Bradley A. Miller

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Department of Agronomy
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Contents

Education

Ph.D., Geography, Michigan State University, August 2013
M.S., Soil Science and Water Resources (co-majors);
minor in Political Science, Iowa State University, May 2006
B.S., Environmental Science, Iowa State University, May 2000

Professional Experience

Agronomy Department, Iowa State University, Ames, Iowa
Associate Professor - July 2021 to present
Assistant Professor - August 2015 to June 2021

- Serve as Director of Graduate Education for the Soil Science Program
- Spatial analysis of soil landscapes for understanding pedogenic processes
- Advancing methods in digital soil mapping (spatial prediction of soil properties)
- Providing more useful soil information to a wide variety of audiences
- Created two new courses: *Geospatial Technologies* and *Spatial Soil Informatics*
- Created a new certificate in *Soil Science* (51 students graduated)

Institute of Soil Landscape Research, Leibniz Centre for Agricultural Landscape Research (ZALF), Müncheberg, Germany
Coordinator for the Cross-Sector Project on Land Structure - September 2013 to July 2015

- Coordination and optimization of data collected across multiple projects
- Production of landscape-scale soil maps of soil carbon using multi-scale covariates
- Analysis of modelling techniques' impact on geographic patterns and estimated uncertainty
- Editing of German colleagues' manuscripts for improved communication in English

Geography Department, Michigan State University, East Lansing, Michigan
Graduate Assistant and Course Instructor - August 2010 to August 2013

- Instructed courses (as primary instructor) on *Introductory Geographic Information* and advanced *Problems in Geographic Information Science*
- Taught laboratory course (as teaching assistant) in *Physical Geography*
- Taught online courses (as instructor) in *Physical Geography*, *Introductory Geographic Information*, as well as *People and the Environment*
- Developed new analytical methods for particle size data from laser diffractometry, resulting in a peer-reviewed publication

Environmental Programs and Department of Agronomy, Iowa State University, Ames, Iowa
Undergraduate Coordinator - June 2006 to August 2010

- Increased enrollment by 91% for Agronomy and 133% for Environmental Science, over a 4-year time span
- Publicized/promoted the disciplines of Agronomy and Environmental Science
- Advised students in Environmental Science

Wetlands Research Group, Iowa State University, Ames, Iowa
Research Assistant - March 2001 to June 2006

- Analyzed the glaciated landscapes of the United States' Midwest and their implications for land and water quality
- Conducted research on the use of wetlands for water quality improvement in the Upper Mississippi and Ohio River basins
- Managed two large-capacity servers for collaborative work environment and data security

Research Interests and Expertise

Soil Science, Digital Soil Mapping, Geomorphology, Spatial Analysis

Professional Affiliations

Certified Geographic Information Science Professional (GISP)

Soil Science Society of America
Professional Soil Classifiers of Iowa
American Association of Geographers
Geological Society of America

Gamma Theta Upsilon, International Geographic Honor Society, MSU
Phi Kappa Phi Honor Society
Golden Key International Honor Society

Training

2024 CELT + Top Hat
2023 Course Design Institute, Center for Excellence in Learning and Teaching (CELT), ISU
2020 National Innovation Corps, National Science Foundation
2005 Project LEA/RN, Iowa State University

Honors and Awards

2022 Dean's Citation for Extraordinary Contributions, College of Agriculture and Life Sciences, ISU – Carbon Report Team
2021 Early Achievement in Research Award, College of Agriculture and Life Sciences, ISU
2018 Dan Yaalon Young Scientist Medal, International Union of Soil Sciences
2015 Citation for Excellence in Manuscript Review, Soil Science Society of America Journal
2012 First place, Graduate Student Oral Competition, Division S-5 (Pedology), Soil Science Society of America
2011 Second place, Geography Graduate Research Presentation Competition, MSU
2011 Soil Classifiers Association of Michigan Scholarship ($1,000)
2010 Outstanding Service in Recruitment and Retention, College of Agriculture and Life Sciences, ISU
2008 Outstanding Professional Skill Award, Association for Communication Excellence in Agriculture, Natural Resources, and Life Sciences
2005 Williams Soil Conservation Scholarship, Soil and Water Conservation Society ($1,000)
2003 Teaching Excellence Award, ISU

Citation Metrics

H Index: 25 (Google Scholar); 18 (Scopus)
Total citations: 2,440 (Google Scholar); 1,531 (Scopus)

Publications

Refereed Journal Articles (40)

Students mentored indicated by underlining.

Since previous promotion (10)

2024 40. Dash, P.K., C. Ferhatoglu, N. Panigrahi, **B.A. Miller**, A. Mishra. Influence of sample size and machine learning algorithms on digital soil nutrient mapping accuracy. Environmental Monitoring and Assessment. In press. doi: 10.1007/s10661-025-14322-w.

39. Ferhatoglu, C., M.D. McDaniel, **B.A. Miller**. An optimal sample size index for updating spatial soil models. Geoderma 455:117208. doi: 10.1016/j.geoderma.2025.117208.

2024 38. César de Mello, D., N.E.Q. Silvero, **B.A. Miller**, N.A. Rosin, J.T.F. Rosas, B.A. Bartsch, G.V. Veleso, J.J.M. Novais, R. Falcioni, M.R. Nanni, M.R. Alves, E.I. Fernandes-Filho, U.J. Santos, J.A.M. Demattê. Mapping soil drainage classes: Comparing expert knowledge and machine learning strategies. Soil Advances 3:100028. doi: 10.1016/j.soilad.2024.100028.

37. Dash, P.K., **B.A. Miller**, N. Panigrahi, A. Mishra. Exploring the effect of sampling density on spatial prediction with spatial interpolation of multiple soil nutrients at a regional scale. Land 13(10):1615. doi: 10.3390/land13101615.

36. Carroll, M.E., L.G. Riera, **B.A. Miller**, P.M. Dixon, B. Ganapathysubramanian, S. Sarkar, A.K. Singh. Leveraging soil mapping and machine learning to improve spatial adjustments in plant breeding trials. Crop Science 64(6):3135-3152. doi: 10.1002/csc2.21336.

35. Bohn, M.P. and **B.A. Miller**. Locally enhanced digital soil mapping in support of a bottom-up approach is more accurate than conventional soil mapping and top-down digital soil mapping. Geoderma 442:116781. doi: 10.1016/j.geoderma.2024.116781.

2023 34. Jordahl, J., M. McDaniel, **B.A. Miller**, M. Thompson, S. Villarino, L.A. Schulte. Carbon storage in cropland soils: Insights from Iowa, United States. Land 12(8):1630. doi: 10.3390/land12081630.

33. Dutter, C., L.A. Damiano, J. Niemi, **B.A. Miller**, L.A. Schulte, M. Liebman, M.J. Helmers, R.M. Cruse, M.D. McDaniel. Contour prairie strips affect adjacent soil but have only slight effects on crops. Field Crops Research. doi: doi.org/10.1016/j.fcr.2023.108905.

2022 32. McDanel, J.J., N.A. Meghani, **B.A. Miller**, P.L. Moore. Harmonized landform regions in the glaciated Central Lowlands, USA. Journal of Maps. doi: 10.1080/17445647.2022.2090866.

31. Ferhatoglu, C. and **B.A. Miller**. Choosing feature selection methods for spatial modeling of soil fertility properties at the field scale. Agronomy 12(8):1786. doi: 10.3390/agronomy12081786. *Editor's Choice Article

Prior to previous promotion (30)

2021 30. Schaetzl, R.J., K.E. Nyland, C.S. Kasmerchak, V. Breeze, A. Kamoske, S.E. Thomas, M. Bomber, L. Grove, K. Komoto, and **B.A. Miller**. Holocene, silty-sand loess downwind of dunes in Northern Michigan, USA. Physical Geography. doi: 10.1080/02723646.2020.1734414.

2020 29. **Miller, B.A.** and J. Juilleret. The colluvium and alluvium problem: Historical review and current state of definitions. Earth-Science Reviews 209: 103316. doi: 10.1016/j.earscirev.2020.103316.

28. Kyebogola, S., C.L. Burras, **B.A. Miller**, O. Semalulu, R.S. Yost, M.M. Tenywa, A.W. Lenssen, P. Kyomuhendo, C. Smith, C.K. Luswata, M.J. Gilbert Majaliwa, L. Goettsch, C.J. Pierce Colfer, R.E. Mazur. Comparing Uganda's indigenous soil classification system with World Reference Base and Soil Taxonomy. Geoderma Regional. doi: 10.1016/j.geodrs.2020.e00296.

27. Khaledian, Y. and **B.A. Miller**. Selecting appropriate machine learning methods for digital soil mapping. Applied Mathematical Modelling 81: 401-418. doi: 10.1016/j.apm.2019.12.016.

2019 26. **Miller, B.A.**, E.C. Brevik, P. Pereira, and R.J. Schaetzl. Progress in Soil Geography I: Reinvigoration. Progress in Physical Geography: Earth and Environment 43(6): 827-854. doi: 10.1177/0309133319889048.

2018 25. Marques, K., J.A. Demattê, **B.A. Miller**, and I. Lepsch. Geomorphometric segmentation of complex slope elements to improve soil mapping in southeast Brazil. Geoderma Regional 14: e00175. doi: 10.1016/j.geodrs.2018.e00175.

2017 24. Nyland, K.E., R.J. Schaetzl, A. Ignatov, and **B.A. Miller**. A new depositional model for sand-rich loess on the Buckley Flats outwash plain, northwestern Lower Michigan. Aeolian Research 31: 91-104. doi: 10.1016/j.aeolia.2017.05.005.

2016 23. Brevik, E.C., J.A. Homburg, **B.A. Miller**, T.E. Fenton, J.A. Doolittle, and S.J. Indorante. Selected highlights in American soil science history from the 1980s to the mid-2010s. Catena 146:128-146. doi: 10.1016/j.catena.2016.06.021.

22. **Miller, B.A.**, S. Koszinski, W. Hierold, H. Rogasik, B. Schröder, K. Van Oost, M. Wehrhan, and M. Sommer. Towards mapping soil carbon landscapes: issues of sampling scale and transferability. Soil and Tillage Research 156:194-208. doi: 10.1016/j.still.2015.07.004.

21. **Miller, B.A.** and R.J. Schaetzl. History of soil geography in the context of scale. Geoderma 264:284-300. doi: 10.1016/j.geoderma.2015.08.041.

20. Brevik, E.C., C. Calzolari, **B.A. Miller**, P. Pereira, C. Kabala, A. Baumgarten, and A. Jordán. Soil mapping, classification, and pedologic modelling: History and future directions. Geoderma 264:256-274. doi: 10.1016/j.geoderma.2015.05.017.

19. Brevik, E.C., A. Baumgarten, C. Calzolari, A. Jordán, C. Kabala, **B.A. Miller**, and P. Pereira. Editorial: Historical perspectives and future needs in soil mapping, classification, and pedologic modelling. Geoderma 264:253-255. doi: 10.1016/j.geoderma.2015.09.022.

2015 18. Koszinski, S., **B.A. Miller**, W. Hierold, H. Haelbich, and M. Sommer. Spatial modelling of organic carbon in degraded peatland soils of northeast Germany. Soil Science Society of America Journal 79(5):1496-1508. doi: 10.2136/sssaj2015.01.0019.

17. Brevik, E.C. and **B.A. Miller**. The use of soil surveys to aid in geologic mapping with an emphasis on the Eastern and Midwestern United States. Soil Horizons 56(4). doi: 10.2136/sh15-01-0001.

16. **Miller, B.A.**, S. Koszinski, M. Wehrhan, and M. Sommer. Comparison of spatial association approaches for landscape mapping of soil organic carbon stocks. SOIL 1(1):217-233. doi: 10.5194/soil-1-217-2015.

15. **Miller, B.A.** and R.J. Schaetzl. Digital classification of hillslope position. Soil Science Society of America Journal 79(1):132-145. doi: 10.2136/sssaj2014.07.0287.

14. Arbogast, A.F., M.D. Luehmann, **B.A. Miller**, K.M. Adams, P.A. Wernette, J.D. Waha, G.A. O'Neil, Y. Tang, J.J. Boothroyd, C.R. Babcock, P.R. Hanson, T.A. Daly, and A.R. Young. Late-Pleistocene paleowinds and aeolian sand mobilization in north-central Lower Michigan. Aeolian Research 16:109-116. doi: 10.1016/j.aeolia.2014.08.006.

13. **Miller, B.A.** and C.L. Burras. Comparison of surficial geology maps based on soil survey and in depth geological survey. Soil Horizons 56(1). doi: 10.2136/sh14-05-0005.

12. **Miller, B.A.**, S. Koszinski, M. Wehrhan, and M. Sommer. Impact of multi-scale predictor selection for modelling soil properties. Geoderma 239-240:97-106. doi: 10.1016/j.geoderma.2014.09.018.

2014 11. **Miller, B.A.** and R.J. Schaetzl. The historical role of base maps in soil geography. Geoderma 230-231:329-339. doi: 10.1016/j.geoderma.2014.04.020.

10. **Miller, B.A.** Semantic calibration of digital terrain analysis. Cartography and Geographic Information Science Journal 41:166-176. doi: 10.1080/15230406.2014.883488.

9. Adewopo, J.B., C. VanZomeren, R.K. Bhomia, M. Almaraz, A.R. Bacon, E. Eggleston, J.D. Judy, R.W. Lewis, M. Lusk, **B.A. Miller**, C. Moorberg, E. Hodges-Snyder, and M. Tiedeman. Top-ranked priority research questions for soil science in the 21st century. Soil Science Society of America Journal 78:337-347. doi: 10.2136/sssaj2013.07.0291.

2013 8. Luehmann, M.D., R.J. Schaetzl, **B.A. Miller**, and M.E. Bigsby. Thin, pedoturbated, and locally sourced loess in the western Upper Peninsula of Michigan. Aeolian Research 8:85-100. doi: 10.1016/jaeolia.2012.11.003.

2012 7. **Miller, B.A.** and R.J. Schaetzl. Precision of soil particle size analysis using laser diffractometry. Soil Science Society of America Journal 76:1719-1727. doi: 10.2136/sssaj2011.0303.

6. **Miller, B.A.** The need to continue improving soil survey maps. Soil Survey Horizons 53(3). doi: 10.2136/sh12-02-0005.

5. Schaetzl, R.J., F.J. Krist Jr., and **B.A. Miller**. A taxonomically based, ordinal estimate of soil productivity for landscape-scale analyses. Soil Science 177:288-299. doi: 10.1097/SS.0b013e3182446c88.

4. **Miller, B.A.**, W.G. Crumpton, and A.G. van der Valk. Wetland hydrologic class change from prior to European settlement to present on the Des Moines Lobe, Iowa. Wetlands Ecology and Management 20:1-8. doi: 10.1007/s11273-011-9237-z.

2011 3. **Miller, B.A.** Marketing and branding the agronomy major at Iowa State University. Journal of Natural Resources and Life Science Education 40:1-9. doi: 10.4195/jnrlse.2009.0037u.

2009 2. **Miller, B.A.**, W.G. Crumpton, and A.G. van der Valk. Spatial distribution of historical wetland classes on the Des Moines Lobe, Iowa. Wetlands 29:1146-1152. doi: 10.1672/08-158.1.

2008 1. **Miller, B.A.**, C.L. Burras, and W.G. Crumpton. Using soil surveys to map Quaternary parent materials and landforms across the Des Moines Lobe of Iowa and Minnesota. Soil Survey Horizons 49:91-95.

Book Chapters – Peer Reviewed (9)

2023 9. **Miller, B.A.**, C.J. Baish, and R.J. Schaetzl. Use of soil maps and surveys to interpret soil-landform assemblages and soil-landscape evolution. In: Geopedology - An Integration of Geomorphology and Pedology for Soil and Landscape Studies. 2nd ed. J.A. Zinck, G. Metternicht, H.F. del Valle, and M. Angelini (eds). Springer. pp. 243-260. doi: 10.1007/978-3-031-20667-2_13.

2021 8. Schaetzl, R.J., **Miller, B.A.**, and C.J. Baish. Catenas and Soils. In: J.F. Shroder (ed.). Treatise on Geomorphology, Vol. 4. 145-158. Elsevier. doi: 10.1016/B978-0-12-818234-5.00214-5.

2019 7. Targulian, V.O., R.W. Arnold, E.C. Brevik, and **B.A. Miller**. Pedosphere. In: B. Fath. Encyclopedia of Ecology, 2nd Ed. 162-168. Elsevier. doi: 10.1016/B978-0-12-409548-9.11153-4.

2017 6. **Miller, B.A.** Geographic information systems and spatial statistics applied for soil mapping: A contribution to land use management. In: P. Pereira, E.C. Brevik, M. Munoz-

Rojas, and **B.A. Miller** (eds.). Soil mapping and process modelling for sustainable land use management. Elsevier.

5. Pereira, P., E.C. Brevik, M. Munoz-Rojas, **B.A. Miller**, A. Smetanova, D. Depellegrin, I. Misiune, A. Novara, and A. Cerdá. Soil mapping and process modelling for sustainable land management. In: P. Pereira, E.C. Brevik, M. Munoz-Rojas, and **B.A. Miller** (eds.). Soil mapping and process modelling for sustainable land use management. Elsevier.

4. Brevik, E.C., P. Pereira, M. Munoz-Rojas, **B.A. Miller,** A. Cerdá, L. Parras-Alcántara, and B. Lozano-Garciá. Historical perspectives on soil mapping and process modelling for sustainable land management. In: P. Pereira, E.C. Brevik, M. Munoz-Rojas, and **B.A. Miller** (eds.). Soil mapping and process modelling for sustainable land use management. Elsevier.

3. **Miller, B.A**. Digital soil mapping and pedometrics. In: International Encyclopedia of Geography. Wiley - Association of American Geographers. doi: 10.1002/9781118786352.wbieg0318.

2. Bromley, M. and **B.A. Miller**. Soil mapping and maps. In: International Encyclopedia of Geography. Wiley - Association of American Geographers. doi: 10.1002/9781118786352.wbieg0580.

2016 1. Schaetzl, R.J. and **B.A. Miller**. Use of soil maps and surveys to interpret soil-landform assemblages and soil-landscape evolution. In: Geopedology - An Integration of Geomorphology and Pedology for Soil and Landscape Studies. J.A. Zinck, G. Metternicht, G. Bocco, and H.F. del Valle (eds). Springer. pp. 251-264. doi: 10.1007/978-3-319-19159-1_15.

Books (1)

2017 1. Pereira, P., E.C. Brevik, M. Munoz-Rojas, and **B.A. Miller** (eds.). Soil mapping and process modelling for sustainable land use management. Elsevier. 398 p.

Other Published Works (7)

Since previous promotion (1)

2022 7. Schulte-Moore, L. and J. Jordahl, editors. 2022. Carbon Science for Carbon Markets: Emerging Opportunities in Iowa. CROP 3175. Iowa State University Extension and Outreach, Ames, Iowa.

Prior to previous promotion (30)

2019 6. **Miller, B.A.** and Y. Khaledian. 2019. New opportunities for soil mapping with spatial modelling. Proceedings of the 31st Annual Integrated Crop Management Conference. Iowa State University Extension and Outreach.

2016 5. **Miller, B.A.** and J. Juilleret. 2016. A Survey to Better Understand the Use of the Terms “Colluvium” and “Alluvium”. National Cooperative Soil Survey Newsletter 76:7-9.

4. **Miller, B.A.** 2016. Soil informatics: Better maps for Iowa. Getting into Soil and Water. The Soil and Water Conservation Club, Iowa Water Center, and Iowa State University – University Extension.

2012 3. Luehmann, M.D., R.J. Schaetzl, and **B.A. Miller**. 2012. An update on the loess in the western Upper Peninsula of Michigan. Soil Classifiers of Michigan.

2010 2. **Miller, B.A.** Soil as a history book. 2010. Getting into Soil and Water. The Soil and Water Conservation Club and The Iowa Water Center, Iowa State University – University Extension, p. 14-15.

2006 1. Crumpton, W.G., G.A. Stenback, **B.A. Miller**, and M.J. Helmers. 2006. Potential benefits of wetland filters for tile drainage systems: impact of nitrate loads to Mississippi River subbasins. U.S. Department of Agriculture, Project Report IOW06682. 34 pp.

Patents and Copyrights (2)

2023 2. Khaledian, Y. and **B.A. Miller**. Digital soil and yield mapping with an optimized sampling design to provide accurate and inexpensive maps for farm managers using sophisticated machine learning algorithms. ISURF #05056.

2019 1. White, J.G., **B.A. Miller,** and J. Bielski. Enhanced management zones for precision agriculture. Patent #11744168.

Data Sets (2)

2024 2. Bohn, M.P. and **B.A. Miller**. Locally enhanced digital soil map (LE-DSM) soil organic matter and particle size fractions 10-m resolution maps for north central Iowa. Iowa State University. Dataset. https://doi.org/10.25380/iastate.24871656

2022 1. McDanel, J.J., N.A. Meghani, **B.A. Miller**, and P.L. Moore. Landform regions in the glaciated Central Lowlands of North America. Iowa State University. Dataset. https://doi.org/10.25380/iastate.19386011

Grants ($5,779,469)

Research Grants – (Amount to Miller: $3,517,596)

17. **Know Your Carbon Landscape: Data for Consistent Monitoring of Soil Carbon**
USDA-NRCS. $1,996,251 (Amount to Miller: $1,711,806). 2023-2027. Collaborators: A. Anderson, L. Burras, M. McDaniel, A. Reick-Hienz, M. Thompson

16. **Digitization of 1990 Soil Maps Necessary for Conservation Program Implementation**
USDA-NRCS. $144,750. 2023-2026.

15. **Spatial Models for Scaling Optimal Nutrient Management Research from Plot to Field and Watershed Scales**
Iowa Nutrient Reduction Center. $136,224. 2022-2024. Collaborators: M. McDaniel, M. Licht

14. **Change Detection of Soil Carbon Stocks from Legacy Data**
    USDA-NRCS. $298,951. 2022-2024.

13. **Soil Health Indicators in Areas Affected by Pipeline Installation**. USDA-SARE. $14,964. 2021-2023. Collaborators: Luis Bentancor

12. **CAREER: Hillslope Morphology Never Stops: Validating Hillslope Evolution Models on Transport Limited, Low Relief Landscapes**
    NSF. $574,217. 2021-2026.

11. **Soil Health After Erosion: How Healthy and Resilient are Eroded Hillslope Soils of the Midwest?**
    ISU Department of Agronomy. $150,000. 2020-2022. Collaborators: M. McDaniel, R. Cruse

10. **I-Corps: Digital Soil and Yield Mapping with an Optimized Sampling Design to Provide Accurate, Rapid, and Inexpensive Maps for Farm Managers**
    NSF. $50,000. 2020. Collaborators: Y. Khaledian

9. **Strengthening the Foundation of Agroecosystem Models for Water Research: Precision Land Surface Analysis and Machine Learning for Enhanced Soil Maps**
    Iowa Water Center (USGS). $5,000. 2020. Collaborators: M.P. Bohn

8. **Prairie Strips for Healthy Soils and Thriving Farms**
    USDA-FFAR. $1,492,409 (Amount to Miller: $72,863). 2019-2022. Collaborators: R. Cruse, L. Schulte-Moore, M. McDaniel, M. Liebman, J. Niemi, J. Tyndall

7. **Spatially Modelling Soil Texture Class in Support of Precision Agriculture**
    USDA-NRCS. $120,056. 2018-2021.

6. **Enhanced Management Zones for Precision Agriculture**
    Ag Tech Inventures. $57,284. 2019-2020.

5. **Spatial Potential for Enhanced In-field Denitrification from Perennial Vegetative Filter Strips**
    Iowa Water Center (USGS). $4,790. 2018. Collaborators: D. Linton

4. **Completion of the Isee Soils Database for the North Central Region**
    USDA-NRCS. $100,000 (Amount to Miller: $8,921). 2017-2018. Collaborators: D. Schulze, J. Crum, D. Hopkins, N. Jelinski, D. Malo, P. Quackenbush, M. Ransom, J. Turk

3. **Enhanced Farmer Management Decisions App**
    USAID – Legume Innovation Lab. $5,400. 2017. Collaborators: E. Luvaga, R. Mazur

2. **Drainage Network Evolution Following Continental Glaciation**
    NSF. $399,717 (Amount to ISU: $123,174). 2017-2020. Collaborators: A. Anders, K. Gran, P. Moore

1. **Integrating Soil Health Assessment and Laterally Connected Soil Systems**
    USDA-NRCS. $79,118. 2016-2018. Collaborators: M. Castellano

Travel Award Grants ($14,114)

No.	Period	Agency	Amount	Title	Role
10	2019	Gilchrist Foundation	$2,000	Micro Grant	Co-PI
9	2019	Department of Agronomy (ISU)	$700	Baker Travel Fund	PI
8	2018	Iowa State University	$1,114	Foreign Travel Grant	PI
7	2016	Department of Agronomy (ISU)	$700	Baker Travel Fund	PI
6	2015	Department of Agronomy (ISU)	$1,000	Baker Travel Fund	PI
5	2015	College of Agriculture & Life Sciences (ISU)	$800	NSF Regional Grants Conference	PI
4	2013	Association of American Geographers	$500	Dissertation Research Grant	PI
3	2012	Michigan State University	$6,000	Dissertation Completion Fellowship	PI
2	2012	Council of Graduate Students, Michigan State University	$300	Travel Grant	PI
1	2012	Michigan State University	$1,000	Graduate Office Fellowship	PI

Oral Presentations (55)

Name of presenter listed first. Students mentored indicated by underlining.

Since previous promotion (9 presentations, 6 of which were invited)

2025 Bohn, M.P. and **B.A. Miller**. Site-specific digital soil mapping vs. SSURGO soil maps for simulating crop yield. *Presentation* at National Cooperative Soil Survey Conference, Virtual.

2024 Song, H., W. Huang, S. Hall, M.D. McDaniel, A. Vanloocke, M.L. Thompson, **B.A. Miller**. Limited accrual of soil carbon and nitrogen in regenerative cropping systems. ASA, CSSA, SSSA International Annual Meeting, San Antonio, Texas, USA.

Miller, B.A. Lessons from marketing and teaching to make connections. *Invited presentation* at FFAR and ASA-CSSA-SSSA Workforce Development Summit, Madison, Wisconsin, USA.

2023 **Miller, B.A.** and L.B. Bentancor. Inventorying Iowa's topsoil thickness. *Invited presentation* at SWCS International Annual Conference, Des Moines, Iowa, USA.

Bohn, M.P., L.B. Bentancor, and **B.A. Miller**. Legacy data rescue for retrospective soil survey and change detection in topsoil organic carbon stocks of the Corn Belt, USA. *Presentation* at National Cooperative Soil Survey Conference, Bismark, North Dakota, USA.

Miller, B.A. Making friends with the spatial variability of E. *Invited presentation* at Teambuilding for Innovations in Agriculture: Conserving and Deploying Diverse Crop Germplasm for Developing Sustainable, Efficient, and Competitive Production Systems Seminar. College of Agriculture and Life Sciences Office of Research and Discovery, Ames, Iowa, USA.

2022 Ferhatoglu, C.F. and **B.A. Miller**. Improving digital soil maps for site-specific soil fertility management using feature selection. *Invited presentation* at North Central Extension-Industry Soil Fertility Conference, Des Moines, Iowa, USA.

Miller, B.A., W.G. Crumpton, and A.G. van der Valk. Mapping Iowa wetlands. *Invited presentation* at USDA-NRCS, Virtual.

Miller, B.A. Sampling SOC stocks: Accounting for a three-dimensional body. *Invited presentation* at Iowa Carbon Taskforce Workshop, Ames, Iowa, USA.

Prior to previous promotion (46 presentations, 20 of which were invited)

2021 Dash, P., **B.A. Miller**, and A. Mishra. How does sampling density affect spatial interpolation of soil properties at a regional scale? *Presentation* at Soil Science Society of America Annual Meeting, Salt Lake City, Utah, USA.

Miller, B.A. Finding meaning in multi-scale analysis of physical landscapes. *Invited presentation* at Kansas State University, Department of Geography and Geospatial Sciences, Manhattan, Kansas, USA.

Miller, B.A. Closing the gap between geospatial technology and agriculture. *Invited presentation* at Leadership Ames, Ames Chamber of Commerce, Ames, Iowa, USA.

Bohn, M. and **B.A. Miller**. Evaluating the accuracy of ensemble machine learning and statistical uncertainty. *Presentation* at Iowa Water Conference, Virtual.

2020 Ehret, D. and **B.A. Miller**. Effect of mixed particle size analysis methods on sand content modeling for the Iowan Erosion Surface. *Presentation* at Soil Science Society of America Annual Meeting, Virtual.

Dutter, C., **B.A. Miller**, M. Liebman, L.S. Moore, R. Cruse, M.J. Helmers, and M.D. McDaniel. Do prairie strips integrated into corn-soybean rotations affect surrounding soil and crop health? *Presentation* at ASA-CSSA-SSSA International Annual Meeting, Virtual.

Moore, P.L., J.J. McDanel, and **B.A. Miller**. Postglacial stream development rates: Clues from a drainage capture recorded in alluvial soils. *Presentation* at Geological Society of America Annual Meeting, Virtual.

2019 Khaledian, Y. and **B.A. Miller.** Evaluation of machine learning algorithms for estimation of soil organic matter. *Presentation* at American Geophysical Union Fall Meeting, San Francisco, California, USA.

Miller, B.A. New opportunities for soil mapping with spatial modelling. *Invited presentation* at Integrated Crop Management Conference, Ames, Iowa, USA.

Miller, B.A. Soil mapping in Iowa: Current status and what is to come. *Invited presentation* for International Farmer's Aid, Ames, Iowa, USA.

Burras, C.L. and **B.A. Miller**. CSR2: A 10-year review & summary of updates. *Invited presentation* at Iowa State Association of Assessors – School of Instruction, Des Moines, Iowa, USA.

Miller, B.A. Soil mapping: Current status and what is to come. *Invited presentation* at the Iowa State University Extension In-Service, Ames, Iowa, USA.

McDanel, J.J., **B.A. Miller**, P.L. Moore, K.B. Gran, B. Sockness, A. Anders, and C. Cullen. Using noncontributing area to assess landform development in the Central Lowlands of North America. *Presentation* at Geological Society of America Annual Meeting, Phoenix, Arizona, USA.

Gran, K.B., B. Sockness, C. Cullen, A. Anders, McDanel, J.J., **B.A. Miller**, and P.L. Moore. An experimental study of river network development by overland and subsurface flow in low-gradient landscapes. *Presentation* at Geological Society of America Annual Meeting, Phoenix, Arizona, USA.

Anders, A., C. Cullen, McDanel, J.J., B. Sockness, J. Lai, **B.A. Miller,** P.L. Moore, and K.B. Gran. How do fluvial networks become re-established following glaciation? *Presentation* at Geological Society of America Annual Meeting, Phoenix, Arizona, USA.

Miller, B.A. Digital soil mapping in Iowa: Better maps without reinventing the wheel. *Invited presentation* at the Chinese Agricultural University, Beijing, China.

Miller, B.A. Spatial prediction of loess: Stories from the Peoria Loess sheet. *Invited presentation* at U.S.-China Exchange on Loess Landforms, hosted by State Key Laboratory of Soil Erosion and Dryland Farming on the Loess Plateau, Northwestern A&F University, Yangling, China.

Miller, B.A. Bridging soil survey knowledge and new geospatial technologies. *Invited presentation* at Illinois Soil Classifiers Association Annual Meeting, Champaign, Illinois, USA.

Miller, B.A. Is GIS a science? Implications for soil science. *Invited presentation* at Department of Agronomy, Iowa State University, Ames, Iowa.

2018 Anders, A., J. Lai, C. Cullen, P.L. Moore, K.B. Gran, and **B.A. Miller**. Post-glacial fluvial network expansion in the Central Lowlands. *Invited presentation* at Geological Society of America Annual Meeting, Indianapolis, Indiana, USA.

Miller, B.A. and A. Samuel-Rosa. The modifiable areal unit benefit – choosing the optimum analysis scale for digital soil mapping. *Presentation* at the 21st World Congress of Soil Science, Rio de Janeiro, Brazil.

McDanel, J.J., **B.A. Miller**, and P.L. Moore. Identifying noncontributing areas of watersheds by utilizing soil information: A new and repeatable approach. *Presentation* at the Geological Society of America's North-Central Section Meeting, Ames, Iowa, USA.

Miller, B.A., C.L. Burras, O. Semalulu, and M. Tenywa. Strengthening an indigenous soil classification system using GIS-based mapping of the Buganda catena, Uganda. *Presentation* at the European Geosciences Union General Assembly, Vienna, Austria.

2017 **Miller, B.A.**, C.L. Burras, M. Tenywa, O. Semalulu, and S. Kyebogola. GIS-based Mapping of the Buganda Soil Catena, Uganda: Strengthening the indigenous soil classification system. *Invited presentation* at USAID Feed the Future Innovation Lab for Collaborative Research on Grain Legumes, Ouagadougou, Burkina Faso.

Tenywa, M.M., O. Semalulu, R. Miiro, S. Kyebogola, P. Kyomuhendo, C.L. Kizza, J.G.M. Majaliwa, J. Nampijja, A.W. Lenssen, **B.A. Miller**, C.L. Burras, and R. Mazur. Developing a methodology for mapping local soil types along the Buganda Catena, Uganda. *Invited presentation* at USAID Feed the Future Innovation Lab for Collaborative Research on Grain Legumes, Ouagadougou, Burkina Faso.

Cruse, R.M., B. Sharma, and **B.A. Miller**. Spatial Evaluation of Lost Water Holding Capacity of Watersheds. *Presentation* at Soil and Water Conservation Society International Annual Conference, Madison, Wisconsin, USA.

Sharma, B., **B.A. Miller**, and R.M. Cruse. Spatial Evaluation of Lost Water Holding Capacity of Watersheds. *Invited presentation* at American Society of Agricultural and Biological Engineers, Spokane, Washington, USA.

Miller, B.A., E.C. Brevik, J.A. Homburg, T.E. Fenton, and S.J. Indorante. Understanding Americans: a focus on the transition from traditional to digital soil mapping. *Presentation* at the European Geosciences Union General Assembly, Vienna, Austria.

Miller, B.A., S. Koszinski, W. Hierold, H. Rogasik, B. Schröder, K. Van Oost, M. Wehrhan, and M. Sommer. Towards mapping soil carbon landscapes: issues of sampling scale and transferability. *Presentation* at the European Geosciences Union General Assembly, Vienna, Austria.

2016 Schaetzl, R.J., K.E. Nyland, A. Ignatov, and **B.A. Miller**. Concurrent Loess and Saltating Sand Deposition on the Buckley Flats Outwash Plain of Northwestern Lower Michigan. *Presentation* at Geological Society of America, Denver, Colorado, USA.

Miller, B.A. Soil Informatics: is it just another way to use a buzzword? *Invited presentation* at Department of Agronomy, Iowa State University, Ames, Iowa, USA.

Miller, B.A. Soil Informatics. *Invited presentation* at Pioneer-DuPont, Johnston, Iowa.

Miller, B.A. and J. Juilleret. Colluvium versus Alluvium: Preliminary Survey Results. *Presentation* at the National Cooperative Soil Survey, North Central Regional Conference, Sycamore, Illinois. USA.

Miller, B.A. Resolution or Analysis Scale: What Matters Most? *Presentation* at the European Geosciences Union General Assembly, Vienna, Austria.

Nyland, K.E., R.J. Schaetzl, A. Ignatov, and **B.A. Miller**. Mapping and Characterizing the Loess Cover on the Buckley Flats, Northwestern Lower Michigan. *Presentation* at Michigan Academy of Science, Arts, and Letters, University Center, Michigan.

2015 **Miller, B.A.** Digital Hillslope Position: A Basis for Consistent Identification of Toposequences. *Presentation* at Soil Science Society of America Conference, Minneapolis, Minnesota, USA.

Miller, B.A. GIS and Spatial Statistics in Soil Mapping. *Invited presentation* at the European Geosciences Union General Assembly, Vienna, Austria.

2014 Schaetzl, R.J. and **B.A. Miller**. Soil Taxonomy and Geomorphology: Better Correspondence Means Better Soil Maps. *Invited presentation* at Soil Science Society of America Conference, Long Beach, California.

Miller, B.A., R.J. Schaetzl, and M.D. Luehmann. A Method for Distinguishing the Original Textural Properties of Loess that Has Been Mixed with Underlying Sediment. *Presentation* at International Quaternary Association Conference on Loess Research, Wrocław, Poland.

Miller, B.A. and R.J. Schaetzl. Map Scale in the Context of Progress in Soil Geography. *Presentation* at the European Geosciences Union General Assembly, Vienna, Austria.

Miller, B.A. and E.C. Brevik. Development of Base Maps' Role in Soil Mapping. *Invited presentation* at the Soil System Sciences Division President's Scientific Session of the European Geosciences Union General Assembly, Vienna, Austria.

Miller, B.A., S. Koszinski, M. Wehrhan, and M. Sommer. Multiscale Parameter Selection for Predicting Soil Organic Carbon. *Presentation* at Digital Soil Mapping Workshop, Tübingen, Germany.

2013 Crumpton, W.G., G.A. Stenback, D. Green, and **B.A. Miller**. Potential Impact of Targeted Wetland Restoration on Nitrate Loads to Mississippi River Subbasins: Performance Forecast Modelling of Loads and Load Reductions. *Presentation* at Soil and Water Conservation Society Conference, Reno, Nevada, USA.

Luehmann, M.D., R.J. Schaetzl, **B.A. Miller**, and M.E. Bigsby. Locally Sourced Loess Deposits within the Western Upper Peninsula of Michigan. *Presentation* at Michigan Academy of Science Arts & Letters Conference, Holland, Michigan, USA.

2012 **Miller, B.A.** Improving Soil Maps with a Semantically Calibrated, Digital Model for Delineating Hillslope Position. *Presentation* at Soil Science Society of America Conference, Cincinnati, Ohio, USA.

2011 **Miller, B.A.** Dead Zone in the Gulf of Mexico: Nitrate Yield from the Upper Mississippi and Ohio River Basins. *Invited presentation* at Michigan State University, Department of Geography Colloquium, East Lansing, Michigan, USA.

Poster Presentations (34)

Name of presenter listed first. Students mentored indicated by underlining.

Since previous promotion (4)

2024 Bohn, M.P. and **B.A. Miller**. Legacy data rescue. North Central Regional National Soil Survey Conference, Platteville, Wisconsin, USA.

Bohn, M.P. and **B.A. Miller**. Locally enhanced digital soil map for Iowa. North Central Regional National Soil Survey Conference, Platteville, Wisconsin, USA.

2023 Elango, D., L. Van der Laan, W. Wang, M. Cloutier, C.R. Dutter, M.D. McDaniel, **B.A. Miller,** D.R. Kelley, A. Singh, and A.K. Singh. Insights into microbe mediated heat stress adaptation in soybean. American Society of Plant Biologists, Midwest Section, Ames, Iowa, USA.

2022 Dash, P., C. Ferhatoglu, **B.A. Miller**, and A. Mishra. Digital soil mapping using different sample sizes with multiple machine learning algorithms. World Congress of Soil Science. Glasgow, UK.

Prior to previous promotion (30)

2021 Tiedje, J.M., X. Qian, J.F. Quensen, M. Streeter, **B.A. Miller**, M. Thompson, J. Cole, M. Grinshpun, C. O'Connor, and Q. Pare. Novelty in the deep loess soil microbiome. World Microbe Forum. Online.

2019 Bohn, M.P., J.J. McDanel, and **B.A. Miller**. Digital hillslope position as an alternative method for soil mapping: A case study for soil surface properties and topsoil thickness in Iowa. National Cooperative Soil Survey Conference, Narragansett, Rhode Island, USA.

2018 Sockness, B., J.J. McDanel, K.B. Gran, **B.A. Miller**, P.L. Moore, C. Cullen, and A. Anders. Mapping of glacial landform regions in the upper Midwest, USA. Geological Society of America Annual Meeting, Indianapolis, Indiana, USA.

Miller, B.A. and R.J. Schaetzl. Refining precision and quality control standards for analysis of loess by laser diffractometry. International Quaternary Association Conference on Loess Research, Volgograd, Russia.

Marques, K.P.P., J.A.M. Demattê, **B.A. Miller**, I.F. Lepsch. Digital segmentation of hillslope elements in Brazilian landscape. 21st World Congress of Soil Science, Rio de Janeiro, Brazil.

Sockness, B., K.B. Gran, J.J. McDanel, **B.A. Miller**, P.L. Moore, C. Cullen, and A. Anders. A harmonized map of glacial landform regions in the Central Lowlands of North America. Geological Society of America's North-Central Section Meeting, Ames, Iowa, USA.

Khaledian, Y., and **B.A. Miller**. Soil sample optimization for precision agriculture. European Geosciences Union General Assembly, Vienna, Austria.

Linton, D., and **B.A. Miller**. Digital soil mapping of agricultural fields with perennial vegetation strips on contours. European Geosciences Union General Assembly, Vienna, Austria.

Jordan, E.V., **B.A. Miller**, and M.J. Castellano. Does Landscape Position or Long-Term Cover-Cropping Have a Greater Effect on Soil Health? European Geosciences Union General Assembly, Vienna, Austria.

Miller, B.A., D. Schulze, J. Crum, D. Hopkins, N. Jelinski, D. Malo, P. Quackenbush, M. Ransom, J. Turk, and the Isee Network. Impressive Interpretations from the USA Soil Survey Maps. European Geosciences Union General Assembly, Vienna, Austria.

Miller, B.A. William Smith's 1815 Delineation of the Strata of England and Wales with Part of Scotland: …Varieties of Soil According to the Variations in the Substrata. European Geosciences Union General Assembly, Vienna, Austria.

Brevik, E.C. and **B.A. Miller.** Marbut's 1935 Atlas of the Soils of the United States. European Geosciences Union General Assembly, Vienna, Austria.

2017 Jordan, E.V., **B.A. Miller**, and M.J. Castellano. Does Landscape Position or Long-Term Cover-Cropping Have a Greater Effect on Soil Health? Soil Science Society of America Conference, Tampa, Florida.

Pereira, P., E.C. Brevik, M. Muñoz-Rojas, and **B.A. Miller**. Soil Mapping and Processes Modelling for Sustainable Land Management: A Review. European Geosciences Union General Assembly, Vienna, Austria.

Brevik, E.C., P. Pereira, M. Muñoz-Rojas, and **B.A. Miller**. Soil Mapping and Process Modelling for Sustainable Land Use Management: A Brief Historical Review. European Geosciences Union General Assembly, Vienna, Austria.

Brevik, E.C., J.A. Homburg, **B.A. Miller**, T.E. Fenton, J.A. Doolittle, and S.J. Indorante. Selected Aspects of Soil Science History in the USA – 1980s to the 2010s. European Geosciences Union General Assembly, Vienna, Austria.

Jordan, E.V., **B.A. Miller**, and M.J. Castellano. Does Landscape Position or Long-Term Cover-Cropping have a Greater Effect on Soil Health? Soil Health Conference, Ames, Iowa.

2016 Khaledian, Y. and **B.A. Miller**. Geography of Loess in Iran. International Quaternary Association Conference on Loess Research, Eau Claire, Wisconsin, USA.

Jordan, E.V., **B.A. Miller**, and M.J. Castellano. A Purposive Sampling Design for Mapping Soil Health. National Cooperative Soil Survey, North Central Regional Conference, Sycamore, Illinois, USA.

Miller, B.A. and J. Juilleret. Defining Colluvium and Alluvium: An Experiment to Discuss and Consolidate Perspectives. European Geosciences Union General Assembly, Vienna, Austria.

Brevik, E.C. and **B.A. Miller.** Using Soil Maps as a Tool to Improve Geologic Maps. European Geosciences Union General Assembly, Vienna, Austria.

2015 **Miller, B.A.** and J. Juilleret. What is Colluvium?: An Interactive Poster Seeking a Common Definition to Improve International Communication. Soil Science Society of America Conference, Minneapolis, Minnesota, USA.

Miller, B.A. S. Koszinski, W. Hierold, B. Schröder, M. Wehrhan, and M. Sommer. Issues of Sampling Scale and Transferability for Digital Soil Mapping. European Geosciences Union General Assembly, Vienna, Austria.

2014 **Miller, B.A.**, and R.J. Schaetzl. Digital Classification of Hillslope Position for Defining Soil Map Units. Soil Science Society of America Conference, Long Beach, California, USA.

2012 Arbogast, A.F., M.D. Luehmann, **B.A. Miller**, K.M. Adams, P.A. Wernette, J.D. Waha, G.A. O'Neil, Y. Tang, J.J. Boothroyd, C.R. Babcock, P.R. Hanson, T.A. Daly, and A.R. Young. Late-Pleistocene Wind-flow Patterns and Dune Formation in North-Central Lower Michigan. Geological Society of America Annual Meeting, Charlotte, North Carolina, USA.

Crumpton, W.G., G.A. Stenback, D. Green, and **B.A. Miller**. Potential Impact of Targeted Wetland Restoration on Nitrate Loads to Mississippi River Subbasins: Performance Forecast Modelling of Loads and Load Reductions. Gulf Hypoxia Task Force and the National Association of States' Departments of Agriculture Field Day, Ames, Iowa, USA.

Miller, B.A., R.J. Schaetzl, and M.D. Luehmann. A New Method for Distinguishing the Original Textural Properties of Loess that Has Been Mixed with Underlying Sediment. International Quaternary Association Conference on Loess Research, Novi Sad, Serbia, USA.

Miller, B.A., R.J. Schaetzl, and F.J. Krist. The Soil Productivity Index: Taxonomically Based, Ordinal Estimates of Soil Productivity. Association of American Geographers Conference, New York, New York, USA.

2011 **Miller, B.A.**, R.J. Schaetzl, and F.J. Krist. The Soil Fertility and Drainage Indexes: Taxonomically Based, Ordinal Estimates of Relative Soil Properties. National Cooperative Soil Survey Conference, Asheville, North Carolina, USA.

2010 **Miller, B.A.**, C.L. Burras, and W.G. Crumpton. Using Soil Surveys to Map Quaternary Parent Materials. Binghamton Geomorphology Symposium, Columbia, South Carolina, USA.

Student Mentoring

Graduate Students – Major Professor (22)

Name	Period	Degree
Kolton Eisma	8/2025 – present	M.S.
Rachel Voss (co-advised with Peter Moore)	8/2025 - present	M.S.
Alex Cecil	1/2025 – present	Ph.D.
Fatemeh Hakimi Shirayeh	8/2023 – present	Ph.D.
Adam Subora	8/2023 – present	M.S.
Derrick Platero	1/2023 – present	Ph.D.
Arturo Flores	1/2023 – 12/2024	M.S.
Casey Luke	1/2023 – stopped	M.S.
Oyeyemi Oyeleke	1/2021 – 12/2024	Ph.D.
Luis Bentancor	8/2019 – 12/2023	Ph.D.
Benjamin Althoff* (co-advised with Brian Gelder)	1/2023 – 11/2023	M.S.
Steve Mathews*	1/2023 – 8/2023	M.S.
Caner Ferhatoglu	8/2019 – 5/2023	Ph.D.
Meyer Bohn	8/2018 – 8/2022	Ph.D.
Emma Molburg (co-advised with Marshall McDaniel)	7/2020 – 5/2022	M.S.
Martin Scully*	11/2019 – 11/2021	M.S.
Dustin Ehret	8/2019 – 6/2021	M.S.
Matt Moorberg*	9/2019 – 11/2020	M.S.
Yones Khaledian	8/2016 – 5/2020	Ph.D.
Joshua McDanel (co-advised with Peter Moore)	8/2017 – 12/2019	M.S.
Daniel Linton	8/2016 – 12/2018	M.S.
Elaine Vizka (co-advised with Michael Castellano)	1/2016 – 7/2018	M.S.

*M.S. in Agronomy online degree

Graduate Students – Committee Member (15)

Name	Period	Degree
Phillips Alexander	1/2025 – present	Ph.D.
Tim Sklenar	10/2018 – present	Ph.D.
Emma Safranek	9/2023 – 5/2025	M.S.
Kelvin Baah	4/2023 – 7/2024	M.S.
Payton Miloser	10/2023 – 6/2024	M.S.
Leanne Makens	9/2022 – 5/2024	M.S.
Haleigh Summers	8/2021 – 8/2023	Ph.D.
Amber Anderson	8/2016 – 5/2023	Ph.D.
Cole Dutter	10/2018 – 8/2022	Ph.D.
Jade Gerlitz	10/2021 – 5/2022	M.S.
Matthew Streeter	7/2018 – 4/2021	Ph.D.
Luis Damiano	5/2020 – 10/2020	M.S.
Vitor Souza-Martins	10/2017 – 6/2020	Ph.D.
Rob McGuire*	8/2016 – 5/2020	M.S.
Daniel Brummel	9/2018 – 5/2019	M.S.

*M.S. in Agronomy online degree

Undergraduate Advisees (119 advisee years)

Year	Major	Quantity
2025	Agronomy	1
2024	Agronomy	4
2023	Agronomy	9
2022	Agronomy	13
2021	Agronomy	17
2020	Agronomy	15
2019	Agronomy	19
2018	Agronomy	20
2017	Agronomy	14
2016	Agronomy	7

Undergraduate Research Employees (45)

Brittany Abernathy, Sabrina Becker, Luke Bradshaw, Hunter Blum, Grady Brown, Alex Cecil, Heather Cernek, Annalise Christiansen, Hannah Corey, Natalie Curtis, Rocco D'Antico, Kolton Eisma, Higor Ferro, Patrick Galland, Melissa Gerber, Taner Gordon, Nolan Grove, Adam Hoy, Yingying Huang, Guy Indorante, Brian Jensen, Luke Karabin, Wesley Logan, Casey Luke, Ryan Lundin, Sarah Luster, Dale Lyons, Huaiyao Ma, Emma Lemke, Christina Meadows, Hirad Mohammadinasab, Laura Monson, Will Montgomery, Juan Mungaray, Andrew O'Connell, Katherine O'Driscoll, Marge O'Leary, David Patch, Riley Rakoczy, Sarah Rice, Shubham Sharma, Nadia Snow, Samantha Thompson, Emeline Vos, Jacob Wright

Honors Mentor Program (11)

Name	Period	Project
Jack Funk, Bryce Vining	01/2024 – 05/2024	Comparison of particle size analysis by the pipette and laser diffractometer methods
Emma Brady, Ahna Lassegard	01/2020 – 05/2020	Particle size sorting along hillslopes in a forested versus urban environment
Hunter Blum, Leah Henderson, Claire Sarbacker, Joy Westercamp	01/2019 – 05/2019	Detection of hillslope processes with laser diffractometry and GIS
Emily Tonn	01/2017 – 05/2017	Predicting soil respiration: An experiment in geographic information systems and data mining
David Barker	01/2016 – 05/2016	Spatial analysis of profit variation at the sub-field scale
Caleb Wood	01/2016 – 05/2016	Comparing simple and ordinary kriging methods for annual Iowa precipitation

George Washington Carver Intern (1)

Name	Period	Project
James Pinkney	05/2018 – 08/2018	How do streams integrate a fresh, deglaciated landscape?

Teaching

Teaching Evaluations for Classroom Instruction at Iowa State University

On a scale from 1 = very poor to 5 = very good, students were asked to provide their overall rating of the instructor. Higher numbers are better; 5.00 is a perfect score. Raw data available upon request.

Semester	Course	Credits	Title	Enroll-ment	Instructor Rating	Course Rating
Spring 2025	Agron 2700	3	Geospatial Technologies	64	4.73	4.36
Spring 2025	Agron 6000B	1	Soil Science Seminar	10	4.40	4.00
Fall 2024	EnSci 2500	3	Environmental Geography	91	4.29	4.32
Spring 2024	Agron 270	3	Geospatial Technologies	61	4.93	4.74
Fall 2023	EnSci 250	3	Environmental Geography	89	4.81	4.35
Spring 2023	Agron 270	3	Geospatial Technologies	20	4.80	4.80
Spring 2023	Agron 665X	3	Digital Soil Mapping	6	4.80	4.60
Fall 2022	Agron 270	3	Geospatial Technologies	40	4.70	4.58
Fall 2021	Agron 270	3	Geospatial Technologies	23	5.00	4.79

Spring 2021	Agron 600B	1	Seminar: Soils	3	5.00	5.00
Fall 2020*	Agron 270	3	Geospatial Technologies	19	4.00	3.91
Spring 2020*	Agron 665X	3	Digital Soil Mapping	9	4.56	4.5
Fall 2019	Agron 270X	3	Geospatial Technologies	14	4.75	4.75
Summer 2019	Agron 270X	3	Geospatial Technologies	6	5.00	4.33
Fall 2018	Agron 270X	3	Geospatial Technologies	15	4.75	5.00
Spring 2018	Agron 665X	3	Digital Soil Mapping	5	4.25	4.75
Fall 2017	Agron 270X	3	Geospatial Technologies	30	4.67	4.17
Fall 2016	Agron 270X	3	Geospatial Technologies	16	4.47	3.73

*Evaluation questions were modified university-wide due to changes in teaching format implemented as COVID-19 precautions. Instructor rating calculated from the mean of three questions related to instructor performance.

Guest Lectures (11)

2023 Agron 183, Agron 559
2018 CRP 251X
2017 Agron 181, Agron 360, Agron 463, CRP 251X
2016 Agron 260, Agron 410 (2), EnSci 698
2015 Agron 410

Teaching Evaluations for Classroom Instruction at Michigan State University

On a scale from 1=strongly agree to 5=strongly disagree, students were asked to evaluate the statement: "Instructor did an overall effective job." Lower numbers are better; 1.00 is a perfect score. Raw data available upon request.

Semester	Course	Credits	Title	Enrollment	Instructor Evaluation
Fall 2012	Geo 221	3	Intro. Geographic Information	140	1.29
Spring 2012	Geo 425	4	Problems in GIScience	13	1.00
Fall 2011	Geo 206L	1	Physical Geography Lab	12	1.09
Spring 2011	Geo 206L	1	Physical Geography Lab	12	1.12
Fall 2010	Geo 206L	1	Physical Geography Lab	25	1.57

Institutional Service

2024- Department of Agronomy, Curriculum Committee
2023- Department of Agronomy, Soil Science Director of Graduate Education
2023- Digital and Precision Agriculture Interdepartmental Major Creation Committee
2015- GIS Certificate Committee
2021-2024 Department of Agronomy, Junior-Senior Curriculum Revision Committee
2015-2023 Co-adviser, Iowa State University, Soil and Water Conservation Club
2021 Iowa State University, Data Storage Advisory Committee
2018-2021 Department of Agronomy, Website Committee

2018-2019 Chair, Research Section of the Agronomy Departmental Review Self-Study
2017-2021 Department of Agronomy, IT Committee
2016-2021 Environmental Science Graduate Program, Admissions Committee
2016-2018 Department of Agronomy, Strategic Planning Committee
2018 College of Agriculture and Life Sciences, Grant Coordinator and Grant Financial Coordinator Search Committee
2016 Department of Agronomy, Communication Specialist Search Committee
2016 Department of Agronomy, Systems Analyst III Search Committee

Professional Service

2019- Associate Editor, Agronomy Journal
2017- Editorial Board, Geoderma Regional
2024 Scientific Committee for Improving Soil Health: Amendments, Monitoring, and Modeling, Budapest Soil Health Forum
2019-2024 Council on History, Philosophy & Sociology of Soil Science, Soil Science Society of America
2019 Guest Editor, Applied Mathematical Modelling, Special issue on "Quantitative Approaches to Complex Soil Systems"
2017-2020 Membership Growth and Retention Task Force, Soil Science Society of America
2016-2019 Editorial Board, Geoderma
2015-2016 Committee on Post-Soil Horizons Publishing Options, Member
2015 Associate Editor, Soil Horizons
2015 Guest Editor, Geoderma, Special issue on "Soil Mapping, Classification, and Modelling: History and Future Directions"
2014-2018 Committee Member - History, Education, and Society of Soil Science Subdivision, European Geosciences Union (Chair, 2016-2018)
2012-2013 Soil Information Systems Sub-committee - "Top 25 Questions for Soil Science Research in the 21st Century" Soil Science Society of America initiative

Journal, Proposal, and International Dissertation Reviews (98)

2025 African Geographical Review; Electrical and Computer Engineering; Geoderma Regional (2); Pedosphere; U.S. National Science Foundation
2024 Catena; Ecological Informatics (2); Environmental Science & Technology; Geoderma Regional; Massachusetts Agricultural Experiment Station; University of New South Wales - Sidney
2023 Archives of Agronomy and Soil Science; Geoderma; Geo-spatial Information Science; Swiss National Science Foundation
2022 Agriculture (2); Geoderma; Geology, Ecology, and Landscapes; Journal of Geophysical Research – Biogeosciences; SOIL; Soil Science Society of America Journal
2021 Catena (6); Center for Global and Regional Environmental Research, University of Iowa; Journal of Geophysical Research – Biogeosciences; Nature - Scientific Reports (2); Sedimentary Geology
2020 Geoderma Regional (2); Heliyon; Soil Science Society of America Journal (2); Soil & Tillage Research
2019 American Geophysical Union Books; Catena (2); Geoderma Regional; Heliyon; Hungarian National Research, Development, and Innovation Office; Journal of Maps; Progress in Physical Geography (2); Soil & Tillage Research (2)

2018	Geoderma; Geoderma Regional; Progress in Physical Geography (2); Soil Science Society of America Journal
2017	Environmental Monitoring and Assessment; Geoderma (2); Geoderma Regional (2); National Science Centre, Poland; Natural Sciences Education; Precision Agriculture; Progress in Physical Geography; Science of the Total Environment (2)
2016	Hungarian National Research, Development, and Innovation Office; Journal of Plant Nutrition and Soil Science (2); Nature - Scientific Reports; Remote Sensing (2); Science of the Total Environment; Soil Science Society of America Journal; Solid Earth (2)
2015	Geoderma (3); International Journal of Geographic Information Science; Journal of Plant Nutrition and Soil Science (2); Pedosphere; PLOS ONE; Soil Horizons; Soil Science Society of America Journal
2014	Catena (2); Geoderma (2); Geoderma Regional; Journal of Plant Nutrition and Soil Science (3); SOIL; Soil Science Society of America Journal
2013	Soil Horizons; Cartography and Geographic Information Science Journal
2010	Journal of Natural Resources and Life Science Education