

## Jill M. D. Motschenbacher, M.Ed., Ph.D.

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North Dakota State University  
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### EDUCATION:

- Ph.D. Doctor of Philosophy – Crop, Soil and Environmental Sciences, 2012**  
Major in Soil Physics  
Focus in Biogeochemical Cycling and Sustainable Agricultural Soils  
Specialization in Global Rice Production Systems  
**University of Arkansas**  
*Fayetteville, Arkansas*
- M.Ed. Master of Education – Higher Education Administration, 2007**  
Major in Administration and Supervision of Higher Education  
Minor in Agriculture Education  
**Middle Tennessee State University**  
*Murfreesboro, Tennessee*
- B.S. Bachelor of Science – Agribusiness, 2006**  
Major in Agriculture Economics  
Minor in Environmental Science  
**Middle Tennessee State University**  
*Murfreesboro, Tennessee*

### ADDITIONAL ACADEMIC QUALIFICATIONS:

- Postdoctoral Fellow – Office of Teaching and Learning, 2016**  
Educational Grant Development and University Program Administration  
STEM Faculty Development in the Scholarship of Teaching and Learning  
**North Dakota State University**  
*Fargo, North Dakota*
- Postdoctoral Fellow – Agricultural and Biosystems Engineering, 2013**  
Research and Extension Education in Soil Health and Water Quality  
Emphasis in Watershed Hydrology and Vegetative Filter Systems  
**Iowa State University**  
*Ames, Iowa*
- University Coursework – Animal Science, 2001-2004**  
Major in Pre-Veterinary Medicine  
Minors in Agriculture and Business  
**University of Tennessee**  
*Knoxville, Tennessee*

### VOCATIONAL QUALIFICATIONS:

- Lucent Technologies and AT&T Phone Systems Engineering, 1998**  
Mitel Phone Systems – Class C School Diploma  
Dimension 2000 Phone Systems – Class C School Diploma  
**United States Navy**  
Naval Training Center  
*San Diego, California*
- Shipboard Fire Fighting, 1998**  
Shipboard fire prevention program for fire response aboard a ship.  
Course and Annual Certification  
**United States Navy**  
USS Sacramento (AOE-1)  
*Bremerton, Washington*
- Interior Communications Electrical Engineering, 1996-1997**  
Mk-19 Gyrocompass – Class C School Diploma  
Interior Communications Electrician – Class A School Diploma  
Engineering and Electrical Core – Engineering and Electrical Core Diplomas  
First Aid, CPR, and Industrial Safety Certifications  
**United States Navy**  
Naval Training Center  
*Great Lakes, Illinois*
- Military Basic Training, 1996**  
Military Science, Combat Training, Naval History, Physical Fitness,  
Mental Discipline, and Military Community Relations  
**United States Navy**  
Naval Training Center  
*Great Lakes, Illinois*

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## PROFESSIONAL EXPERIENCE

### ACADEMIC AND ADMINISTRATION APPOINTMENTS:

#### North Dakota State University // 2014-Present // Fargo, North Dakota

##### **Assistant Professor of Practice, School of Natural Resource Sciences** **2019-Present**

(Faculty Appointment: 80% Service / 20% Teaching) – The teaching appointment is served as Instructor on Record for the Introduction to Soil Science (SOIL 210) class (about 80 students per semester). The service appointment is primarily served through a parallel institutional administrative position as the Acting Director of the Office of Teaching and Learning, under North Dakota State University's (NDSU) Office of the Provost. Additional service support involves targeting curriculum and teaching development within the School of Natural Sciences, including restructuring the introductory soil science class, expanding online class and program options, refining and diversifying instructional delivery platforms, and championing educational improvement initiatives within the school.

##### **Acting Director of the Office of Teaching and Learning** **2019-Present**

(Faculty Appointment: 80% Service / 20% Teaching) – Under the direction from the Office of the Provost; performs all administrative duties of the Director position, in addition to all tasks associated with the Associate Director position, pending the replacement of a permanent Director (*Transitioned to Acting Director on 6.1.2019*). Administrative responsibilities involve leadership in:

- Institutional academic program assessment, including rubric development, academic program report collection, University Assessment Committee (UAC) review distribution, feedback clarification, and dissemination of results and improvement strategies to departments, colleges, and NDSU administration.
- University accreditation compliance through the Higher Learning Commission (HLC), with the Office of Institutional Research and Analysis, including collecting curricular, co-curricular, and extension assessment evidence, organizing, and overseeing a narrative justification for HLC institutional compliance.
- Institution-wide faculty and instructional staff improvement, including administering a 5-year National Science Foundation (NSF) Improving Undergraduate STEM Education, Engaging Student Learning (IUSE:EHR) STEM faculty development program (170+ faculty total), Teaching Assistant Training (80+ annually), and University-wide workshops on scholarly teaching, curriculum mapping, online instruction, academic assessment, instructional design, and grant educational program development.
- Distance and Continuing Education Professional Development (PD) credit course development and administration for Pre K-12 teachers across North Dakota and regional Minnesota area [PD Courses Approvals: 2017 (271 classes), 2018 (270 classes), 2019 (254 classes)].
- Administration and co-organization of the College Teaching Certificate, a 9-credit, 3-semester graduate teaching certificate for graduate students and on-campus graduate degree holders related to contemporary pedagogical practices in higher education, includes a 1-to-1 mentorship with a teaching senior faculty member in specific academic disciplines.
- Institution collaborative efforts with administrative offices across NDSU, including the Offices of Institutional Research and Analysis, Vice-Provost of Faculty Affairs and Equality, Vice-Provost Student Affairs and Enrollment Management, Research and Creative Activity, Information Technology Services, Registration and Records, Student Success, Disability Services, Career and Advising Center, Facilities Management, in addition to NDSU Libraries and all Academic Colleges.
- Multi-institutional national and state administrative and educational collaborative efforts, including projects with the HLC, Association of Public and Land-Grant Universities (APLU), Association of American Colleges and Universities (AAC&U), National Science Foundation (NSF), Association of Engineering Education (ASEE), EDUCAUSE, Network of Stem Education Centers (NSEC), AAC&U's Project Kaleidoscope (PKAL) and Knowledge Exchange Institute, North Dakota University System (NDUS) Distance Education Directors, North Dakota Established Program to stimulate Competitive Research (EPSCoR).

##### **Associate Director of the Office of Teaching and Learning** **2017-2019**

Under the direction from the Office of the Provost; Performed most administrative managerial duties for nearly two years while the outgoing Director was on a modified 0.50 FTE contract. Administrative responsibilities involve leadership in:

- Educational grant program initiation, development, writing, and implementation, including institution- and state-wide (15 of 18 North Dakota public, private, and Tribal postsecondary institutions) in Scholarly Teaching and the Scholarship of Teaching and Learning.
- Educational grant support for academic programs in STEM education, including the launch of an NSF International Research Experiences for Students (IRES), which provides a scholarship for North Dakota Tribal University students to study an electrical engineering specialization at the Beijing Institute of Technology (BJUT) in the People's Republic of China.
- Professional development workshop development for faculty, graduate students, undergraduate students, and K-12 students, with support from 10 office staff members and four graduate students.
- Budget management for Office and NSF grant budgets.
- Administrative committee participation in university-sponsored teams, with charges related to program assessment, University accreditation, College Teaching Certificate, undergraduate curriculum, graduate student associations, learning spaces, instructional design, adaptive learning, and electronic data security.

**Coordinator of Special Programs and Assessments, Office of Teaching and Learning 2016-2017**

Under the direction the Office of Teaching and Learning Director and the Office of the Provost; Coordinated and composed educational grants, developed and improved university educational programs, and participated in university-wide educational initiatives.

**Postdoctoral Fellow of Educational Operations and Funding, Office of Teaching and Learning 2016**

Under the direction of the Office of Teaching and Learning Director and the Office of the Provost; Coordinated and composed educational grants, developed and improved university educational programs, and participated in university-wide educational initiatives. Mentor: Dr. Paul Kelter, Professor of Education and Director of the Office of Teaching and Learning

**Instructor of English, Department of English 2016**

Instructor of Record for upper-division writing class: Writing in the Technical Professions (ENG 321).

**Adjunct Professor of Soil Science, Department of Soil Science 2015-2019**

Research Soil Scientist and Instructor of Record for Soil Ecology (SOIL 351), 2015; Instructional development liaison for the School of Natural Resource Sciences.

**Instructor of Soil Science, Department of Soil Science 2014-2015**

Co-Instructor of the Introduction to Soil Science Lecture and Laboratory Classes (SOIL 210).

**Research Associate and Literary Mentor, Department of English 2014-2018**

Research team member on physical, mental, and emotional complications associated with learning English as a non-native adult learner and instructor in verbal and written communication for refugees and New Americans who are English Language Learners, 50+ in-home teaching sessions with learners from the Democratic Republic of the Congo (2 hours each), in conjunction with Giving + Learning Director and Mentor: Dr. Kevin Brooks, Professor of English and Bush Foundation Fellow 2013-2015.

**Iowa State University // 2013 // Ames, Iowa**

**Postdoctoral Research Associate, Department of Agricultural and Biosystems Engineering 2013**

Research Soil Scientist in watershed hydrology and vegetative filter systems, in relation to non-point source pollution in agriculture and cover crop utilization in corn and soybean field crop production systems; Extension Education Instructor in soil, water, conservation, and cover crops, and in the Iowa Learning Farms *Water Rocks!* Youth Program; Advisor: Dr. Matthew Helmers, Professor of Agricultural and Biosystems Engineering and Associate Chair for Research and Extension with Iowa State Extension.

**University of Arkansas // 2008-2013 // Fayetteville, Arkansas**

**Postdoctoral Research Associate, Department of Crop, Soil and Environmental Sciences 2012-2013**

Research Soil Scientist in soil physics and rice-based crop production systems; Advisor: Dr. Kristofor Brye, Professor of Soil Physics and Pedology.

**Graduate Teaching Assistant, Department of Crop, Soil and Environmental Sciences 2010-2012**

Assisted in teaching the Introduction to Soils lecture, drill, and laboratory classes (CSES 2200); Advisor: Dr. Dave Miller, Professor of Soil Chemistry.

**Graduate Research Assistant, Department of Crop, Soil and Environmental Sciences 2008-2012**

Research conducted in soil physics and rice-based crop production systems; Advisors: Dr. Kristofor Brye, Professor of Soil Physics and Pedology and Dr. Merle Anders, Assistant Professor of Rice-Based Cropping Systems.

**COMMUNITY EDUCATION AND ECONOMIC DEVELOPMENT POSITIONS:**

**Giving + Learning Non-Profit Organization // 2014-2018 // Fargo, North Dakota**

**Adult English Literacy Class Instructor, Fargo Adult Learning Center** 2015-2016

Instructor of the Adult English Language Learning Class for refugees and New Americans at the CHARSM Community Center; class was composed of approximately 15 Bhutanese and Sudanese native-born speakers.

**Community Literacy Board Member, Giving + Learning** 2014-2018

Specializing in adult refugees and New Americans who are English Language Learners; Focused primary adult learners from the Democratic Republic of the Congo, Sudan, Somalia, Nigeria, Bhutan, and Bosnia; Active in various education-, culture- and community-building activities involving New Americans in Fargo-Moorhead.

**United States Agency for International Development (USAID) // 2013-2014 // Kenya // Uganda // Washington, D.C.**

**Congressional Spokesperson for the USAID Farmer-to-Farmer Program** Nov. 2014

Advised and discussed USAID and Catholic Relief Services programs for international agricultural development with members of the United States Senate and the United States House of Representatives. *Washington, D.C.*

**Postharvest Production Agronomist, USAID Farmer-to-Farmer Program** May 2014

USAID-funded development project through the Catholic Relief Services, in association with the Namungalwe Area Cooperative Enterprise (ACE); Consulted and trained on postharvest maize handling and storage and soil health management; Training classes conducted with 25 Namungalwe ACE management personnel and 156 smallholder farmers; Located throughout the Iganga District at 7 Rural Agriculture Producer (RPO) Organizations. *Iganga, Uganda*

**Rice Agronomist and Production Engineer, USAID Farmer-to-Farmer Program** June 2013

USAID-funded development project through the Citizen's Network for Foreign Affairs (CNFA) and the Mwea Rice Growers Multipurpose (MRGM) Cooperative (Co-op) Society – Consulted and designed a rice production and harvesting mechanization plan for the Mwea Irrigation Scheme in Central Kenya; trained 23 co-op management personnel and 34 smallholder farmers. *Wang'uru, Central Province, Kenya*

**Elementary and Secondary Education Employment // 2004-2008 // Nashville, Tennessee**

**State Achievement Test Essay Reader and Grader, Measurement Incorporated** 2007-2008

Evaluator of statewide standardized educational testing essays for grades 9-12 and college entry.

**Academic Tutor in Science and Math, Self-Employed** 2004-2008

Tutored children in grades 6-12 in math and science.

**Computer Skills Teacher, Boy's and Girl's Club** 2004

Instructor of basic computer skills to urban-located children in grades 5-12.

**MILITARY SERVICE**

**United States Navy // 1996-2000 // USS Sacramento (AOE-1), Homeport: Bremerton, Washington**

**Interior Communications Electrician** 1996-2000

Fields of Expertise: Electrical and Mechanical Engineering, Metering and Communication Devices

Additional Duties: Environmental Coordinator of the Engineering Department, Electrical Division Training Coordinator, Commanding Officer's Administrative Assistant at the Navy Legal Service Office Northwest

Highest Rank Earned: Petty Officer 3<sup>rd</sup> Class (E-4)

Metals Earned: Navy Unit Commendation, Armed Forces Expeditionary Medal, Sea Service Deployment Ribbon, Navy Good Conduct Medal, Battle "E" Ribbon

Duty Tour Locations and Ports: *Pacific Ocean, Indian Ocean, Persian Gulf // Japan, Hong Kong (under British sovereignty), China, Singapore, Thailand, United Arab Emirates, Bahrain, Iran, Mexico, and Australia*

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## UNIVERSITY ADMINISTRATIVE SERVICE:

### COMMITTEE AND ORGANIZATION INVOLVEMENT

#### North Dakota State University // 2014-Present // Fargo, North Dakota

Howard Hughes Medical Institute: Inclusive Excellence 3 Application Committee – NDSU Representative	2019-Present
Administrative Review Committee, Office of Institutional Research and Analysis Director – Member	2019
Association of Public and Land-grant Universities (APLU) – NDSU Representative	2019-Present
ASPIRE-ICChange Network Committee – Team Member	
Degree Competition Award Committee – NDSU Representative and Award Application Author	
Western Land-grant Cluster Committee – NDSU Representative	
Association of American Colleges and Universities (AAC&U) – NDSU Representative and Associate	2018-Present
Teaching to Increase Diversity and Equity in STEM (TIDES) Institute, <i>Accepted</i> , 2020 Cohort	
Knowledge Exchange Institute – Broadening Participation in STEM, 2019 Cohort	
Project Kaleidoscope (PKAL) Institute – STEM Education Reform Collaboration, 2018 Cohort	
Higher Learning Commission (HLC) Accreditation Writing Team for University – Assessment, Criterion 4	2018-Present
Warrior Words Veteran Program – Chair and Program Organizer	2018-Present
VALOR Advisory Board – Chair of Training and Outreach Committee	2018-Present
Broader Impacts Discussion Group, NDSU Office of Research and Creative Activity – Member	2018-Present
Graduate Student Orientation – Mentor and Table Facilitator	2018-Present
NSF-Funded IRES: China-USA Administering Committee (PI)	2018-Present
Civil Discourse Discussion Planning Committee, NDSU Libraries – Member and Discussion Facilitator	2017-Present
Writing Center Advisory Board – Member	2017-Present
Information Technology Services CAREs Committee – Member	2017-Present
NSF-Funded Gateways-ND Steering (Chair)/Research/Curriculum/Selection Committees – (co-PI)	2017-Present
Learning Spaces Executive Committee – Member	2017-Present
Assessment Task Force of the University Assessment Committee (UAC) – Co-Lead Coordinator	2017-Present
Curriculum Mapping Task Force – Member and Chair	2017-Present
Teach-In Planning Committee – Member	2017-Present
Teaching Assistant Training Committee – Member and Organizer	2017-Present
Avenues of Scientific Discovery Planning Committee – Chair	2017-Present
Amy Rupiper Taggart Award for Excellence in Program Assessment Committee – Chair	2017-Present
Graduate Student Council – Executive Advisor	2017-Present
College Teaching Certificate Committee – Member and Interim Director Representative	2017-Present
Quality Matters Online Course Assessment Committee – Member	2017-Present
Virtual Reality Learning Project Committee – Member	2017-Present
Rapid Response Team – Member	2017-Present
NDSU EDUCAUSE Digital Fellows NDSU Committee – Member	2017-2018
NDUS Distance and Continuing Education – NDSU Director Representative	2017-Present
Art of Dinning Training Committee – Member	2017-Present
Open Educational Resources Committee, NDSU Libraries – Member	2017-2018
North Dakota STEM Education Collaborative – NDSU Representative	2017-Present
NDSU Employment Search Committees – Member	2017-Present
Associate Dean of Libraries, 2017	
Learning and Applied Innovation Assistant Manager, 2017	
Writing Center Director, 2017	
NDSU School of Natural Resource Sciences Curriculum Committee - Member	2014-2015

#### University of Arkansas // 2010-2012 // Fayetteville, Arkansas

Annual Awards Banquet, Department of Crop, Soil and Environmental Sciences (CSES) – Organizer	2012
CSES Graduate Student Association – Treasurer	2011-2012
Annual Awards Banquet, CSES – Host and Organizer	2011
Curriculum Committee Member, CSES – Graduate Student Chair	2010-2011
CSES Graduate Student Association – President	2010-2011

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**UNIVERSITY TEACHING EXPERIENCE:****COURSES INSTRUCTED****North Dakota State University // 2014-Present // Fargo, North Dakota****Introduction to Soil Science** **2019-Present**

Department of Soil Science, North Dakota State University, Undergraduate level, SOIL 210  
Fall and Spring Semesters, Instructor on Record – 3-Credit Lecture Class (F2019: 79 and S2020: 92 Students)

**Writing in the Technical Professions** **2016**

Department of English, North Dakota State University, Undergraduate Level, ENGL 321  
1 Fall Semester, Instructor on Record – 3-Credit Lecture Class (F2016; 22 Students)

**Soil Ecology** **2015**

Department of Soil Science, North Dakota State University, Undergraduate Level, SOIL 351  
1 Fall Semester, Instructor on Record – 3-Credit Lecture Class (F2015; 34 Students)

**Introduction to Soil Science** **2014-2015**

Department of Soil Science, North Dakota State University, Undergraduate level, SOIL 210  
Instructor on Record – 5 Lab classes (F2014, S2015: 16 Students each) and 3-Credit Lecture Class (F2014: 78 and S2015: 80 Students)

**University of Arkansas // 2010-2011 // Fayetteville, Arkansas****Introduction to Soil Science** **2010-2011**

Department of Crop, Soil and Environmental Sciences, University of Arkansas,  
Undergraduate level, CSES 2200, 2 Semesters (Fall 2010 and 2011),  
Instructor – 1-Credit Laboratory classes (F2010, S2011, F2011 20 Students each); 2 Lecture classes (100+ Students each); 1 Drill (scientific math) class (20 students each)

**INVITED COURSE LECTURES****North Dakota State University // 2014-Present // Fargo, North Dakota****World Food Crops** **2018**

Plant Science Department, North Dakota State University, Undergraduate Level, PLSC 110.  
1 Fall Semester, Presented – 1 Guest Lecture, “Rice: Domestic and Global Production”

**University of Arkansas // 2010-2011 // Fayetteville, Arkansas****Soil Physics** **2011-2012**

Department of Crop, Soil and Environmental Sciences, University of Arkansas, Graduate level,  
CSES 5224, 2 Spring Semesters (Spring 2011 and 2012), Presented – 5 Guest lectures

**Middle Tennessee State University // 2006 // Murfreesboro, Tennessee****Introduction to Agriculture Economics** **2006**

Department of Agriscience and Agribusiness, Middle Tennessee State University,  
Undergraduate level, ABAS 2130, Fall Semester, Presented – 1 Guest lecture

**STUDENT ADVISING****North Dakota State University // 2015-Present // Fargo, North Dakota*****Individual Students:***

Umesh Acharya, Ph.D., Soil Physics (Teaching Assistantship Mentor)	2019-Present
Matt Kruger, M.S., Soil Fertility (Teaching Assistantship Mentor)	2019-Present
Holly DeVries, M.S., Mental Health Counseling (Assistantship Supervisor and Mentor)	2019-Present
Amy Tichy, M.S., Mental Health Counseling (Assistantship Supervisor and Mentor)	2019-Present
Jabril Hassan, M.Ed., Teacher Education, Sociology/Anthropology (Assistantship Supervisor)	2018-2019
Elliott Welker, Ph.D., Education, Institutional Analysis (Doctoral Committee Member)	2018-Present
Farah Attia, M.Ed., (graduated), Teacher Education, English/Math (Assistantship Supervisor)	2018-2019
Jamie Schaffer, M.B.A. (graduated), Marketing/Univ. Assessment (Assistantship Supervisor)	2018

Anna Semanko, Ph.D., Psychology (Assistantship Supervisor and Mentor)	2017-Present
Alistair McInerny, Ph.D., Physics/STEM Ed. (Assistantship Supervisor)	2017-2019
Rebecca Davidson Reichenbach, Ph.D., Biology/STEM Ed. (Assistantship Supervisor and Mentor)	2017-Present
Mackenzie Ries, B.S. Soil Science (graduated) (Informal Mentor)	2015-Present

**Student Clubs:**

VALOR Student Veteran's Club, Advisor	2018-Present
Graduate Student Council, Executive Advisor	2017-Present

**STUDENT COMPETITION ASSESSMENT:**

**North Dakota State University // 2016-Present // Fargo, North Dakota**

<b>NSF Personal Statement Reviewer for Doctoral Fellowship Applications</b>	<b>2018-Present</b>
Review and provide feedback on personal statements written by students prior to submission (2018, 2019).	
<b>W-Challenge Undergraduate Writing Competition</b>	<b>2017-Present</b>
Judge for the annual writing contest that evaluates academic, professional, every day, creative, and foreign language writing. Sponsored by the English Department Writing Programs (2017, 2018, 2019).	
<b>Annual Bacterial Physiology (MICR 480) Undergraduate Mock Poster Symposium</b>	<b>2017-2018</b>
Judge for the final assignment of the undergraduate class in Bacterial Physiology. Group presentations focused in the use and application of the Cacao Genome Database (F2017, S2018, F2018).	
<b>Showcase of Student Writing Symposium – North Dakota State University</b>	<b>2016-Present</b>
Judge for the annual writing symposium that showcases undergraduate student writing in undergraduate English courses. Sponsored by the English Department Writing Programs (2016, 2017, 2018, 2019).	

**Soil Science Society of America – ASA-CSSA-SSSA International Annual Meetings // 2012-2013 // United States**

<b>Graduate Oral Research Symposium</b>	<b>2013</b>
Session: General Wetland Soils I, Tampa, Florida	
<b>Undergraduate Oral and Poster Research Symposiums</b>	<b>2013</b>
Students of Agronomy, Soils and Environmental Sciences (SASES), Tampa, Florida	
<b>Undergraduate Oral Research Symposium</b>	<b>2012</b>
Students of Agronomy, Soils and Environmental Sciences (SASES), Cincinnati, Ohio	

**University of Arkansas // 2008-2012 // Fayetteville, Arkansas**

<b>Arkansas Future Farmers of America (FFA) State Land Judging Competition</b>	<b>2011-2012</b>
Proctor of 200+High School Student State Competition, University of Arkansas Extension Station	

**EDUCATIONAL WORKSHOP ORGANIZATION AND PARTICIPATION:**

**North Dakota State University // 2017-Present // Fargo, North Dakota**

<b>Grant Program Evaluation – Proposal Development Program</b>	<b>2019</b>
Presented a session on how to write an evaluation plans as well as how to find evaluators to help with evaluation plans. Workshop series was developed and sponsored by the Research and Creativity Activities (RCA) Division at NDSU.	
<b>First-Generation Experiences – Including U: Brown Bag Conversations Workshop</b>	<b>2019</b>
Co-Presented with Kaelen Napoleon, Student Success Education Specialist, and Aaron Daigh, Asst. Professor of Soil Science, a workshop session on the unique experiences of being a first-generation student in a university setting. Workshop series was developed to promote inclusion and diversity by NDSU's Office of the Vice Provost for Faculty Affairs and Equity and Inclusion Committee.	
<b>How to Teach Your Class Online – Workshop Series</b>	<b>2019</b>
Co-led the grassroots organization and implementation of a semester-long, 3-part workshop series for faculty, staff members, and graduate students on how to develop an online course from a face-to-face format. Workshop was Co-led with Steve Beckermann, NDSU Instructional Designer. Sessions: 1) <i>Getting Started</i> , 2) <i>10 Best Practices in Online Instruction</i> , and 3) <i>Tools of the Trade</i> .	

- Film Screening: *Unlikely*, Century Theater** **2019**  
 Assisted Graduate Student, Megan Yerhot, with organizing and promoting the event. The film narrated the educational barriers faced by many students that are trying to enter and excel in higher education.
- VALOR Teaching and Outreach Workshops and Presentations** **2018-Present**  
 Chair of the Veteran Alliance Organization (VALOR) Teaching and Outreach Committee, which includes working with other Advisory Board members, VALOR allies, and campus and community members to enhance timely and valuable VALOR presentations and training. VALOR focuses on providing insight and education regarding military service and the ways that VALOR allies, staff, faculty, students, and community members can help create a more welcoming environment that understands and meets the specific needs of military service members and veterans at NDSU and in the community.
- Agriculture Teaching Cafés** **2018-2019**  
 Assisted with the organization of teaching discussion sessions for NDSU faculty and instructors in Agriculture-focused disciplines. The initial series of 5 café talks is being launched in Fall 2018 under leadership of Loren Baranko, Lecturer in Animal Science.
- Civil Discourse – Workshop Series** **2018-2019**  
*Social Shaming, 2019*  
*Women in the Academy, 2018*  
 Assisted with organizing workshops on ways to engage in civil discourse. The workshop series focuses on respectful listening, using critical thinking skills, and sharing ideas on highly-political and highly-emotional topics in a civilized manner, with a focus on creating understanding and respectful engagement among citizens with polarized viewpoints. The workshop series is being launched in Fall 2018 in association with NDSU Libraries.
- Major Maps Workshop - Undergraduate Programs** **2018**  
 Organized and led two sessions to guide program directors and deans in creating a comprehensive diagram for undergraduate program-based educational and professional development. The workshop was a part of the Provost Office initiative to create Major Maps for all campus programs under the leadership of Vice-Provost Charlene Wolf-Hall.
- Expanding Your Horizons** **2018-Present**  
 Helped administer and organize (2018) the annual NDSU-based national STEM education program for 400+ middle-school female students around North Dakota and Minnesota.
- Peer-Teaching Partnership Workshop** **2018-Present**  
 Organized (F/Sp 2017, 2018, 2019) and led (2018, 2019). Each Fall and Spring semester, this workshop meets with faculty peers who voluntarily agree to be matched with a faculty to peer to evaluate their class, syllabi, classwork, and teaching abilities, which provides feedback that has been used to submit as a teaching excellence in promotion and tenure packets or as an informal method of getting unbiased feedback on their teaching.
- Avenues of Scientific Discovery** **2018-Present**  
 Organized and led (2018, 2019) the annual STEM education program where 30+ graduate students demonstrated research-based material to 100+ high school students annually.
- Graduate Teaching and Learning Conference / Teaching Assistant (TA) Training Workshop** **2017-Present**  
 Organized (2017, 2018, 2019) and led (2018, 2019) an annual two-day workshop focused on teaching graduate teaching assistants how to develop skills in teaching to improve student learning and for professional growth.
- Gateways-ND: Faculty Development Workshops and Faculty Learning Communities** **2017-Present**  
 Organized (2017, 2018, 2019) and led (2018, 2019) NSF-funded faculty development workshops in active learning and teaching improvement at NDSU. Two-day workshops occur 5 times over two years for each cohort. Faculty learning communities occur 5 times a semester during the Fall and Spring semesters for the cohorts. At any given time, we have two cohorts actively engaged in the training program.
- Expanding Your Horizons Workshop - *Getting the DIRT on Soil*** **2017**  
 Conducted a workshop in Soil Science for 22 Middle school girls around North Dakota and Minnesota as a part of the annual NDSU-based national STEM education program. Workshop covered soil classification, hydrology, chemistry, and physics on a middle-school level.



**Iowa State University // 2013 // Ames, Iowa**

**Extension Field Day Coordination and Adult Education 2013**

Involved in the organization and implementation of field days, extension personnel training, and advertising for Iowa Learning Farms / Department of Agricultural and Biosystems Engineering, Iowa State University. Organized material for an Iowa State Extension training CD on cover crops, developed curriculum for soil and water studies for the community college level, developed training material and plans to conduct five workshops on soil quality and cover crops, and was a part of the Cover Crop Working Group. Demonstrated seeding and sampled 6 research sites across Iowa for evaluation. *7 Field Days, 4 Extension Trainings.*

**Youth Extension Education 2013**

Statewide conservation program for grades K-12, Iowa Learning Farms – *Water Rocks!*, at Iowa State University. Developed curriculum for soil and water studies for grades K-12, visited schools and extension stations across Iowa to teach soil and water conservation, and worked with portable rainfall simulators in “Conservation Station” trailers. *9 School and Outdoor Classroom Visits.*

**United States Agency for International Development (USAID) // 2013-2014 // Wang’uru, Kenya // Iganga, Uganda**

**Postharvest Loss Prevention and Soil Health Education and Field Demonstrations 2014**

Led training workshops through the Namungalwe Area Cooperative Enterprise (ACE), Iganga, Uganda. *14 Training Classes at 7 Rural Agriculture Producer (RPO) Organizations for 156 farmers over 3 weeks.*

**Mechanizing Rice Production Systems Education and Field Demonstrations 2013**

Led training workshops through the Mwea Rice Growers Multipurpose (MRGM) Cooperative Society, Wang’uru, Central Province, Kenya. *Trained 50+smallholder farmers and cooperative management personnel on rice mechanization over 3 weeks.*

**University of Arkansas // 2008-2012 // Fayetteville, Arkansas**

**Rice Producer Education and Field Demonstrations 2012**

Led demonstrations at the University of Arkansas, Rice Research and Extension Station, Pine Tree Research Station, and 3 farmer fields

**Rice Research and Extension Center – Field Day Involvement 2008-2012**

Led demonstrations through the Department of Crop, Soil and Environmental Sciences, University of Arkansas, Stuttgart, Arkansas. *3 Annual Field Days*

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**PROFESSIONAL WORKSHOP TRAINING AND CERTIFICATION:**

**Penn State Academic Leadership Academy (ALA) – Pennsylvania State University Accepted 2020**

A 4-day leadership institute enhance the ability of academic administrators to provide leadership within their respective institutions, with Penn State’s Center for the Study of Higher Education and the Higher Education Program. Topics focus on team building, budget management, strategic planning, and faculty development. Institute: June 14-18, 2020 and 6 virtual sessions through 2020-2021, *University Park, Pennsylvania*

**Teaching to Increase Diversity and Equity in STEM (TIDES) Institute – Association of American Colleges & Universities (AAC&U) Accepted 2020**

AAC&U’s 4-day professional development institute that empowers STEM faculty and university administrators to implement culturally responsive pedagogy in core STEM classrooms. Institute: June 8-12, 2020, *Leesburg, Virginia*

**Cluster Initiative Workshop – American Public and Land-grant Universities (APLU) 2019**

A full-day workshop preceding the 3-day annual APLU Conference, which was focused on all 16 clusters of 130 Public and Land-grant postsecondary institutions (morning session) and individual clusters (afternoon session). North Dakota State University is one of 12 institutions in the “Western” Transformation Cluster of the *Powered by Publics: Scaling Student Success* initiative, which focuses on increasing degree completion and decreasing student achievement gaps by 2025. Workshop: November 8, 2019, *San Diego, California*

**North Dakota General Education Summit 2019**

Meeting on the assessment of general education outcomes in both academic and co-curricular settings, including a sessions led by Higher Learning Commission (HLC) Peer Reviewers. Hosted by the North Dakota General Education Council. North Dakota State University. Workshop: October 18, 2019. *Fargo, North Dakota*

<b>Western Cluster Workshop – American Public and Land-grant Universities (APLU)</b>	<b>2019</b>
A 2-day workshop at to organize and share university administrative information among the Western Cluster of the <i>Powered by Publics: Scaling Student Success</i> initiative. North Dakota State University is one of 12 institutions in the “Western” Transformation Cluster that meets monthly in a virtual meeting space, in efforts to share best practices in higher education learning. Workshop: September 14-15, 2019, <i>Fort Collins, Colorado</i>	
<b>Knowledge Exchange Institute – Association of American Colleges &amp; Universities (AAC&amp;U)</b>	<b>2019</b>
AAC&U’s NSF-funded workshop offers STEM faculty a unique opportunity to understand and gain evaluation and education research expertise that is culturally sensitive and necessary for more accurately pinpointing the areas where institutional interventions, particularly those related to broadening participation, are likely to flourish. STEM higher education diversity institute dedicated to training in the needed Broader Impacts of STEM educational grants. Institute: May 21-24, 2019, <i>Alexandria, Virginia</i>	
<b>Assessment and Accreditation Workshop – Higher Learning Commission (HLC)</b>	<b>2019</b>
A full-day workshop dedicated to obtaining and/or maintaining institutional accreditation by the HLC. The workshop preceded the 4-day annual conference, which offered numerous accreditation-related presentations. Workshop date: April 6, 2019; Conference dates: April 7-9, 2019, <i>Chicago, Illinois</i>	
<b>Soil Science Education Presentation Review – Soil Science Society of America (SSSA)</b>	<b>2019</b>
SSSA International Annual Meetings, January 8-11, 2019, <i>San Diego, California</i>	
<b>Project Kaleidoscope (PKAL) – Association of American Colleges &amp; Universities (AAC&amp;U)</b>	<b>2018</b>
AAC&U’s STEM higher education reform institute dedicated to empowering STEM faculty to graduate more students in STEM fields who are competitively trained and liberally educated. Institute: July 10-15, 2018, <i>Adamstown, Maryland</i>	
<b>Search Committee Training – North Dakota State University</b>	<b>2017</b>
Training to conduct proper employee search committees, <i>Fargo, North Dakota</i>	
<b>Institutional Review Board (IRB) Training and Certification – North Dakota State University</b>	<b>2017</b>
(Project Lead) Training and Certification to Conduct Human Behavioral Research, <i>Fargo, North Dakota</i>	
<b>Prevention Policy Development and Clean Hotels Workshop – Rape Abuse and Crisis Center</b>	<b>2015</b>
Workshop on Domestic and Sexual Violence Policy Change and Coaching for Change, Training by the Gender Violence Institute of Minnesota, <i>Fargo, North Dakota</i>	
<b>Giving + Learning Tutoring Low-Level English Learners – North Dakota State University</b>	<b>2014</b>
Workshop on Teaching English to Illiterate, Non-Native Refugees, Training by the Minnesota Literacy Council, <i>Fargo, North Dakota</i>	
<b>Refugee Youth Mentor Training and Certification – African Initiative for Progress</b>	<b>2014</b>
Training to Conduct Academic Tutoring and Supportive Mentoring, African and Asian High School Students in Cass and Clay Counties, <i>Fargo, North Dakota</i>	
<b>Institutional Review Board (IRB) Training and Certification – North Dakota State University</b>	<b>2014</b>
Training and Certification to Conduct Human Behavioral Research, Observing Refugees who are English Language Learners (ELL), <i>Fargo, North Dakota</i>	
<b>Soil Health in the Red River Valley Technical Workshop – North Dakota State University</b>	<b>2013</b>
North Dakota Soil and Water Conservation, Professional Soil Classifiers Association of North Dakota, <i>Fargo, North Dakota</i>	
<b>Iowa Learning Farms / Water Rocks! Creative Training – Iowa State University</b>	<b>2013</b>
Iowa State University Extension Education Retreat, <i>Woodward, Iowa</i>	
<b>Conservation Districts of Iowa Commissioner Conference – Conservation Districts of Iowa</b>	<b>2013</b>
Training in Soil Health, Tile Drainage, and Cover Crops, <i>Des Moines, Iowa</i>	
<b>Arkansas Soil Classification Review Training – Booneville Plant Materials Center</b>	<b>2012</b>
Arkansas Association of Soil Classifiers Meeting, <i>Booneville, Arkansas</i>	
<b>Century and DayCent Computer Modeling Course – Natural Resource Ecology Laboratory</b>	<b>2011</b>
Agroecosystem Nutrient Cycling Simulation Training, <i>Colorado State University, Fort Collins, Colorado</i>	
<b>Rice: Research to Production Course – International Rice Research Institute</b>	<b>2010</b>
Rice Genetics, Breeding, Production, and Societal Influences, <i>Los Baños, Laguna, Philippines</i>	
<b>Li-Cor 6400XT: Portable Photosynthesis System – Li-Cor Biosciences</b>	<b>2008</b>
Measurement of Gas Exchange and Fluorescence, Soil Surface CO <sub>2</sub> Efflux Chamber, <i>Lincoln, Nebraska</i>	
<b>Certifications – United States Navy</b>	<b>1996-2000</b>
<b>Ship’s Service Telephone System Technician</b> (1998) <i>San Diego, California</i>	
<b>Shipboard Fire Fighting Team</b> (1997, 1998, 2000) <i>Bremerton, Washington</i>	
<b>MK-19 Gyrocompass Systems Technician</b> (1997) <i>Great Lakes, Illinois</i>	

**Interior Communications Electrician** (1997) *Great Lakes, Illinois*  
**First Aid and CPR** (1996, 1997, 1998, 1999) *Great Lakes, Illinois*  
**Basic Military Training** (1996) *Great Lakes, Illinois*

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## AWARDS AND RECOGNITIONS:

- Association of American Colleges and Universities (AAC&U) Travel Award** **2019**  
Funds were provided to be part of the Knowledge Exchange Institute, which is an NSF-funded program to increase diversity in STEM fields. All travel to and from Washington, D.C., hotel, food, and training materials were covered. May 20-24, 2019, *Alexandria, Virginia*.
- Veteran Alliance Organization (VALOR) Hon. Mention, NDSU Advancing Inclusion Group Award** **2019**  
(2018-2019 Academic Year). In the group awarded, I serve as the Chair of Faculty and Staff Training related to teaching student Veterans, which includes all Veterans of the military, active-duty service members, reservists, and members of the National Guard.
- United States Agency for International Development (USAID) Travel Scholarship** **2014**  
Funds for travel via Catholic Relief Services to present agricultural development research at the ASA-CSSA-SSSA International Annual Meetings in Long Beach, California (\$300)
- University of Arkansas Graduate School Travel Scholarship** **2012**  
Funds for travel to present dissertation research at the ASA-CSSA-SSSA International Annual Meetings in Cincinnati, Ohio (\$1000)
- Outstanding Ph.D. Graduate Student Award** **2012**  
University of Arkansas, Department of Crop, Soil and Environmental Sciences (Awarded April 2012)
- Abstract to Contract Graduate Research Symposium Poster Competition – 2<sup>nd</sup> Place** **2012**  
University of Arkansas Graduate School (\$100)
- National Science Foundation (NSF) Scholarship via ADVANCE Program Scholarship** **2011**  
Funds to attend the *Negotiating the Ideal Faculty Position* workshop at Rice University in Houston, Texas (Covered lodging, transportation, and provisions)
- University of Arkansas Graduate School Travel Scholarship** **2011**  
Funds for travel to present dissertation research at the International Symposium on Soil Organic Matter in Leuven, Belgium (\$1000)
- National Science Foundation (NSF) Scholarship** **2010**  
Funds to attend the *Rice: Research to Production* short course at the International Rice Research Institute (IRRI) in Los Baños, Laguna, Philippines via NSF Grant recipient PI Dr. Susan McCouch, Cornell University (Covered all course fees, lodging, transportation, and provisions)
- Spoooner Scholarship** **2010**  
University of Arkansas, Department of Crop, Soil and Environmental Sciences Scholar Award; Funds for travel pertaining to dissertation research to the Natural Resource Ecology Laboratory (NREL) at Colorado State University in Fort Collins, Colorado; Modeling C and N cycling in rice crop rotations using Century and DayCent (\$2000)

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## PUBLIC SERVICE AND OUTREACH:

- Fargo-Moorhead-West Fargo Chamber of Commerce – NDSU Representative** **2019-Present**  
Engagement with the local North Dakota-Minnesota professional and business community through meetings and community interactions. Representative through the North Dakota State University's President's Office.
- Advisory Board Member and Chair of Training Committee – Veteran's Alliance Org. (VALOR)** **2018-Present**  
Board Member and Chair of the Training and Outreach Committee – Provide guidance to military veterans in postsecondary education at North Dakota State University and training to university faculty and staff on working with military veterans. The mission of VALOR is to improve campus climate for student Veterans and enhance their success. The term "student Veterans" refers to, and encompasses, all Veterans of the military, active-duty service members, reservists, and members of the National Guard.

- Volunteer Recruitment and Mentor –Farmer-to-Farmer Program in East Africa** **2014-2019**  
 Catholic Relief Services and USAID – Provided Recruitment and Guidance to Agricultural Volunteers; Recruited Volunteers to Date:  
*Zachary Rada* – Farm Business Manager, Ridgewater College, Willmar, Minnesota. Assignment: Farm Management Training, *Tanzania*, 2014  
*Mahnaz Harrison* – President and CEO of Last Mile 4D, Washington, D.C. Assignment: Financial and Business Development in Iganga, *Uganda*, 2015  
*Joseph Alfonso* – Recently Graduated Entomology Master’s Student, Fargo, North Dakota. Assignment: Agricultural Pest Management in *Ethiopia*, 2015
- Academic and Personal Mentor – African Initiative for Progress** **2014-2016**  
 African Refugee High School Students, *Fargo, North Dakota*
- Committee Member – Women’s Rape and Abuse Crisis Center** **2015-2019**  
 Foundations Committee – Sexual Assault and Domestic Violence Prevention, Logic Model Planning Committee; Planning Objectives for Organizational Goals, *Fargo, North Dakota*
- River Volunteer – River Keepers** **2014-2016**  
 Little Fishermen’s Derby and Fundraising Events, *Fargo, North Dakota*
- Academic Mentor and Volunteer – Giving + Learning** **2014-2018**  
 English Language Tutoring to African Refugees and Multicultural Activities, *Fargo, North Dakota*
- Academic Mentor – Military Veterans Recovery Center** **2013**  
 Alvin C. York Campus, Tennessee Valley Veteran Hospital Campus, Helping military veterans with PTSD and other mental disorders reintegrate back into society, specifically providing academic guidance and tutoring to higher education students, *Murfreesboro, Tennessee*
- Race Organizer – Dairy Hill Stampede 5K and Family Fun Run** **2013**  
 Assisted in race directing duties associated with the fundraising event, Middle Tennessee State University, School of Agribusiness and Agriscience, proceeds benefitting the Farm Animal Care Coalition of Tennessee and the Veteran’s Recovery Council, *Murfreesboro, Tennessee*
- Instructor of Soil Profile Descriptions – Environmental and Agricultural Sustainability Field Trip** **2012**  
 Crop, Soil and Environmental Sciences Sponsored High School Student Field Day, University of Arkansas, Arkansas Agricultural Experiment Station, *Fayetteville, Arkansas*
- Photographer – Soils in Arkansas Book** **2012-2013**  
 Landscape and Soil Profile Photographer for *Soils in Arkansas* (Brye et al., 2013), *Fayetteville, Arkansas*
- Race Organizer and Director – Down & Dirty 5K / Clean & Green 1-Miler** **2010-2013**  
 Initiated and continued annual Graduate Student Association (CSES-GSA) fundraising event  
 Raised over \$2100 in October 2010; Proceeds benefitting CSES-GSA  
 Raised over \$4200 in October 2011; Proceeds benefitting the Emily Grace Stiegler Scholarship Fund  
 Raised over \$3600 in October 2012; Proceeds benefitting the Jack Pijanowski Scholarship Fund  
*Fayetteville, Arkansas*

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## RESEARCH INTERESTS (KEYWORDS):

Higher Education Administration, Postsecondary Institutional Development, STEM Educational Reform, Education Accessibility and Equality, Socioeconomic and Political Effects on Education, Student Success and Retention, Student Learning across Underrepresented Student Populations, Faculty Development, Engaged Student Learning, International Education and Outreach Collaborations, University Extension Outreach, Sustainable Agricultural Production, Global Food Security, Soil Health, Soil Physics, Soil Ecology, Biogeochemical Cycling in Terrestrial Ecosystems, Soil Organic Matter Dynamics, Soil Respiration, Water-Stable Soil Aggregation, Soil Water Infiltration and Storage, Row-Crop Production, Agricultural Community Productivity and Sustainability, Natural Resource Management, Food Production and Processing in Developing Countries, Rice-Based Cropping Systems, Small-Holder Family Farming Assistance, Preventable Postharvest Grain Losses, Sociocultural Anthropology, Irrigation Infrastructure, Flood-Irrigation, Computer Simulation Modeling of Natural and Agroecosystems, Agricultural Economics, Agricultural Production Machinery, Gender and Race Disparities in Agricultural Sciences, Sociological Influences on Agronomic Communities

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## GRANTS, RESEARCH PROJECTS, AND INTERNATIONAL DEVELOPMENT PLANS:

- 2018 IRES Track I: USA-China: International Research Experience for Native American Students in IoT-Enabled Environmental Monitoring Technologies.**  
*Co-Principle Investigator overall Grant, Principle Investigator at NDSU.* Funding agency: National Science Foundation: International Research Experiences for Students (NSF: IRES). Investigators: J. Wang (PI) (PI, South Alabama University), **J.M.D. Motschenbacher (co-PI) (PI, North Dakota State University)**, and K. Hartman (co-PI) (PI, Nueta Hidatsa Sahnish College.) Twelve Native American students from five Tribal Colleges in the state of North Dakota will participate in a six-week summer program over the course of three years. Each year, four students will participate in one week of pre-training in the U.S. and then visit and study at the host University in Beijing, China for five weeks. All three student cohorts will focus on one unifying topic - building and testing an Internet of Things (IoT)-enabled environmental monitoring system. The program will provide students with training and mentoring in international-based engineering applications, create Native American experts in environmental monitoring and protection, and improve specialized environmental management in the remote areas. Grant length 7/2018-6/2020. **(Funded: \$299,919).**
- 2018 NSF CAREER Grant Educational Support for Dr. Na Gong.** Department of Electrical and Computer Engineering, North Dakota State University. *Know your data: Enabling data-informed efficient memory hardware for edge computing.* **(Not Funded)**
- 2018 NSF CAREER Grant Educational Support for Dr. Zhibin Lin.** Department of Department of Civil and Environmental Engineering, North Dakota State University. *Structural and thermodynamic properties of multifunctional dynamic breathing building envelopes for high performance buildings.* **(Not Funded)**
- 2017 Virtual Reality Inclusive Curriculum.** North Dakota State University Foundation and Alumni Association, Impact Fund Grant. J.A. Faris, (PI); **J.M.D. Motschenbacher** (Educational Evaluator). An educational initiative to provide accessible experimental learning to the campus community through advanced visualization and simulation tools using Virtual Reality. Funding provided the placement of four Virtual Reality learning stations in the Memorial Union for faculty teaching, professional training, student recreation, and cross-disciplinary projects. Evaluation is conducted on usage statistics, learning impacts, and user response. Proposed grant length: 2018-2019. **(Funded: \$19,522).**
- 2017 Scholarship-ND: An institutional model for STEM faculty training in the scholarship of teaching and learning.**  
*Primary Investigator.* Funding agency: National Science Foundation: Improving Undergraduate STEM Education: Education and Human Resources (IUSE: EHR). **J.M.D. Motschenbacher (PI)**, M. Kryjevskaja (co-PI), J. Nyachwaya (co-PI), J. Ladbury (co-PI), and C. Hargiss (co-PI). Faculty development program will develop and implement a transformative and adaptable model of faculty training in the Scholarship of Teaching and Learning (SoTL), systematically investigate the effectiveness of this training model, and disseminate the results to help implement and adapt the model for use in other institutions. North Dakota State University. Proposed grant length: 7/2018-6/2023. **(Not Funded - \$2,948,405).** *(Editing and resubmitting in December 2019).*
- 2017 Gateways-ND: Advancing learner-focused instruction to catalyze student success.**  
*Co-Primary Investigator and Project Manager.* (January 2017 - Present). Funding agency: National Science Foundation: Improving Undergraduate STEM Education: Education and Human Resources (IUSE: EHR). P. Kelter (PI), J. Ladbury (co-PI), M. Montplaisir (co-PI), J. Nyachwaya (co-PI), Mark Hanson (co-PI 2015-2018) and **J.M.D. Motschenbacher (co-PI)**. Gateways-ND is a faculty and instructional staff development program that offers support in learner-focused teaching practices to STEM educators at North Dakota State University (NDSU). Gateways-ND has changed, and is changing, the culture of STEM education throughout NDSU. Gateways-ND has made monumental changes in teaching and learning practices and beliefs among NDSU faculty, staff, and administration. Overall, classes are becoming more active for students through reduced lecture time and increased group work, student retention rates are increasing, and grades are increasing. These changes will ultimately influence NDSU graduates as they tackle economic and social questions that impact society as a whole. Grant length: 8/2015-7/2020. **(Funded: \$2,632,673).**
- 2016 Frameworks-ND: Long-term collaborative frameworks among all North Dakota campuses for STEM student success.**  
*Co-Primary Investigator and Primary Grant Coordinator and Writer.* Funding agency: National Science Foundation: Improving Undergraduate STEM Education: Education and Human Resources (IUSE: EHR). Kelter, P. (PI), **J.M.D. Motschenbacher (co-PI)**, J. Carmichael (co-PI), S. Marcotte (co-PI), and S.R. Sletten (co-PI). A three-year project that will expand the work of a recently-formed coalition composed of 15 North Dakota's 18 postsecondary institutions (PSIs), representing over 98% of the state's college student population, in the service of expansive,

long-term active learning-based STEM educational improvement. The model includes a program of statewide organizational collaboration, professional development, faculty learning communities, and research, along with a focus on effective evaluation, as foundations of successful long-term systemic change in STEM instruction. Proposed grant length: 7/2017-6/2020. **(Not Funded: \$2,988,499)**. (*Editing and resubmitting in December 2019*).

**2015** ***Soil health and water quality impacts of growing energy beets for advanced biofuel production in North-Central United States.***

*Co-Primary Investigator.* Funding agency: United States Department of Agriculture, National Institute of Food and Agriculture Foundational Program. Z, Lin (PI), B. Schatz, D. Ripplinger, M. Ostlie, J. Teboh, A-M Fourtuna (2013-2015), and **J.M.D. Motschenbacher (co-PI)**. Assessment of the effects energy beet production systems have on soil health by mitigating soil salinity and improving the yields of rotational crops. Individual project responsibilities involve directing all aspects of soil biological measurements, their collection, processing, and statistical analysis. Other responsibilities include supervising a technician in developing protocols for plant and soil sampling analyses, establishing protocols and schedules for conducting biological measurements of soil health and plant tissue sampling for quality analyses, presenting research results at extension and field day meetings, and publishing results in peer-reviewed journals. Grant length: 9/2013-8/2018. **(Funded: \$443,709)**.

**2014** ***Preventing postharvest grain losses: Improving handling and storage for maize farmers in Iganga, Uganda.***

*Primary Investigator.* Funding Agency: United States Agency for International Development (USAID) through the Catholic Relief Services, and in association with Namungalwe Area Cooperative Enterprise (ACE). Assessment of the postharvest handling and storage practices and improve farmers' knowledge in preventing on farm maize losses. Technical support was provided in postharvest processes such as maturity indices, drying, storage, quality control and assurance, control of storage pests, cost effective storage facilities, how insects and molds contribute to storage losses, aflatoxin development in the field and in storage, and the relationship between grain quality and food quality. Grant length: 4/2014-4/2015. **(Funded: All Costs for Development Project: Iganga, Uganda)**.

**2014** ***From fire to fire: Examining the complexity of learning for refugee adult English learners.***

*Independent Community Literacy Researcher.* Funded through the Bush Foundation and North Dakota State University via PI, K. Brooks, Research on the problems associated with learning English as a foreign national adult learner and specializing in adult African refugees who are English Language Learners (ELL). Problems addressed include learning barriers, long-standing health complications, and mental impediments associated with emotional and geographic transitions. Research project length: 3/2014 – 3/ 2017. **(Funded: All Associated Costs)**.

**2013** ***Evaluating planting techniques for the successful establishment of cover crop mixtures and single varieties in Iowa.***

*Postdoctoral Research Scientist.* Funding agency: Iowa State University Department of Agricultural and Biosystems Engineering and Iowa State Extension Service. Evaluation of seeding techniques that will increase fall cover crop growth, reduce nutrient losses, improve water quality, and enhance soil health. The project involved scientific research and extension outreach education programs. The expectation is to reduce nitrate runoff through farmland tile-drainage to the Mississippi River Basin, which ultimately leads to hypoxia in the Gulf of Mexico, and to increase soil organic matter for long-term production system sustainability. Measured observations: Soil C and N, biomass production, soil chemical properties, water infiltration rates, and soil compaction (bulk density). Research project length 8/2013-12/2013. **(Funded: All Associated Costs)**.

**2013** ***Effects of mechanization of rice production and harvesting systems in the Mwea Irrigation Scheme in Wang'uru, Central Province, Kenya.***

*Primary Investigator.* (PI, Research Project Scientist, May 2013 – May 2014). Funding agency: United States Agency for International Development (USAID) through the Citizen's Network for Foreign Affairs (CNFA), and in associated with the Mwea Rice Growers Multipurpose (MRGM) Cooperative Society. Assessment on the mechanization of rice production systems within the Mwea Irrigation Scheme in the Central Providence in Kenya. Project goal was to evaluate and develop a plan and clear implementation steps that will boost mechanization in rice production and harvesting systems for MRGM. The ultimate expectation is to increase production through timely farm operations, reducing losses, reducing the cost of operations by ensuing better management of costly inputs, and encouraging the productivity of natural resources while ensuring agriculture sustainability. Grant length: 8/2013-12/2013. **(Funded: All Costs for Development Project: Wang'uru, Kenya)**.

**2010** ***Long-term effects of corn rotations and production practices on soil carbon and soil fertility in a silt-loam soil.***

*Co-Primary Investigator.* Funding agency: Arkansas Corn and Grain Sorghum Promotion Board. Evaluation of corn-based rotations, tillage, and nutrient application on soil carbon sequestration and nutrient cycling. Grant Length 7/2010-7/2011. **(Not Funded)**.

- 2009** *Long-term effects of rice-based crop rotation, tillage, and fertility on near-surface soil carbon cycling and other soil properties.*  
*Primary Investigator.* Funding agency: Environmental Protection Agency (EPA) STAR Fellowship Program. Received two "Outstanding" evaluations on proposal assessment. **(Not Funded).**
- 2008** *Long-term effects of rice rotation, tillage, and fertility on near-surface soil carbon and nitrogen cycling.*  
*Doctoral Research Scientist – Dissertation Research.* Funding agency: University of Arkansas. Field research location: Rice Research and Extension Station, Stuttgart, Arkansas. Evaluation of rice-based crop rotations (with continuous rice, soybean, corn, and winter wheat), tillage treatments (conventional tillage and no-tillage), fertility regimes (optimal and sub-optimal), and soil depth (0- to 10-cm and 10- to 20-cm) on C and N cycling, and soil physical and chemical properties, over 12 years (1999-2011). Measured observations: Soil organic matter dynamics, biomass production, soil nutrient cycling, soil chemical properties, water stable aggregates and their associated C and N contents, soil surface CO<sub>2</sub> flux, and soil compaction (bulk density and penetration resistance). Modeling observations: Data used to model and compare measured observations using the Century Model. Research project length: 8/2008-2/2013. **(Funded: All Associated Costs).**
- 2008** *Long-term effects of alternative management practices in a wheat-soybean double-cropped production system.*  
*Doctoral Research Scientist - Assisted doctoral advisor in field research.* Funding Agency: University of Arkansas. Research location: Lon Mann Cotton Research Station, Marianna, Arkansas. Coordinated and Directed Infiltration Experiments. Evaluation of a long-term (11 years; 2001-2012) wheat-soybean double-cropped production system using different tillage treatments (conventional tillage and no-tillage), burn management (burn and no burn), nitrogen fertilizer treatments, and irrigation regimes (irrigated and non-irrigated). Measured observations: Biomass production, soil nutrient cycling, soil chemical properties, water infiltration rates (double-irrigating and mini-disk infiltrometer), soil surface CO<sub>2</sub> flux, and soil compaction (bulk density). Research project length: 8/2008-2/2013. **(Funded: All Associated Costs).**

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## PUBLICATIONS:

### PEER-REVIEWED PUBLICATIONS:

1. **J.M.D. Motschenbacher**, E.A. Berg, J. Ladbury, J. Nyachwaya, L. Montplaisir, and P. Kelter. 2020. Gateways-ND: Demonstrating Institutional Change in STEM Teaching and Learning within North Dakota State University. *American Society of Engineering Educators (ASEE) Conference Proceedings*, Montreal, Quebec, Canada. (in progress)
2. Wang, J. and **J.M.D. Motschenbacher**. 2020. IRES Track I: USA-China: International Research Experience for Native American Students in IoT-Enabled Environmental Monitoring Technologies. *American Society of Engineering Educators (ASEE) Conference Proceedings*, Montreal, Quebec, Canada. (in progress)
3. **Motschenbacher, J.M.D.**, M. Vosen Callens, J. Nyachwaya, E. Berg, J. Ladbury, R. Reichenbach, and P. Kelter. 2019. Gateways-ND: Building the Institutional Infrastructure towards Viable Postsecondary STEM Education Reform. *American Society of Engineering Educators (ASEE) Conference Proceedings*, Tampa, Florida.
4. Vosen Callens, M., P. Kelter, **J.M.D. Motschenbacher**, J. Nyachwaya, J. Ladbury, and A. Semanko. 2019. Developing and Implementing a Campus-wide Professional Development Program: Successes and Challenges. *Journal of College Science Teaching* 49(2): 68-75. doi: 10.2505/4/jcst19\_049\_02\_68
5. **Motschenbacher, J.M.D.**, R. Reichenbach, M. Hanson, E.A. Berg, J. Ladbury, P. Kelter, L. Montplaisir, and J. Nyachwaya. 2018. Gateways-ND: Advancing Learner-Focused Instruction to Catalyze STEM Student Success. *American Society of Engineering Educators (ASEE) Conference Proceedings*, Salt Lake City, Utah.
6. Brye, K.R., R.L. McMullen, M.L. Silveria, **J.M.D. Motschenbacher**, S.F. Smith, E.E. Gbur, and M.L. Helton. 2015. Environmental controls on soil respiration across a southern climate gradient: A meta-analysis. *Geoderma Regional* 7:110-119.
7. **Motschenbacher, J.M.**, K.R. Brye, M.M. Anders, E.E. Gbur, N.A. Slaton, and M.A. Evans-White. 2015. Daily soil surface CO<sub>2</sub> flux during non-flooded periods in flood-irrigated rice rotations. *Agronomy for Sustainable Development* 35:771-782. doi: 10.1007/s13593-014-0278-6
8. **Motschenbacher, J.M.**, K.R. Brye, M.M. Anders, and E.E. Gbur. 2014. Long-term rice rotation, tillage, and fertility effects on chemical properties in a silt-loam soil. *Nutrient Cycling in Agroecosystems* 100:77-94. doi: 10.1007/s10705-014-9628-7
9. **Motschenbacher, J.M.**, K.R. Brye, M.M. Anders, E.E. Gbur, N.A. Slaton, and M.A. Evans-White. 2014. Long-term crop rotation, tillage, and fertility effects on soil carbon and nitrogen in dry-seeded, delayed-flood rice production systems. pp. 129-156. In C.R.V. Morgado and V.P.P. Esteves (eds.). CO<sub>2</sub> Sequestration and Valorization. InTech Europe. doi: 10.5772/57064

10. **Motschenbacher, J.M.**, K.R. Brye, M.M. Anders, E.E. Gbur, N.A. Slaton, and M.A. Evans-White. 2013. Rice rotation and tillage effects on water-stable soil macroaggregates and their associated carbon and nitrogen contents in a silt loam soil. *Soil Science* 178:596-611. doi: 10.1097/SS.0000000000000028
11. **Motschenbacher, J. M.**, K.R. Brye, and M.M. Anders. 2011. Long-term rice-based cropping system effects on near-surface soil compaction. *Agricultural Sciences* 2:117-124. doi: 10.4236/as.2011.22017

#### **EDUCATION, EXTENSION, AND MEDIA PUBLICATIONS:**

1. Daigh, A.L.M. and **J.M.D. Motschenbacher**. 2017. Breaking Tradition to Create Self-Motivated, Collaborative Students. CSA News. American Society of Agronomy publication. <https://dl.sciencesocieties.org/publications/csa/articles/62/10/33?highlight=&search-result=1>
2. Welker, E., **J.M.D. Motschenbacher**, and P. Kelter. 2017. Classroom design manual: Guidelines for creating and remodeling learning spaces. Provost Office and the Office of Teaching and Learning. North Dakota State University. [https://www.ndsu.edu/fileadmin/provost/LSEC/NDSU\\_Learning\\_Spaces\\_Classroom\\_Design\\_Manual.pdf](https://www.ndsu.edu/fileadmin/provost/LSEC/NDSU_Learning_Spaces_Classroom_Design_Manual.pdf)
3. **Motschenbacher, J.M.D.** 2015. Bringing the passion back: Using your expertise to gain experience, improve motivation, and create real change in global agriculture. CSA News. American Society of Agronomy publication. <https://dl.sciencesocieties.org/publications/csa/abstracts/60/4/34/preview> doi:10.2134/csa2015-60-4-18
4. **Motschenbacher, J.M.** 2014. A glimpse at a typical first week in the life of a Farmer-to-Farmer volunteer: A personal diary. United States Agency for International Development (USAID), Catholic Relief Services (CRS), Farmer-to-Farmer Program. <http://crs-blog.org/a-glimpse-at-a-typical-first-week-in-the-life-of-a-farmer-to-farmer-volunteer-a-personal-diary/>
5. **Motschenbacher, J.M.**, K.R. Brye, M.M. Anders, and E.E. Gbur. 2012. Soil surface CO<sub>2</sub> flux as affected by rice-based rotation and tillage. *B.R. Wells Rice Research Studies 2011*, University of Arkansas Agricultural Experiment Station Publication, Research Series 591.
6. **Motschenbacher, J.M.**, K.R. Brye, M.M. Anders, and E.E. Gbur. 2012. Water-stable soil aggregation in rice-based crop rotations. *B.R. Wells Rice Research Studies 2011*, University of Arkansas Agricultural Experiment Station Publication, Research Series 591.
7. **Motschenbacher, J.M.**, K.R. Brye, and M.M. Anders. 2011. Bulk density as affected by rice-based cropping systems. *B.R. Wells Rice Research Studies 2010*, University of Arkansas Agricultural Experiment Station Publication, Research Series 591.

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#### **PRESENTATIONS:**

1. **J.M.D. Motschenbacher**, E.A. Berg, J. Ladbury, J. Nyachwaya, L. Montplaisir, and P. Kelter. 2020. Gateways-ND: Demonstrating Institutional Change in STEM Teaching and Learning within North Dakota State University. *American Society of Engineering Educators (ASEE) Conference Proceedings*, Montreal, Quebec, Canada. (accepted)
2. Wang, J. and **J.M.D. Motschenbacher**. 2020. IRES Track I: USA-China: International Research Experience for Native American Students in IoT-Enabled Environmental Monitoring Technologies. American Society of Engineering Educators (ASEE) Conference Proceedings, Montreal, Quebec, Canada. (accepted)
3. **Motschenbacher, J.M.D.** 2019. *Grant Program Evaluation*. Proposal Grant Development Program – Research and Creativity Activities (RCA) Division, North Dakota State University. November 5, 2019. *Fargo, North Dakota*.
4. **Motschenbacher, J.M.D.** and E.A. Berg. 2019. Gateways-ND: Building the Institutional Infrastructure towards Viable Postsecondary STEM Education Reform. *Association of Public and Land-Grant Universities (APLU) Powered by Publics Western Land-Grant Cluster, Teaching & Learning Symposium at Colorado State University*. September 24, 2019. *Fort Collins, Colorado*.
5. E.A. Berg and **J.M.D. Motschenbacher**. 2019. Curricular Analytics Usage – North Dakota State University. *Association of Public and Land-Grant Universities (APLU) Powered by Publics Western Land-Grant Cluster, Teaching & Learning Symposium at Colorado State University*. September 24, 2019. *Fort Collins, Colorado*.
6. **Motschenbacher, J.M.D.**, A.L.M. Daigh, and K. Napoleon. 2019. *First-Generation Experiences*. Including U: Brown Bag Conversations Workshop, Office of the Vice Provost for Faculty Affairs and Equity and Inclusion Committee, North Dakota State University. September 10, 2019. *Fargo, North Dakota*.
7. **Motschenbacher, J.M.D.** 2019. Gateways-ND: Building the Institutional Infrastructure towards Viable Postsecondary STEM Education Reform. *American Society of Engineering Educators (ASEE) Conference Proceedings*, NSF Poster session. June 15-19, 2019. *Tampa, Florida*.



8. Semanko, A.\* and **J.M.D. Motschenbacher**. 2019. Gateways-ND: Building the Institutional Infrastructure for Improving STEM Undergraduate Education. Roundtable discussion and abstract. *Network of STEM Education Centers (NSEC) Conference*. May 31-June 2, 2019, Omaha, Nebraska. (\* presenter)
9. **Motschenbacher, J.M.D.** 2018. Growth mindset. *Annual Faculty Development Training – Dakota College at Bottineau*. Workshop presentation. August 16, 2018, Bottineau, North Dakota. **Invited Speaker**
10. **Motschenbacher, J.M.D.**, R. Reichenbach, M. Hanson, E.A. Berg, J. Ladbury. P. Kelter. L. Montplaisir, and J. Nyachwaya. 2018. Gateways-ND: Advancing learner-focused instruction to catalyze STEM student success. Poster presentation and abstract. *American Society of Engineering Educators (ASEE) Conference*. NSF Poster Session. June 23-28, 2018, Salt Lake City, Utah.
11. **Motschenbacher, J.M.D.** and P. Kelter. 2018. Producing Institutional Change through STEM Faculty Engagement. Poster Presentation and abstract. *Network of STEM Education Centers (NSEC) Conference*. June 6-8, 2018, Columbus, Ohio.
12. **Motschenbacher, J.M.D.** 2018. We learn together. Interactive workshop on scholarly teaching. *North Dakota University System (NDUS) Agriculture Faculty Meeting*. May 14, 2018, Fargo, North Dakota. **Invited Speaker**
13. McDaniel, S.\*, **J.M.D. Motschenbacher**, and P. Kelter. 2017. What does it take to actually do active learning - Training and good classroom design? Oral Presentation and abstract. *Society for College and University Planning (SCUP) 2017 North Central Regional Conference*. October 9-11, 2017, Minneapolis, Minnesota. (\* presenter)
14. **Motschenbacher, J.M.D.** and A.L.M. Daigh. 2017. How does limiting scientific inquiry and dissemination on climate change affect local and global food security? Oral Presentation and abstract. *Session - Tough Topics 2017: Let's Figure it Out Together*. North Dakota State University Teach-In. March 23, 2017, Fargo, North Dakota.
15. **Motschenbacher, J.M.** 2015. Is it safe in America? Physical and emotional pain as barriers to learning. *Panel session – From fire to fire: Examining the complexity of learning for refugee adult English Learners, National Council of Teachers of English, Conference on College Communication and Composition (CCCC)*, March 18-21, 2015, Tampa, Florida.
16. **Motschenbacher, J.M.** 2014. Working with USAID: Using agronomy and soil science expertise to improve Eastern Africa agriculture. Oral presentation and abstract. *Session – Professional Development for Agriculture Educators, National Association of Agriculture Educators (NAAE) Annual Convention*, November 18-22, 2014, Nashville, Tennessee.
17. **Motschenbacher, J.M.** 2014. Preventing postharvest maize grain losses for smallholder farmers in the District of Iganga, Uganda. Oral presentation and abstract. *Session –Global Agronomy, ASA-CSSA-SSSA International Annual Meetings*, November 2-5, 2014, Long Beach, California.
18. **Motschenbacher, J.M.** 2014. The pain of change: Challenges associated with mechanizing rice production and harvesting systems in the Mwea Irrigation Scheme within the Kirinyaga District, Central Province, Kenya. Oral presentation and abstract. *Session –Global Agronomy, ASA-CSSA-SSSA International Annual Meetings*, November 2-5, 2014, Long Beach, California.
19. **Motschenbacher, J.M.** 2014. Preventing postharvest grain losses: Improving handling and storage for maize farmers in Iganga, Uganda. Oral presentation on recommendations and development plan. *Namungalwe Area Cooperative Enterprise (ACE) Advisory Board, Catholic Relief Services, the Regional District Commander (RDC) of the District of Iganga, and USAID*. May 21 and 22, 2014, Iganga, Uganda.
20. **Motschenbacher, J.M.** 2013. Soil risk management: Using cover crops to reduce soil degradation. Oral presentation for producers and government personnel. *Iowa State University Extension Field Day*, November 1, 2013, Storm Lake, Iowa.
21. **Motschenbacher, J.M.** 2013. Mechanization of rice production and harvesting systems: Mwea Irrigation Scheme. Oral presentation on business plan. *Mwea Rice Growers Multipurpose (MRGM) Cooperative Society Advisory Board and the Minister of Agriculture - Kenya*, June 20, 2013, Wang'uru, Central Province, Kenya.
22. **Motschenbacher, J.M.**, K.R. Brye, M.M. Anders, E.E. Gbur. 2012. Long-term effects of rice rotation, tillage, and fertility on near-surface soil carbon and nitrogen cycling. Oral presentation and abstract. *Session - Agricultural Management Practices Impact on Soil Carbon and Nitrogen Pools and Soil Quality Dynamics: I, ASA-CSSA-SSSA International Annual Meetings*, October 21-24, 2012, Cincinnati, Ohio.
23. **Motschenbacher, J.M.**, K.R. Brye, M.M. Anders, E.E. Gbur. 2012. Long-term rice rotation, tillage, and fertility effects on extractable soil nutrients in a silt-loam soil. Oral presentation and abstract. *Session - Nutrient Cycling and Management in High Yield Environments, ASA-CSSA-SSSA International Annual Meetings*, October 21-24, 2012, Cincinnati, Ohio.
24. **Motschenbacher, J.M.**, K.R. Brye, M.M. Anders, and E.E. Gbur. 2012. Rice rotation and tillage effects on water-stable soil macroaggregates and their associated carbon contents. Oral presentation and abstract. *Southern Region Soil Physics Group*, Oklahoma State University, May 14, 2012, Stillwater, Oklahoma.
25. **Motschenbacher, J.M.** 2012. Long-term effects of rice rotation, tillage, and fertility on near-surface soil carbon and nitrogen cycling. Oral presentation and abstract. *Ph.D. Departmental Seminar, Department of Crop, Soil and Environmental Sciences*, University of Arkansas, April 2, 2012, Fayetteville, Arkansas.

26. **Motschenbacher, J.M.**, K.R. Brye, M.M. Anders, E.E. Gbur. 2012. Soil aggregation and carbon and nitrogen dynamics in rice-based cropping systems. Poster presentation and abstract. *The 34<sup>rd</sup> Rice Technical Working Group Meeting Proceedings*, February 27-March 1, 2012, *Hot Springs, Arkansas*.
27. **Motschenbacher, J.M.**, K.R. Brye, M.M. Anders, E.E. Gbur. 2012. Long-term rice rotation, tillage, and fertility effects on near-surface chemical properties. Oral presentation and abstract. *The 34<sup>rd</sup> Rice Technical Working Group Meeting Proceedings*, February 27-March 1, 2012, *Hot Springs, Arkansas*.
28. Anders, M.M.\*, K.M. Yeater, **J.M. Motschenbacher**, and S. Kerr. 2012. Rotation, tillage, and fertility treatment differences in rice grain yield and soil carbon under ten years of consistent management. Abstract. *The 34<sup>rd</sup> Rice Technical Working Group Meeting Proceedings*, February 27-March 1, 2012, *Hot Springs, Arkansas*. (\* presenter)
29. **Motschenbacher, J.M.**, K.R. Brye, M.M. Anders, E.E. Gbur. 2012. Soil aggregation and carbon and nitrogen dynamics in rice-based cropping systems. Poster presentation and abstract. *Abstract to Contract Graduate Research Symposium*, University of Arkansas, February 2012, *Fayetteville, Arkansas*.
30. **Motschenbacher, J.M.**, K.R. Brye, M.M. Anders, E.E. Gbur. 2011. Rice crop rotation and tillage effects on soil aggregates and their associated carbon and nitrogen contents. Poster presentation and abstract. *General Soil Physics Session, ASA-CSSA-SSSA International Annual Meetings*, October 14-20, 2011, *San Antonio, Texas*.
31. **Motschenbacher, J.M.**, K.R. Brye, M.M. Anders, E.E. Gbur. 2011. Long-term rice-crop and tillage effects on soil surface CO<sub>2</sub> flux. Oral presentation and abstract. *Symposium – Emission of Regulated and Greenhouse Gases: Measurement Technology, Monitoring and Policy, ASA-CSSA-SSSA International Annual Meetings*, October 14-20, 2011, *San Antonio, Texas*.
32. **Motschenbacher, J.M.**, K.R. Brye, and M.M. Anders. 2011. Rice crop rotation and tillage effects on soil aggregates and their associated carbon and nitrogen contents. Poster presentation and abstract. *International Symposium on Soil Organic Matter*, July 11-14, 2011, *Leuven, Belgium*.
33. **Motschenbacher, J.M.** 2010. Spooner Scholarship: Modeling C, N, P, and S cycling in Century and DayCent. Oral presentation and abstract. Presentation on scholarship visit to the Natural Resource Ecology Laboratory at Colorado State University. *Department of Crop, Soil and Environmental Sciences, Departmental Seminar*, University of Arkansas, May 2010, *Fayetteville, Arkansas*.
34. **Motschenbacher, J.M.**, K.R. Brye, M.M. Anders, E.E. Gbur. 2010. Long-term rice-based cropping system effects on near-surface soil compaction. Poster presentation and abstract. *The 33<sup>rd</sup> Rice Technical Working Group Meeting Proceedings*, February 22-25, 2010, *Biloxi, Mississippi*.
35. **Motschenbacher, J.M.**, K.R. Brye, M.M. Anders, E.E. Gbur. 2010. Long-term rice-based cropping system effects on near-surface soil compaction. Poster presentation and abstract. *Abstract to Contract Graduate Research Symposium*, University of Arkansas, January 2010, *Fayetteville, Arkansas*.
36. **Motschenbacher, J.M.** 2007. The effects of cross-linked hydrophilic polymers on turf grass. Oral presentation on findings from a graduate independent research project. *Department of Agriscience and Agribusiness, Departmental Seminar*, Middle Tennessee State University, December 2, 2007, *Murfreesboro, Tennessee*.
37. **Motschenbacher, J.M.** 2007. Organic crop development. Oral presentation on findings from a graduate independent research study. *Departmental Seminar*, Middle Tennessee State University, April 12, 2007, *Murfreesboro, Tennessee*.
38. **Motschenbacher, J.M.** 2005. Hybrid rice: Can it help decrease hunger in Asia? Oral presentation and abstract. *Undergraduate Social Science Symposium*, Middle Tennessee State University, February 10, 2005, *Murfreesboro, Tennessee*.
39. **Motschenbacher, J.M.** 2005. Hybrid rice: Can it help decrease hunger in Asia? Poster presentation and abstract. *Undergraduate Scholars Day*, Middle Tennessee State University, January 22, 2005, *Murfreesboro, Tennessee*.
40. **Motschenbacher, J.M.** 2005. Atkins impact on the U.S. beef industry. Poster presentation and abstract. *Undergraduate Research Symposium*, Middle Tennessee State University, November 16, 2005, *Murfreesboro, Tennessee*.

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## **EDITING AND PEER-REVIEW EXPERIENCE:**

American Society of Engineering Education (2019) – 4 Presentation and Manuscript Abstracts  
American Society of Engineering Education (2018) – 5 Presentation and Manuscript Abstracts  
Pedosphere (2016) – 1 Manuscript  
Agronomy for Sustainable Development (2016) – 2 Manuscripts  
Precision Agriculture (2015) – 1 Manuscript  
Nutrient Cycling in Agroecosystems (2015-2016) – 3 Manuscripts  
Ecological Engineering (2015) – 1 Manuscript  
The Journal of Agricultural Science (2015) – 1 Manuscript  
Environmental Monitoring and Assessment (2015) – 2 Manuscripts  
Agronomy Journal (2014) – 1 Manuscript  
Ecological Indicators (2014) – 1 Manuscript  
Soil Science (2013-2014) – 2 Manuscripts  
Soil Science Society of America Journal (2013-2018) – 5 Manuscripts

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## **PROFESSIONAL ASSOCIATIONS:**

### **ORGANIZATIONAL MEMBERSHIPS AND INVOLVEMENTS:**

Higher Learning Commission (HLC; 2019 – Present)  
Association of Public and Land-grant Universities (APLU; 2019- Present)  
Association of American Colleges and Universities (AAC&U; 2018-Present)  
Network of Stem Education Centers (NSEC; 2018-Present)  
American Society of Engineering Educators (ASEE; 2018 - Present)  
Association for Women Soil Scientists (AWSS; 2012 - Present)  
Arkansas Association of Professional Soil Classifiers (AAPSC; 2012 - 2013)  
Crop, Soil and Environmental Sciences Graduate Student Association (CSES-GSA; 2008-2012)  
Crop Science Society of America (CSSA; 2008 - Present)  
Soil Science Society of America (SSSA; 2008 - Present)  
American Society of Agronomy (ASA; 2008 - Present)

### **HONOR SOCIETIES:**

Trademark Women of Distinction (Inducted 2019)  
Who's Who Among American College Students (Inducted 2010)  
Golden Key International Honour Society (Inducted 2009)  
Phi Kappa Phi (Inducted 2007)  
The National Dean's List (Inducted 2003)  
The National Society of Collegiate Scholars (Inducted 2002)