/doi/full/10.1089/env.2021.0013
7. Corsello*, R. (2020). Community Engagement Concerning Soil Lead Levels. *The International Undergraduate Journal For Service-Learning, Leadership, and Social Change*, *9*(2), 30-38. https://opus.govst.edu/cgi/viewcontent.cgi?article=1117&context=iujsl
8. Kehrwald, N.M., Jasmann, J., Dunham, M., Ferris, D., Osterberg, E., Kennedy, J., Havens, J.,, Barber, L., Fortner, S., Boreal blazes: Biomass burning and vegetation types archived in the Juneau Icefield, *Environmental Research Letters* (2020). https://iopscience.iop.org/article/10.1088/1748-9326/ab8fd2/meta
9. Fortner, S., Manduca, C., Guertin, L., Syzmanski, D., Villalobos, J. Teaching for earth resilience: A strategy for increased diversity and equity, 2019, GSA Today https://www.geosociety.org/gsatoday/groundwork/G388GW/article.htm
10. Fortner, S.K. & Lyons, W.B., 2018. Contributions of glacier surface waters to global ocean chemistry: McMurdo Dry Valleys, Antarctica, Special Issue: Cold region melt water controls, Frontiers in Geochemistry (eds. Martyn Tranter, Mark Skidmore, Andy Hodson) https://www.frontiersin.org/articles/10.3389/feart.2018.00031/full
11. Eddy, A.M., Mark, B.G., Baraer, M., McKenzie, J., Fernandez, A., Welch, S., & Fortner, S. K., Exploring patterns and controls on the hydrochemistry of proglacial streams in the upper Santa River, Peru (2018) Glaciology and Mountain Ecosystems, INAIGEM
12. Fortner, S.K., Scherer, H., Murphy, M., 2016. Engaging undergraduates in soil sustainability decision making through an InTeGrate Module, *Journal of Geoscience Education*.
13. Baraer, M., McKenzie J., Mark, B.G., Gordon, R., Bury J., Condom T., Gomez J., Knox, S., & Fortner, S.K. 2015. Contribution of groundwater to the outflow from ungauged glacierized catchments: a multi‐site study in the tropical Cordillera Blanca, Peru." *Hydrological Processes* 29, no. 11 (2015): 2561-2581.
14. Fortner, S.K., Scherer, H., Murphy, M.A 2014. A growing concern: sustaining soil resources through local decision making, http://serc.carleton.edu/integrate/teaching_materials/sustain_agriculture/index.html
15. Fortner, S.K., Lyons, W.B., Munk, L.A. 2013. Diel stream geochemistry, Taylor Valley, Antarctica, *Hydrological Processes* 27(3):394-404.. http://onlinelibrary.wiley.com/doi/10.1002/hyp.9255/abstract
16. Fortner, S.K., Lyons, W.B., Carey, A.E., Shipitalo, M.J., Welch, S.A., Welch, K.A., 2012. Silicate weathering & CO_2 consumption within agricultural l&scapes, the Ohio-Tennessee River Basin, USA. *Biogeosciences*: 9, 941–955. http://www.biogeosciences.net/9/941/2012/doi:10.5194/bg-9-941-2012
17. Fortner, S.K., Mark, B.G., McKenzie, J.M., Bury, J., Trierweiler, A., Baraer, M., Burns, P.J., & Munk, L. 2011. Elevated stream trace & minor element concentrations in the foreland of receding tropical glaciers. *Applied Geochemistry* 26(11): 1792-1801. doi:10.1016/j.apgeochem.2011.06.003
18. Fortner, S.K., Lyons, W.B., & Olesik, J., Eolian deposition of trace elements onto Taylor Valley Antarctic glaciers. 2011. *Applied Geochemistry* 26(11): 1897-1904. doi:10.1016/j.apgeochem.2011.06.013
19. Fortner, S.K., Lyons, W.B., Fountain, A.G., Welch, K.A., Kehrwald, N. M, 2009. Trace element & major ion concentrations & dynamics in glacier snow & melt: Eliot Glacier, Oregon Cascades. *Hydrological Processes* 23: 2987-2996.
20. Fortner, S.K., Fourth & fifth grade students learn about renewable & nonrenewable energy through inquiry, 2009. Journal of Geoscience Education 57(2): 121-127.
21. McGill, S.F., Wells, S.G., Anderson, H. Kuzma, Fortner, S.K., & McGill, J.D., 2009. Slip rate of the Western Garlock fault, at Clark Wash, near Lone Tree Canyon, Mojave Desert, California. Geological Society of America Bulletin 3-4: 536-554.

22. Fortner, S.K., Tranter, M., Fountain, A., Welch, K.A., & Lyons, W.B., 2005. The geochemistry of supraglacial streams of Canada Glacier, Taylor Valley (Antarctica) & their evolution into proglacial waters. Aquatic Geochemistry 11(4): 391-412.

National Academies Press

1. National Academies of Sciences, Engineering, and Medicine. 2022. *Review of the U.S. Global Change Research Program's Draft Decadal Strategic Plan, 2022-2031*. Washington, DC: The National Academies Press. https://doi.org/10.17226/26608. (Consensus Study Report Author)
2. Savanick, S. & Fortner, S. 2016. Geoscience Service Learning Literature Themes (White Paper Co-Author) http://sites.nationalacademies.org/cs/groups/dbassesite/documents/webpage/dbasse_171831.pdf
3. NAP, 2016, Proceedings of a Workshop: Service-learning in Undergraduate Geosciences https://www.nap.edu/read/24621/chapter/1 (Steering Committee)

Government and Municipal Resources

1. Columbus Climate Action Plan, https://byrd.osu.edu/columbus (contributor via Byrd Polar and Climate Research)
2. ODNR, River and Stream Fishing Maps, http://wildlife.ohiodnr.gov/public-hunting-fishing-wildlife-viewing-areas/lake-and-reservoir-fishing-maps/river-and-stream-fishing-maps (created 6 maps noting steelhead fisheries)
3. ODNR, Lake and Reservoir Fishing Maps, http://wildlife.ohiodnr.gov/public-hunting-fishing-wildlife-viewing-areas/lake-and-reservoir-fishing-maps (surveyed 10 reservoirs, digitized 15-20 reservoirs for final publication)
4. USGS, OFR 01-459, Physical, Chemical, and Biological Methods and Data from the Urban Land-Use-Gradient Study, Des Plaines and Fox River Basins, Illinois, 1999-2001 (contributed ecological survey data)
5. USGS, SIR 2005, 5218, Physical, Chemical, and Biological Responses to Urbanization in the Fox and Des Plaines River Basins of Northeastern Illinois and Southeastern Wisconsin (contributed ecological survey data)

Open Education Resources

I am a top author for the Teach The Earth (aka SERC) website creating curriculum, faculty development, program development, and curriculum to community implementation materials. (https://serc.carleton.edu/teachearth/top_contributors.html)

1. PBS, ThinkTV, 2022, https://thinktv.org/redlining/ (contributed to concept & identifying frontline leaders)
2. Fortner, S., Service Learning Module *with 2 activities*: Personal temperature Monitoring to Build Context for Climate Justice. 2019.
3. Fortner, S. *InTeGrate Module with multiple activities:* Community and Political Engagement in the Geosciences, InTeGrate, Science Education Resource Center. 2018
4. PBS ThinkTV, The Dry Valleys, Scientist Vignette, 2009
5. PBS ThinkTV, Glacial Melt & Water Quality in the Peruvian Andes, 2009
6. Fortner, S. Natural Hazards and Climate Change Risks, Science Education Resource Center, 2016.
7. Fortner, S. Undergraduate Global Climate Change Course Collaboration with a Museum, 2016.
8. Fortner, S., Murphy, M. Scherer, H. (McConnell, D. ed) InTeGrate Module *with multiple activities* A Growing Concern: Sustaining Soil Resources through Local Decision Making

Professional Meeting Abstracts *=student author, italic= invited

1. Perera, V., Othus-Gault, S., Fortner, S., Nyarko, S. C., Tong, V. Johnson, E., 2022. ICON Framework for promoting equity and justice in geoscience education. 232 T167. The Role of Geoethics, Equity, and Environmental/Ecological Justice Education in STEM: The Geosciences Story, GSA Abstracts with Programs. Denver, Colorado.
2. Fox, S., & Fortner, S., Discovery Improvements for SERC Website, Earth Educators Rendezvous, 2022. Minneapolis, MN.
3. Bruckner, M., Huyck Orr, C., and Fortner, S., 2022. Incorporating Data, Inquiry, and Exploration into the Classroom with Project EDDIE, Earth Educators Rendezvous, Minneapolis, MN.
4. Bruckner, M., Ciancarelli, B. Darner, R., Fortner, S., Garcia Silva, D., Iverson, E., Meixner, T., O'Connell, K., O'Reilly, C., Hyuck Orr, C., Soule, Environmental Data-Driven Inquiry and Exploration, AAAS Meeting, 2022.
5. Dhaliwal, J.K., Fortner, S.K., Damby, D.E., Filippelli, G.M. 2021. Advancing GeoHealth collaboration for systemic change: ideas and opportunities from existing models, resources, and infrastructure. Environmental Injustice in GeoHealth, American Geophysical Union Meeting. New Orleans, Louisiana, Virtual.
6. Cotton, B., Fortner, S.K., Bartley, J.K., Gross, D., Bender-Awalt, Mitchell, 2021. Train the facilitators: Applying Lessons from URGE to NAGT Professional Development Programming, Unlearning Racism in Geoscience, American Geophysical Union Meeting.New Orleans, Louisiana, Virtual.
7. Miller, B., Fortner, S.K., Peek, M., Perera, E.A., Lakerman, S., 2021 Unlearning Racism in Geosciences: A Case Study from the Juneau Icefield Research Program, American Geophysical Union Meeting. New Orleans, Louisiana, Virtual.
8. Fortner, S., Diaz, M., Ebanks, S., Fadem, C., Latimer, J., Landsbergen, K., Nezat, C., Brown, K., 2021. The Metal Redlining Network:Science, Education, Advocacy. Science to Action: Transformative partnerships and knowledge co-production to advance decision-relevant science. American Geophysical Union Meeting. New Orleans, Louisiana, Virtual.
9. *Fortner, S., 2020. Building Communities of Practice for Climate Justice: Literacy and Capacity. Pardee Session P5.* Challenges and Solutions for a Changing Climate: New Directions for GSA. GSA 2020. Virtual.
10. McHugh, N., Fortner, S., 2020. A Community Empowerment Model for Health Justice Education. Changing Cultures, Changing Sciences, Feminist Epistemologies, Methodologies, Metaphysics, and Science Studies, Waterloo, Canada.
11. Rhodes, D., Fortner, S. The role of the NAGT Traveling Workshop Program in supporting the success of all students. GSA 2020.
12. Szymanski, D., Dove, S., Erhemjamts, O., Fortner, S., Iverson, E., Lenczewski, M., Mooney, Oches, R., and C. Wilson R., 2020. E. Developing transdisciplinary, SDG-focused sustainability curriculum with business and STEM faculty, Connecting the United Nations' Sustainable Development Goals (SDGs) and Global Learning, Association of American Colleges & Universities Conference
13. Szymanski, D., Dove, S., Oches, E., Erhemjamts, O., Wilson, R., Fortner, S., Lenczewski, M., Mooney, C., and Iverson, E., 2020, "Build a BASIC Module Around the SDGs: Business- and Science-Integrated Curriculum for Sustainability," Association of American Colleges and Universities (AAC&U) 2020 Global Learning Conference on Connecting the United Nations' Sustainable Development Goals (SDGs) and Global Learning, October 8-10 (virtual).
14. Wenner, J., Fortner, S., Fox, S., Frederick, K., Holzer, M., Resor, P., White, L., Strategies for engaging with Teach the Earth online resources, Earth Educators Rendezvous, 2020. Stanford.
15. Fortner, S.K., Place-based approach to climate change: improving student and community outcomes, GSA abstracts with programs, v. 51. no. 5, T199. Enhancing the Geosciences by Empowering Indigenous and Latinx Students II. Phoenix, Arizona
16. Lyons, W.B., Carey, A. E., Welch, S. A., Gardner, C. B., Diaz, M., Fortner, S., Gilbert, D., Monagle, C., Calero, A., The geochemistry of soils from around the world, An earth science perspective, Soil Science Research Day, March 2019, OARDC Symposium, Columbus, Ohio.

17. Chien, A., Zhu, E., Gallop, M., Starr, L. D., & Fortner, S. K. (2018, December). Proglacial and Subglacial Meltwater Ion Concentrations for the Llewellyn Glacier, BC, summer 2018. In AGU Fall Meeting Abstracts.Washington D.C. December.
18. *Fortner, S.K., 2018. Supporting science literacy takes work, but first what are faculty and programs doing? American Geophysical Union, Townhall Panel. Washington, D.C. December.*
19. *Fortner, S.K., 2018. Cultivating science based change agency. American Association for the Advancement of Science (AAAS Annual Meeting) Austin, Texas. February.*
20. Fortner S.K. and Wilson, C.A., 2018. Civic engagement in our classes, programs, and outreach practices: implications for supporting science literacy and our workforce. GSA abstracts with programs. T66. The Twenty-First–Century Geoscience Workforce: What Is It? Who Is In It? Who is Missing? Indianapolis
21. *Manduca, C.A., Pandya, R., Feinstein, N., Fortner, S., 2018. Community science: strengthening community capacity to use science. AAAS Annual Meeting, Austin, TX. February.*
22. *Fortner, S.K., Scherer, H.H., Murphy, M., 2017. Helping students advocate for the earth using InTeGrate Modules, T115. Hands-on teaching demonstrations that combine geoscience and societal issues: Audience participation requested!*
23. Huston*, K., Gianotti*, Z., Fortner, S. K., Kehrwald, N.M., John*, Ch., 2017. Snow melt chemistry: Major and trace cation contributions to downstream systems from the Llewellyn and Matthes Glaciers, Juneau Icefield. In: Characterizing spatial and temporal variability of hydrological and biogeochemical processes across scales. AGU Fall Meeting, New Orleans.
24. Kehrwald, N. M., D. Battistel, E. Argiriadis, C. Barbante, L. B. Barber, S. K. Fortner, J. Jasmann, T. Kirchgeorg, and P. Zennaro. Fire, Climate, and Human Activity: A Combustive Combination. In American Geophysical Union Fall Meeting Abstracts. New Orleans 2017.
25. Scherer, H., Fortner, S., Murphy, M., 2017. Engaging undergraduates in soil sustainability decision-making, NACTA Conference. 6/28-7/1. Purdue University.
26. *Fortner, S.K., and Burgett, A., 2016. Wicked Problems: Curricular Solutions, GSA Abstracts with Programs, T80. Implementing Discovery-Based Research Experiences in Undergraduate Geoscience Courses and Curricula.*
27. Diaz*, M.A., Fortner, S.K., Lyons, W.B., 2016. Land management impacts on hydrology, yields, and concentration vs. discharge relationships in small, unglaciated, central Ohio watersheds. GSA Abstracts with Programs. T110. Landscape Disturbance in Coupled Hydrologic, Ecologic, and Geomorphologic Systems
28. Guertin, L., Fortner, S., Lord, M. 2016. Engaging students in course-based research: reports from PCAST, NAS, and examples from earth/environmental sciences. CUR Biennial Meeting, Tampa Florida.
29. Merriwether-DeVries, C.A., Fortner S.K.. Edwalds-Gilbert, G., Grahe, J. E., 2016. Innovation and collaboration: creating opportunities without reinventing the wheel. CUR Biennial Meeting, Tampa Florida.
30. Miele*, C., Christensen*, K., Clark*, A., Holt*, A., Peek*, Zaccarin*, A., Ziola*, K., Fortner, S., Kehrwald, N., 2016. Chemical weathering on the Llewellyn Glacier, Juneau Icefield, AGU Fall Meeting, San Francisco, CA
31. Shaffer*, L., Alexander*, R., Helterbrandt*, F., Fortner, S., 2016. Winter chloride behavior in Ohio Rivers and the influence of land use and climate, GSA Abstracts with Programs, T30. Sigma Gamma Epsilon—Undergraduate Research
32. Simek*, V., Kaupp Fett, A. Fortner, S.K., 2016: Soil Safe Springfield: Wittenberg Undergraduates collaborate to reduce urban garden lead risk. Ohio Environmental Protection Agency Meeting at Sinclair University, OH.
33. Sullivan, S., Brenner, K., Fortner, S., O'Connell, S., 2016, Service learning in the Undergraduate Geosciences, American Geophysical Union Annual Conference, Session 13357. Bartell*, C., Fortner, S.K., 2015. Soil organic carbon & nitrate profiles associated with land management history: The Antioch Farm, Yellow Springs, Ohio. Geological Society of America Abstracts with Programs.
34. *Fortner, S.K., Ritter, J.B., Burgett, A.A., Finster, D.C., Hoff, R.J., Phillips, R.S, 2015 (Invited). InTeGrate modules and authentic community-based research as sustainability program opportunities. GSA Abstracts with Programs, T81. Intentional integration of research into the curriculum: Undergraduate Research as a teaching practice.*
35. Fortner, S.K., Dowling, C.B., Goldsmith, S.T., Johannesson, K., Leslie, D., Neumann, K., Nezat, C.A., Welch, K.A., Welch, S.A., 2015. Key contributions of W. Berry Lyons to transdisciplinary geochemical explorations. GSA Abstracts with Programs, T35. Honoring the Diverse Career of Dr. W. Berry Lyons: Geochemistry from Polar Deserts to Tropical Watersheds.

36. Freeman*, M. R., Fortner, S.K., 2015. Sulfate concentrations and dynamics in the Maumee & Great Miami Rivers. Geological Society of America Abstracts with Programs, Baltimore.
37. Glaser*, J.K., Fortner, S.K., 2015. Sodium and chloride concentrations and seasonal behavior in the Ohio River and its subwatershed, the Great Miami River. GSA Abstracts with Programs
38. Murphy, M., Scherer, H., Fortner, S., 2015, Building a strong collaborative team: factors for success, Earth Educators Rendezvous, Boulder, Colorado.
39. Ngyuen*, C., Fortner, S.K., 2015. Agricultural land use influences the behavior and delivery of calcium and magnesium ions in the Great Miami River, Ohio. PittConn, New Orleans.
40. Fortner, S.K., Lyons, W.B., 2014. Trace and minor elements in cryoconites and supraglacial streams, Canada Glacier, Antarctica, SCAR Biennial Meetings and Open Science Conference 2014, Sept 2014.
41. Provost, J., Childress, H.. Grahe, J., Fortner, S., Moore, D., 2014. CUR Task force on Innovation through Collaboration: Update of survey and report on best practices, CUR Conference 2014.
42. Scherer, H., Fortner, S.K., Murphy, M., 2014. Sustainable Agriculture as a context for developing earth systems thinking in undergraduate geoscience courses:GSA Abstracts with Programs, Annual Meeting.
43. Starr*, L.D., Fortner, S.K., Seasonal chloride behavior in the Great Miami River, 2014. OH. Geological Society of America Abstracts with Programs v. 46. No.208, p. 35
44. Wilson*, E.L., Breslin*, K., Marvelle*, K.A., Thacker*, T. N., Fortner, S.K., and Ritter, J. B., 2014 Soil lead distribution at two sites: implications for lead soil outreach in the Promise Neighborhood, Springfield, OH. Geological Society of America Abstracts with Programs v. 46, No 208, p. 40
45. Couts*, K.E., Crisp*, A.A., Goodwin*, G.M., Hagen*, B. P., Mobley*, T. J., Wilson*, E. L., and Fortner, S.K., 2013. Seasonal and long-term, (1996-2012) trends in the concentrations and ratios of dissolved silica and dissolved inorganic nitrogen in the Great Miami River at Miamisburg, Ohio, GSA Abstracts with Programs v. 45, No. 4, p.62.
46. Fortner, S.K., Lyons, W.B., Shipitalo, M. J., Carey, A. E., Goldsmith, S., Deuerling*, K., 2013. Agricultural land use controls on critical zone interactions in soil and water in unglaciated east central Ohio. GSA Abstracts with Programs v. 45., No.7, p. 511.
47. Hamilton*, B. B., Fortner, S. K., Lyons, W.B., Deuerling*, K. M., 2013. Leaching and SEM-EDS analyses of glacial and proglacial sediments in Taylor Valley, Antarctica. GSA Abstracts with Programs v. 45, No. 7, p. 211
48. Starr*, L.D., Fortner, S.K., 2013. Spring chloride behavior in Buck Creek and the Great Miami River, OH. GSA Abstracts with Programs v. 45. No.7, p. 596.
49. Fortner, S.K., Ritter, J.B., and Austin, B.A., 2012. Integrated service learning across geoscience courses including biogeochemistry: Building depth, scholarship, and community identity: Geological Society of America Abstracts with Programs, Vol. 44, No. 7, p. 496.
50. Fox, L.K., Guertin, L.A., Manley, P.L., Fortner, S.K., 2012. The geosciences division of the council on undergraduate research (GeoCUR): supporting faculty that mentor undergraduate researchers, AGU Fall Meeting, San Francisco, CA
51. Wilson*, E. L., Fortner, S.K., and Ritter, J.B., 2012. Nitrate and alkalinity during the July 2012 drought: Urban and agricultural watershed response observed in Buck Creek, Ohio, U.S.A.: GSA Abstracts with Programs, v. 44, No. 7, p. 565.
52. Mark, B.G., Baraer, M., Fortner, S., and Shoenfelt*, M., 2010. Hydrochemical insights to changing tropical glacier environments in Peru. Association of American Geographers Annual Meeting, Washington D.C., April.
53. Fortner, S.K., Welch, K.A., Lyons, W.B., Olesik, J., and Witherow, R.A., 2009. Spatial assessment of trace elements in Taylor Valley Antarctic Glaciers: Dominance of eolian deposition. 24th International Applied Geochemistry Symposium, Fredericton, New Brunswick, Canada, June.
54. Fortner, S.K., Lyons, W. B., and Munk, L., 2009. Diel concentrations and hysteresis behaviors of major, minor, and trace solutes in Taylor Valley, Antarctic Streams. Geological Society of America 2009 Joint Annual Meeting, Houston, TX, U.S.A., October.
55. Shoenfelt*, M., Fortner, S.K., and Mark, B.G., 2009. Silicate weathering in glacial meltwater in the Cordillera Blanca. Denman Undergraduate Research Forum, The Ohio State University, May.

56. Fortner, S.K., Mark, B.G., McKenzie, J.M., Baraer, M., and Schoenfelt*, M., 2008. Metal concentrations and hydrochemical dynamics in a tropical-glacier watershed. EOS Trans., AGU, 89(53), Abstract C23A-0598, Fall Meeting Suppl.
57. Whisner*, C., Fortner, S.K., and Lyons, W.B., 2008. The impact of agricultural land use on the carbon cycle measured from streams in Coshocton, Ohio watersheds. Mathematical and Physical Sciences Undergraduate Research Forum, The Ohio State University.
58. Fortner, S.K., Trace metal dynamics in polar valley glacier snow and melt, 2007. McMurdo LTER Site Meeting, Boulder, Colorado, U.S.A. August.
59. Fortner, S.K., Lyons, W.B., Munk, L., and McKnight, D., Diel cycling of As, Cu, Fe, Mn, and V in McMurdo Dry Valley, Antarctic Streams: identifying controls on metal geochemistry. Geological Society of America 2008 Joint Annual Meeting, Houston, TX, U.S.A.
60. Fortner, S.K., Lyons, W.B., Welch, K.A., Olesik, J.W., 2007. Trace metal dynamics and transport in a polar glacier dominated watershed: Taylor Valley, Antarctica., 2007. Goldschmidt, Cologne, Germany, August.
61. Fortner, S.K., 2007. Trace metals in Taylor Valley Waters. McMurdo Long-Term Ecological Research Program Annual Meeting, Boulder, Colorado, August.
62. Fortner, S.K., Lyons, W.B., Fountain, A.G., Welch, K.A., 2007. Snow fluxes and melt dynamics of trace elements at Eliot Glacier: South Cascades Oregon. Geological Society of America Abstracts with Programs, 103rd annual meeting, Cordilleran Section, Bellingham, WA May.
63. Fortner, S.K., Lyons, W.B., Fountain, A.G., Welch, K.A., 2006. Fluxes and Dynamics of Trace Metals in Glaciers: McMurdo Dry Valleys, Antarctica and South Cascades, Oregon. All-Site Long Term Ecological Research Meeting, Estes Park Colorado, September, 2006.
64. McGill, S.F., Anderson Kuzma, H., Daneke, T., Grant, J., Slates, M., Stroud, J., Tegt (Fortner), S.K., and McGill, J.D., 2003. Slip rate of the Western Garlock Fault near Lone Tree Canyon, Mojave Desert, California. Geological Society of America Abstracts with Programs, 99th annual meeting, Cordilleran Section, April.
65. Lyons, W.B., Welch, K.A., Graham, E.Y., and Tegt (Fortner), S.K., 2002. The importance of aeolian transport to the geochemistry of McMurdo Dry Valley Lakes, Antarctica. ASLO 2003 Meeting Abstracts, February.

Teaching

At Wittenberg: Global Climate Change (ESCI 100), Introduction to Environmental Science (ESCI 101), Environmental Science Research Methods (Environmental Justice-focused) (ESCI 250), Geology of the Critical Zone (GEOL 170), Freshman Seminar

For example, here is the course project page for ESCI 250:
https://serc.carleton.edu/earthconnections/networks/metal_redlining/wittenberg/springfield_lead.html

Students in my classes provided **600 project hours per year** in research, programming, or applied projects in collaboration with the campus and Springfield community each year. Community-based participatory research is featured in my courses. This includes climate outreach and advocacy events, soil lead analyses, water quality testing for urban and agricultural pollutants. We provide partners with information, maps, fact sheets, and reports. Students present at professional or partner meetings. This rich-network results in internships with partners and resources for student learning. It also results in informed municipal decision making such as recognizing the role of climate change in stormwater infrastructure needs- **a $200 million dollar issue** *in Springfield, Ohio*, as well as helping community gardening groups tackling food insecurity, improving campus groundskeeping decisions (e.g. soil nutrients and informing fertilizer applications and mapping heat island impacts and suggesting landscaping opportunities). In many projects, GIS, biogeochemistry, and ecological management strategies are emphasized. See soil lead research project designed using education research capacity building strategies engaging new partners through time.

My Course & Environmental Science Program Partners in Springfield Ohio

1. Kate Causbie*, Springfield Promise Neighborhood

2. Anne Kaup Fett, Clark County Combined Health District
3. Andy Aichele, Center Of Science and Industry (COSI)
4. Adam Brown, The Conscious Connect (former), ClinArk
5. Pam Bennett, OSU Extension
6. Michael Brady, Wittenberg Physical Plant (formerly)
7. Susie Broidy, OSU Extension
8. Sherry Chen, Springfield Ohio Urban Plantfolk
9. Sheryl Cunningham, Sustainability Task Force
10. Dr. Mary Davis, The Ohio State University
11. Lisa D'Allessandris, Clark County Emergency Management Agency
12. Mark DeVilbiss, Wittenberg University (formerly Residential Life)
13. Mike Ekberg, Miami Conservancy District
14. Dave Faulkner, CRSI Strive
15. Sarah Hippensteel Hall, Miami Conservancy District
16. Tyra Jackson, Second Harvest Food Bank
17. Kim Landsbergen, Antioch College, The Farm
18. Kali Lawrence, Springfield Promise Neighborhood
19. Karlos Marshall, The Conscious Connect
20. Leslie McDermott, City of Springfield Utilities
21. Shannon Meadows*, City of Springfield Community Development
22. Courtney Price, Center Of Science and Industry (COSI)
23. Eric Roberts*, Springfield Promise Grows
24. Kevin Rose*, The Turner Foundation
25. Ashley Shearer, Clark County Combined Health District
26. Sky Schelle*, City of Piqua Water Utilities
27. Steve Schlather, Clark County Waste Management District, & Citizen's Climate Lobby
28. Eric Smith, Springfield Promise Neighborhood (formerly)
29. Leonard Sparks, Center Of Science and Industry (COSI)
30. Carla Tamplin, Springfield Promise Grows (formerly)
31. Bob Welker, Springfield Promise Neighborhood
32. John Wheeler, Springfield Promise Neighborhood Association
33. Marta Wojcik, The Westcott House/Solar House
34. Trish Demeter, Ohio Environmental Council

Undergraduate Research Students (# of professional abstracts or publications with me) Those not presenting abstracts did action or advocacy projects. JIRP= Juneau Icefield Research Program. I have consulted on more than 20 interdisciplinary senior thesis and other projects mentored by other faculty in addition to the below.

2021

1. Birdee Miller, JIRP, Unlearning Racism in Geoscience (URGE) ideas for Juneau Icefield Research Program
2. Molly Peek, JIRP, Unlearning Racism in Geoscience (URGE) ideas for Juneau Icefield Research Program
3. Elizabeth Perera, JIRP, Unlearning Racism in Geoscience (URGE) ideas for Juneau Icefield Research Program
4. Scott Lakerman, JIRP, Unlearning Racism in Geoscience (URGE) ideas for Juneau Icefield Research Program

2020

5. Meggie Suffoleta, environmental justice soil, lead pollution (1)
6. Leah Vogt, environmental justice, soil lead pollution (1)
7. Pryce Durnye, environmental justice STEM education, community garden

2019

8. Diana Castro, JIRP, glacier ecology and albedo (1)
9. Alexia Fabiani, JIRP, glacier ecology and albedo (1)

10. Lizzie Hebel, JIRP, glacier ecology and albedo (1)
11. Emily Wilcox, JIRP, glacier ecology and albedo (1)
12. Asharee Jones, Biology, after school science engagement with fifth graders
13. Jubileen Kombe, Biology, after school science engagement with fifth graders
14. Rachel Corsello, Biology, environmental justice, redlining multiple parameters (1)

2018

15. Annie Chien, JIRP, glacier chemistry and albedo (1)
16. Eric Zhu, JIRP, glacier chemistry and albedo (1)
17. Madeleine Gallop, JIRP, glacier chemistry and albedo (1)

2017

18. Zach Gianotti, JIRP, glacier snow chemistry (1)
19. Kelcy Huston, JIRP, glacier snow chemistry (1)
20. Chelly Johnson, JIRP, glacier snow chemistry (1)

2016

21. Arek Barzaski, Environmental Science, park land management
22. Auri Clark, JIRP, glacier stream biogeochemistry (1)
23. Kit Cunningham, JIRP, glacier stream biogeochemistry (1)
24. Annie Holt, JIRP, glacier stream biogeochemistry (1)
25. Molly Peek, JIRP, glacier stream biogeochemistry (1)
26. Annie Zaccarin, JIRP, glacier stream biogeochemistry (1)
27. Kiana Ziola, JIRP, glacier stream biogeochemistry (1)
28. Chris Miele, JIRP, glacier stream biogeochemistry (1)
29. Haley Jackson, Environmental Science, blood lead meta analyses from census data

2015

30. Chi Nguyen, Chemistry, stream chemistry methods (1)
31. Brandi Hamilton, Geology, Antarctic stream chemistry (1),
32. Eric Roberts, Sociology, urban gardening
33. Faith Helterbrandt, Environmental Science, urban gardening
34. Victoria Simek, Environmental Science, urban lead pollution (1)
35. Sage Pence, Political Science, campus sustainability (1)
36. Leighanne Shaffer, Environmental Science, urban stream chemistry (1)
37. MacKenzie Freeman, Chemistry, Biomolecular, urban sulfate chemistry (1)
38. Jade Glaser, Chemistry, stream chemistry (1)

2014

39. Margaux Empey, campus groundwater protection
40. Kate Bartell Environmental Science, stream chemistry and soil carbon associated w/ land management (3)
41. Whitney Koehling, campus sustainability
42. Alex Scheumann, Geology, land use soil carbon
43. Rebecca Agnor, Math, statistical analyses of long-term watershed data (1)
44. Rachel Ross, Math, statistical analyses of long-term watershed data (1)

2013

45. Lindsay Starr, Geology, road salt and climate change hydrogeochemistry (2)
46. Kim Couts, Geology, nutrient stoichiometry in streams (2)
47. Alexis Crisp, Geology, land use stream chemistry (1)
48. Grant Goodwin, Geology, urban soil lead (1), Kyle Breslin, urban soil lead (1)
49. Ben Hagen, Geology, land use stream chemistry (1)

50. Biniyam Melese, Chemistry, soil lead method development
51. Grace Gielink, Sociology, urban housing GIS
52. Tyler Thacker, Environmental Science, urban soil lead (1)
53. TJ Mobley, Geology, land use stream chemistry (1)

2012

54. Carla Whisner, Geology, stream alkalinity (1)
55. Michael Shoenfelt, Geography, tropical glacier melt chemistry (1)
56. Beth Wilson, Environmental Science, drought stream chemistry, urban and agricultural chemistry (3)

Wittenberg Leadership & Service

- **Wittenberg Programming Committee, Chair** (2018-) Program development for the Wittenberg Series, Chair coordinating faculty inputs and developing DEIJ criteria for selections (2019-2020).
- **Academic Visioning Task Force** (2020) Explored curricular change models and guided curricular change discussions with STEM faculty. Explored opportunities to reduce administrative burden and improve inclusivity and collaboration.
- **Director, Wittenberg in Wittenberg** (2019) Leading 23 students in sustainable development focused course with regional field experiences, supporting internship coordination in Wittenberg Germany. Coordinating with Global Studies Program at Wittenberg to develop programming and housing.
- **Student Development Board** (2016-2019) Developing a rubric for funding that prioritized inclusivity and funding new awardees. Awarding student research and travel money. Supporting Fulbright applicants with review and scholarship days.
- **Strategic Planning Thematic Group: Community Outreach & Partnerships** (2016) Summarized evidence for our curricular strengths from institutional data and web source material (news, program descriptions) in the current state document. Shared other institutional evidence with other strategic planning thematic groups including Program Growth & Excellence & Academics/Student Success.
- **Faculty Endowment Fund Board** (2014- 2017) Evaluated faculty proposals for guest speakers.
- **First Year Experience Advisor** (2014-2016)
- **First Year Experience Task Force** (2013) Investigated first year programs at liberal arts colleges, identified key first year challenges for Wittenberg students, created a FYE program proposal that was approved and implemented.
- **Innovation Task Force** (2013-2015) Co-created a Value Proposition to center Wittenberg activities around (across all spheres of student involvement). Identified potential sources of revenue to Wittenberg. My work centered on defining and creating an *Engaged Learning Audit* through literature review of practices associated with learning & retention. This audit provided current state evidence to strategic planning.
- **Student Development Board** (2016-2019) Evaluated and funded student research and travel based on criteria established in our faculty manual. Participated in multiple scholarship days (x4).
- **Wittenberg University-Engaged Sustainability, Across Curriculum & Community** (2014-2016) (https://serc.carleton.edu/integrate/programs/implementation/program3/index.html) This effort directly increased the number of sustainability-focused and sustainability-related courses at Wittenberg and expanded departments/programs offering sustainability curriculum. Total sustainability courses offered increased by 80% as reported to a national database through Sustainability Tracking And Rating System (STARS). This includes the introduction of sustainability content for the First Year Seminar that has since been adapted by three other institutions.
- **Archaeology Minor Committee** (2014-2019) Provided feedback on the initial Archaeology Minor Proposal that Dr. Dar Brooks Hedstrom incorporated into the proposal. My revisions included identifying learning goals that matched the developmental level of the course sequence.
- **President's Climate Commitment Committee (2014)** Drafted the curriculum section and added language on the broader impacts of climate change. My role included drafting aspects of our curricular plans to address this topic.

Local Roles

- 2021-Present, Clean River Partners, Board Member
- 2021-2022, PBS, Think TV, Redlining in Dayton and Springfield
- 2019-2020, Clark County Community Health Grant
- 2018-2020, Clark County Local Foods Council, Education Advisor
- 2018, Advisor, Great Miami Environmental Leaders, Workshop Advisor
- 2016-2020, Clark County Soil & Water District, EQUIP (Conservation Advisor)
- 2015-2020, Clark County Ohio Citizens' Climate Lobby (Member)

Expeditions and Field Campaigns

- Juneau Icefield Research Program (1995, 2001, 2017-2019, 2022)
- McMurdo Dry Valleys, Antarctica (2001-2002, 2005-2006, 2007-2008, 2016-2017)
- Inland Reservoirs Ohio (2003-2004)
- Glacier Research in Cordillera Blanca, Peru (2007)
- Cascades (Multiple trips 2005, 2006)
- Upper Mississippi Watershed (1996-1999)
- Mojave Desert (1996)
- Columbia Icefield (1995)

Outreach

- 2022, FA, Clean River Partner Booth, Hispanic Festival
- 2020, FA, Kids Climate Podcast, Antarctica & Climate Change
- 2020, FA, Amplifying Whispers Racial Justice Series: Perspectives on Climate Justice, with Adam Brown, hosts: Julius Bailey & Jasmine Evans
- 2020, SP, Climate & COVID-19 w Wittenberg Alumni
- 2019, FA. Skype-A-Scientist
- 2019, FA, Climate citizen science with Global Impact STEM Academy
- 2019, FA. Justice Teach-In, A Day of Action at Wittenberg, leading the Environmental Justice Panel
- 2019, FA. Hands on Geology with Snowhill Elementary School second graders
- 2019, FA. Climate literacy and Citizen Science Event with the Global Impact STEM Academy at Snyder Park
- 2019, FA. Lead testing and Art Advocacy Event, Springfield Promise Neighborhood
- 2019, FA. Environmental Lead Pollution in Springfield, Ohio, Mother Stewart's Brewery
- 2018, SU. Global Climate Change activity station at the Monarch Butterfly Festival, Springfield, Ohio
- 2018, SU. Speaker to Women Supporting Girls Philanthropy group on local climate impacts.
- 2018, SP, Invited Speaker, Ohio Environmental Leadership Institute (OSU & Miami Conservancy District)
- 2018, SP, Climate Panel at Founders hosted by Wittenberg Student Senate
- 2018, SP, Volunteer, Amazing Place Earth Day Education, National Trail Park & Recreation district
- 2018, SP Q&Q at Wittenberg: Realizing Our Civic Potential
- 2018, SP, Growing Food in Antarctica, PechaKucha, Westcott House, Mother Stewart's Brewery
- 2018, SP, Global Climate Change Solutions, Global Impact STEM Academy
- 2018, 3 time science activity volunteer at Snowhill Elementary
- 2016, SP, Global Education & Peace Network Series: Sustainability at Wittenberg and into the Community, http://www.wittenberg.edu/news/2016/Global-education
- 2016, SP, Glaciers and Flubber Presentation and Inquiry Activity at Snowhill Elementary
- 2015, FA, Global Education Series: Wittenberg Environmental Science in the Springfield community,
- http://www.wittenberg.edu/news/2015/Global-Education-Wittenberg
- 2015, 3 Local Food Events hosted by OSU Extension & the Springfield Promise Neighborhood
- 2014, FA, Green Holidays at the Westcott Solar House, presented by Global Climate Change students in collaboration with COSI and informed by 8 local experts
- 2014, FA, Oakwood Village, Climate Change What do we know? An Interdisciplinary panel at Oakwood Village

- 2014, SU, Westcott House Solar House Opening PechaKucha Night, Phosphorus: Too much, but not enough
- 2014, SP, 'Chasing' Ice Global Climate Change Panel at Wittenberg
- 2014, SP, Climate Literacy Modules presented by Wittenberg Global Climate Change students (ESCI 100) at COSI. Reach: 500 plus visitors interacted with our students.
- 2014, SP Wittenberg Open Classroom Melt in the Antarctic dry valleys, lessons learned from the ice
- 2014, SP Community Development Speaker, Hagen Center for Civic & Urban Engagement What role can you play in preserving the local watershed? (explored the homeowner role in water quality, and efforts homeowners can employ to reduce negative water quality impacts; 2 students assisted).
- 2012, FA Wittenberg Saturday Science Series w/ 2 undergraduate co-leaders, Glacier Change
- 2002-2008, Led tours, gave talks on Antarctic travel, research, hosted interactive workshops engaging with more than 1,000 visitors to Byrd Polar Research Center
- Visits to more than 5 Columbus K-12 schools discussing work in Antarctica

Press

National

1. AGU Blogs (Laura Guertin), 2020, Searching for equity in the science fair.
https://blogs.agu.org/geoedtrek/2020/05/02/science-fair/

2. Union of Concerned Scientists (Sarah Fortner), 2018, Science Citizenship: Making Science Actionable.
https://blog.ucsusa.org/science-blogger/science-citizenship-making-science-actionable

3. Sierra Club (Drew Higgins), 2018, On the Juneau Icefield, Women Reimagine Who Does Science
A new generation of scientists reckons with the past, strives for an inclusive future
https://www.sierraclub.org/sierra/juneau-icefield-women-reimagine-who-does-science

4. AGI, 2017, AGI Welcomes Member Society Scholar-in-Residence, Sarah K. Fortner, Ph.D.
https://www.americangeosciences.org/news/agi-welcomes-member-society-scholar-residence-sarah-k-fortner-phd

5. AAC&U, 2017, Civic Prompts, Civic learning in the major by design, https://www.aacu.org/civic-prompts

6. AGU Blogs (Laura Guertin), 2016, Helping Students Advocate for the Earth-from InTeGrate;
http://blogs.agu.org/geoedtrek/2017/04/20/helping-students-advocate-earth-integrate/

8. AGU Blogs (Laura Guertin), 2016, Day 1 PM – Service Learning in Undergraduate Geosciences: A Workshop ,
http://blogs.agu.org/geoedtrek/2016/04/20/day-1-pm-service-learning-undergraduate-geosciences-workshop/

9. EOS, 2016, Earth and Space Science News, AGU signs agreement with Council on Undergraduate Research;
https://eos.org/agu-news/agu-signs-agreement-with-council-on-undergraduate-research

10. CUR, 2016, AGU and CUR to partner to advance undergraduate science education;
http://www.cur.org/agu_and_cur_partner_to_advance_undergraduate_science_education/

11. NAGT & SERC, Helping the Next Generation Save the Planet (Includes press for Wittenberg's Sustainability Implementation Program), 2016, http://apps.carleton.edu/now/stories/?story_id=1284023

12. NAGT & SERC, 2015, Congratulations to InTeGrate author Sarah Fortner and her team at Wittenberg University (published separately in two major geoscience education resource websites),
http://serc.carleton.edu/serc/news/integrate_autho.html

13. NAGT, 2014, InTeGrate Module Author in the News Wittenberg Students Team Up With Springfield To Fight Storm Water Problem, *Geospectrum Quarterly Geoscience Newsletter & E-Zine*
http://www.americangeosciences.org/sites/default/files/GeoSpectrum-2014-Winter.pdf

Local

1. WYSO, 2020, Chris Welter, Clark County's Effort To Reach Essential Workers During COVID-19
https://www.wyso.org/news/2020-08-20/clark-countys-effort-to-reach-essential-workers-during-covid-19

2. Springfield News Sun, 2020, Springfield residents fighting back after Kroger announces closure (includes ideas from the Local Food Council) https://www.springfieldnewssun.com/news/local/springfield-residents-fighting-back-after-kroger-announces-closure/HfpvaPV1kaxFictB9Rj96M/

3. Springfield News Sun, 2019, Lead testing at PromiseFest

4. Springfield News Sun, 2019, Wittenberg to join multi-million dollar research project, https://www.springfieldnewssun.com/news/local/wittenberg-join-multi-million-dollar-research-project/0gbTlNGrPZUTLGzzKhoFLM/

5. Springfield News Sun, 2017, Springfield woman's climate change studies include trips to Antarctica, http://www.springfieldnewssun.com/news/local-education/springfield-woman-climate-change-studies-include-trips-antarctica/WPC9EmhNc5RFHYzNbCwznL/

6. Springfield New Sun, 2015, Global Ed Series kicks of its 14th season, http://www.springfieldnewssun.com/news/news/local/global-ed-series-kicks-off-14th-season-thursday/nnXtc/

7. Springfield News Sun, 2015, Springfield, Wittenberg partner on a rain garden http://www.springfieldnewssun.com/news/news/local/springfield-wittenberg-partner-on-rain-garden/nmyCG/

8. WYSO, 2014, Wittenberg students team up to fight stormwater problem http://wyso.org/term/sarah-fortner (written); http://wyso.org/post/wittenberg-students-team-springfield-fight-storm-water-problem (radio release)

9. Springfield News Sun, 2013, Springfield, Witt team up on a survey http://www.springfieldnewssun.com/news/news/local/springfield-witt-team-up-on-survey/nYbDb/

Campus

1.Wittenberg Senior's Paper on Redlining Project Published in Journal.
https://www.wittenberg.edu/news/05-27-20/rachel-corsello-20

2. Earth Day Celebration: Professor Sarah Fortner will lead first-ever virtual alumni college on the road to celebrate the 50th Anniversary of Earth Day. https://www.wittenberg.edu/news/04-21-20/earth-day-celebration

3. Change advocates: Wittenberg Seniors Inspire Local Students to Engage in STEM Programs.
https://www.wittenberg.edu/news/04-8-20/change-advocates

4.Wittenberg serves: Wittenberg donates time and supplies while offering virtual engagement options.
https://www.wittenberg.edu/news/04-2-20/wittenberg-serves

5. Empowering students: National grant empowers environmental justice.
https://www.wittenberg.edu/news/03-2-20/empowering-students

6. STEM-Business Endeavor https://www.wittenberg.edu/news/08-30-19/stem-business-endeavor

7. Climate change scientist Sarah Fortner contemplates whether we can slow the devastating effects of a warming planet. https://static1.squarespace.com/static/59ac40138419c2a53ccc7268/t/59b464af37c581fbf87b1899/1504994497173/ChasingIce_Story.pdf

8. Wittenberg University students examine their role in sustainability issues. http://www.wittenberg.edu/news/2016/Earth-Week

9. Wittenberg to host Global Education and Peace Network Series. http://www.wittenberg.edu/news/2016/Global-education

10. Springfield's Global Earth Education Series to open with Wittenberg Scientists. http://www.wittenberg.edu/news/2015/Global-Education-Wittenberg

11. Wittenberg Student Wins James Manner Award At Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy. http://www.wittenberg.edu/news/2015/chemistry-student-wins-james-manner-award-at-pittcon

12. Wittenberg Featured In "The Princeton Review's Guide To Green Colleges." http://www.wittenberg.edu/news/2015/princeton-review-guide-to-green-colleges (cites our sustainability curricular effort)

13. Rain Garden to add beauty and purpose to campus, http://www.wittenberg.edu/news/2015/rain-garden

14. Wittenberg Students Present Local Research to Geological Society of America http://www.wittenberg.edu/news/2014/11_10-gsa-conference.html

15. Wittenberg University Students Take Part in Largest Climate March in History http://www.wittenberg.edu/news/2014/10_17-sustainability-march.html (Climate March)

16. COSI Collaboration Reflects Innovative Learning (Wittenberg Magazine, Spring 2014)

17. Wittenberg University Students Participate in Portal to the Public, Collaborate with COSI http://www.wittenberg.edu/news/2014/05_27-geology-cosi.html

19. Hands-on learning at its best http://www.wittenberg.edu/features/hands-on-learning

OTHER

1. Mapping for Decision Making, Get Spatial Blog, 2019. Sarah Fortner and Tim Shipley https://serc.carleton.edu/getspatial/blog/CrissCross.html

2. On the Juneau Icefield, Women reimagine who does science, 2018.*Sierra*. Drew Higgins. https://www.sierraclub.org/sierra/juneau-icefield-women-reimagine-who-does-science

3. Glacier Hub, Geochemical Evolution of Meltwater from Glacier Snow to Proglacial Lake, Tae Hamm https://glacierhub.org/2018/02/20/geochemical-evolution-meltwater-glacier-snow-proglacial-lake/

4. As wildfires blaze, southeast glaciers will be feeling the melt, 2016. KTOO, Juneau, Alaska. Elizabeth Jenkins http://www.ktoo.org/2016/08/17/as-interior-wildfires-blaze-southeast-glaciers-could-be-feeling-the-melt/

RECENT INVITED TALKS

- 2022, Kent State *Collective Action to advance equity & justice: Strategies from Geoscience Education & GeoHealth*
- 2021, University of Iowa, *Engaging Environmental Racism*, Campus Diversity Equity and Inclusion Series
- 2021, Villanova, *Engaging Environmental Racism*, redeveloped to include faculty reflection and action planning
- 2021, University of Washington-Tacoma, *Engaging Environmental Racism*, to a consortia of Sustainability Faculty and students
- 2020, Antioch College, Coretta Scott King Center: *Building Networks to tackle Metal Pollution*