

# Whitney Alyson Lisenbee, EIT, USDA Postdoctoral Fellow

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## EDUCATION

### University of Tennessee-Knoxville

Ph.D. in Civil and Environmental Engineering, Water Resources Concentration

May 2020, GPA: 3.92/4.0

Advisor: Dr. Jon Hathaway, Ph.D., P.E.

Associate Professor, Goodpasture Endowed Faculty, NSF Career Awardee

*Dissertation: A study of DRAINMOD-Urban for enhanced bioretention cell modeling*

### Oklahoma State University

M.S. in Biosystems and Agricultural Engineering, Environmental & Natural Resources Concentration

May 2016, GPA: 3.88/4.0

Advisor: Dr. Garey A. Fox, Ph.D., P.E.

Department Head, Biological and Agricultural Engineering, N.C. State University

*Thesis: Comparison of water quality and quantity in Eastern Redcedar-encroached woodland and native tallgrass prairie watersheds: A monitoring and modeling study*

B.S. in Biosystems and Agricultural Engineering, Honors Degree, Spanish Minor

May 2014, Magna Cum Laude, GPA: 3.81/4.0

## ACADEMIC POSITIONS

- 2022-23: USDA Postdoctoral Fellow, Pennsylvania State University, University Park, PA  
Modeled water quality of integrated agricultural-urban watersheds using different BMP implementation under changing land use and climate conditions
- 2020-21: Postdoctoral Scholar, Pennsylvania State University, University Park, PA  
Dr. Jason Kaye, Ph.D., Professor  
Evaluated nutrient flows across multiple scales in the Chesapeake Bay region using SWAT for sustainable agriculture scenarios
- 2020: Research Specialist, University of Tennessee, Knoxville, TN  
Dr. Jon Hathaway, Ph.D., P.E., Associate Professor  
Conducted sensitivity analysis of DRAINMOD-Urban and SWMM for bioretention cell modeling and examined accuracy of soil parameters
- 2016-20: Graduate Research Assistant, University of Tennessee, Knoxville, TN  
Dr. Jon Hathaway, Ph.D., P.E., Associate Professor  
Modeled and analyzed hydrology of bioretention cells using a new model, DRAINMOD-Urban, as compared to SWMM
- 2014-16: Graduate Research Assistant, Oklahoma State University, Stillwater, OK  
Dr. Garey A. Fox, Ph.D., P.E., Professor and Buchanan Chair  
Developed experimental plan, implemented monitoring system, and analyzed data for multidisciplinary research of the effects of Eastern redcedar removal on water quality

## RESEARCH INTERESTS

My research interests include land use changes and other human impacts on hydrodynamic systems, water availability, sustainability, urban hydrology, water quality, stormwater mitigation, low impact development, and food-energy-water nexus.

## SKILLS

Language: Intermediate proficiency in Spanish

Computer: ArcGIS, DRAINMOD, HEC-HMS, Python, QGIS, R, SWAT/SWAT+, SWMM, WEPP

Reviewer: Journal of Hydrology, Ecological Applications, ASCE Journal of Sustainable Water in the Built Environment, Journal of Hydrologic Engineering

## GRANTS

USDA-AFRI Postdoctoral Fellowship. Modeling Land Use and Climate Change Scenarios to Manage Water Quality in Integrated Agricultural-Urban Landscapes. \$185,965. **W.A. Lisenbee**. 1/22 – 12/23.

U.S. Forest Service. Rainfall Interception by Urban Trees. \$24,960. J.M. Hathaway and **W.A. Lisenbee**. 5/17 – 9/18.

## PUBLICATIONS- (5 peer-reviewed, 2 conference proceedings, 4 in preparation/review)

ORCID iD: 0000-0002-2895-5074

1. *Submitted*-**Lisenbee, W.A.**, Saha, A., Mohammadpour, P., Cibin, R., Kaye, J., Grady, C. and I. Chaubey (2022). Water Quality Impacts of Recycling Nutrients Using Organic Fertilizers in a Circular Agricultural System. *Agricultural Systems*.
2. *In Review*- Howard, M., Hathaway, J., Tirpak, A., and **W. Lisenbee**. (2022). Quantifying Urban Tree Canopy Interception in the Southeastern United States. *Urban Forestry & Urban Greening*.
3. *Submitted*- Diab, G., **Lisenbee, W.**, Hathaway, J., Brown, R., and Hunt, W. (2022). Fine Scale Hydrologic Modelling of Bioretention Using DRAINMOD-Urban: Verifying Performance Across Multiple Systems. *Journal of Hydrology*.
4. *In Preparation*- **Lisenbee, W.A.**, and J. Hathaway (2022). Pedotransfer Functions for Estimating Soil Parameters in Bioretention Modeling: A Sensitivity Study.
5. **Lisenbee, W.A.**, and J. Hathaway (2022). Comparison of DRAINMOD-Urban to the SWMM-LID Module for Bioretention Modeling. *Journal of Hydrology*, 612 (128179), doi: 10.1016/j.jhydrol.2022.128179
6. **Lisenbee, W.A.**, J. Hathaway, M. Burns and T. Fletcher (2021). Modeling Bioretention Stormwater Systems: A Review of Current Models and Research Needs. *Environmental Modelling and Software*, (105146), doi: 10.1016/j.envsoft.2021.105146
7. **Lisenbee, W.A.**, Hathaway, J., Negm, L., Youssef, M. and R. Winston (2020). Enhanced Bioretention Cell Modeling with DRAINMOD-Urban: Moving from Water Balances to Hydrograph Production. *Journal of Hydrology*, 582 (124491), doi: 10.1016/j.jhydrol.2019.124491
8. **Lisenbee W.**, Hathaway J., and R. Winston (2019) Promoting Successful Urban Watershed Restoration Through Enhanced Bioretention Cell Modelling. In: Mannina G. (eds) New Trends

in Urban Drainage Modelling. UDM 2018. Green Energy and Technology. Springer, Cham. doi: 10.1007/978-3-319-99867-1\_47

9. Young, B.N., Hathaway, J.M., **Lisenbee, W.A.** and Q. He. (2018) Assessing the Runoff Reduction Potential of Highway Swales and WinSLAMM as a Predictive Tool. *Sustainability*, 10, 2871; doi:10.3390/su1008287
10. **Lisenbee, W.A.**, Fox, G.A., Saenz, A.A. and R.B. Miller. (2017) Comparison of Field Jet Erosion Tests and WEPP-Predicted Erodibility Parameters for Varying Land Cover. *Transactions of the ASABE*, 60(1), 173-184. doi: 10.13031/trans.12012
11. **Lisenbee, W.A.**, Fox, G.A., Zou, C., Storm, D.E., Penn, C., Stebler, E. and A. Mittelstet. (2015) Predicted influence of Eastern Redcedar removal on water quantity and quality ASABE Paper No. 152176482. St. Joseph, Mich: ASABE Conference Proceedings. doi: 10.13031/aim.20152176482

**ORAL PRESENTATIONS- (International: 2, National: 14, Regional: 6)- Presenter listed first**

1. **Lisenbee, W.A.**, Marali, K., Cibin, R., Kaye, J. July 16-20, 2022. Modeling Land Use and Climate Change Scenarios to Manage Water Quality in Integrated Agricultural-Urban Landscapes. ASABE 2022 Annual International Meeting, Houston, TX.
2. **Lisenbee, W.A.**, Saha, A., Mohammadpour, P., Cibin, R., Kaye, J., Grady, C., and I. Chaubey. July 16-20, 2022. Water Quality of Circular Agricultural Systems in the Chesapeake Bay Watershed. ASABE 2022 Annual International Meeting, Houston, TX.
3. **Lisenbee, W.A.**, Marali, K., Cibin, R., Kaye, J. June 6-8, 2022. Modeling Land Use and Climate Change Scenarios to Manage Water Quality in Integrated Agricultural-Urban Landscapes. Chesapeake Community Research Symposium, Baltimore, MD.
4. **Lisenbee, W.A.**, Hathaway, J., and Winston, R. Jan. 9-12, 2022. Modelling bioretention hydrology in the SWMM LID module and DRAINMOD-Urban. Urban Drainage Modeling Conference, Virtual Online.
5. **Lisenbee, W.A.**, Kaye, J., Cibin, R. and B. Bradley, July 12-16, 2021. The Effect of Cover Crops on Field-Scale Nutrient Budgets in the Chesapeake Bay Watershed using SWAT. American Society of Agricultural and Biological Engineers (ASABE) Annual International Meeting, Virtual Online.
6. **Lisenbee, W.A.**, and J. Hathaway. July 20-24, 2020. The Role of Estimated Soil Parameters on Bioretention Modeling: A Sensitivity Study. American Society of Civil Engineering (ASCE) International Low Impact Development Conference, Virtual Online.
7. R. Winston, **Lisenbee, W.A.**, J. Hathaway, L. Negm and M. Youssef. July 1-5, 2019. Enhanced Bioretention Cell Modeling: Moving from Water Balances to Hydrograph Production. Novatech 10<sup>th</sup> International Conference, Lyon, France.
8. **Lisenbee, W.A.**, J. Hathaway, R. Winston, L. Negm and M. Youssef. June 3-6, 2019. Enhanced Bioretention Cell Modeling: Moving from Water Balances to Hydrograph Production. 19<sup>th</sup> Annual Meeting of the American Ecological Engineering Society (AEES), Asheville, NC.
9. **Lisenbee, W.A.**, J. Hathaway, R. Winston, L. Negm and M. Youssef. May 19-23, 2019. Enhanced Bioretention Cell Modeling: Moving from Water Balances to Hydrograph Production.

American Society of Civil Engineering (ASCE) World Environmental and Water Resources Congress, Pittsburgh, PA.

10. **Lisenbee, W.A.**, J. Hathaway, R. Winston, M. Youssef and L. Negm. August 12-15, 2018. Promoting Successful Urban Watershed Restoration through Enhanced Bioretention Cell Modeling. American Society of Civil Engineering (ASCE) International Low Impact Development Conference, Nashville, TN.
11. **Lisenbee, W.A.**, J. Hathaway, and R. Winston. June 12-14, 2018. Promoting Successful Urban Watershed Restoration through Enhanced Bioretention Cell Modeling. 18<sup>th</sup> Annual Meeting of the American Ecological Engineering Society (AEES), Houston, TX.
12. **Lisenbee, W.A.**, J. Hathaway, and R. Winston. April 11-13, 2018. Promoting Successful Urban Watershed Restoration through Enhanced Bioretention Cell Modeling. Tennessee Water Resources Symposium (TWRS), Montgomery Bell State Park, TN.
13. **Lisenbee, W.A.**, A. Tirpak, and J. Hathaway, October 16-19, 2017. Advances in Bioretention: Suspended Pavement Systems and Future Directions for DRAINMOD Modeling. Tennessee Stormwater Association (TNSA) Annual Conference, Falls Creek Falls State Park, TN.
14. **Lisenbee, W.A.**, A. Tirpak, and J. Hathaway, July 16-19, 2017. Advances in Bioretention: Suspended Pavement Systems and Future Directions for DRAINMOD Modeling. ASABE Annual International Meeting, Spokane, WA.
15. **Lisenbee, W.A.**, G.A. Fox, and R.B. Miller, July 17-20, 2016. Comparison of Field Jet Erosion Tests and WEPP-Predicted Erodibility Parameters for Varying Land Cover. ASABE Annual International Meeting, Orlando, FL.
16. **Lisenbee, W.A.**, G.A. Fox, and R.B. Miller, March 24-25, 2016. Comparison of Field Jet Erosion Tests and WEPP-Predicted Erodibility Parameters for Varying Land Cover. Student Water Conference, Oklahoma State University, Stillwater, OK.
17. **Lisenbee, W.A.**, G.A. Fox, C. Zou, D.E. Storm, C.J. Penn, E. Stebler, and A. Mittelstet. July 26-29, 2015. Predicted Influence of Red Cedar Removal on Water Quantity and Quality Using WEPP. ASABE Annual International Meeting, New Orleans, LA.
18. **Lisenbee, W.A.**, G.A. Fox, C. Zou, D.E. Storm, C.J. Penn, E. Stebler, and A. Mittelstet. June 3-5, 2015. Predicted Influence of Red Cedar Removal on Water Quantity and Quality Using WEPP. American Ecological Engineering Society (AEES) Annual Meeting, Stillwater, OK.
19. **Lisenbee, W.A.**, G.A. Fox, C. Zou, D.E. Storm, C.J. Penn, E. Stebler, and A. Mittelstet. March 25-27, 2015. Predicted Influence of Red Cedar Removal on Water Quantity and Quality Using WEPP. Student Water Conference, Oklahoma State University, Stillwater, OK.
20. **Lisenbee, W.A.**, July 13-16, 2014. The Effects of Vegetation on Stream Bank Stability and Soil Erodibility. ASABE Annual International Meeting, Montreal, QB, CA.
21. Fox, G.A., A. Khanal, and **W. Lisenbee**. June 5, 2014. Quantification of the Impact of Plant Roots on the Erodibility of Cohesive Soils. ASCE-EWRI World Environmental and Water Resources Congress, Portland, OR.
22. **Lisenbee, W.A.**, February 19, 2013. The Effects of Vegetation on Stream Bank Stability and Soil Erodibility. Oklahoma State University Research Symposium, Stillwater, OK.

**POSTER PRESENTATIONS- (International: 1, National: 4, Regional: 10)**

1. Lisenbee, W.A., Saha, A., Mohammadpour, P., Cibir, R., Kaye, J., Grady, C., and I. Chaubey. November 19, 2021. Water Quality of Circular Agricultural Systems in the Chesapeake Bay Watershed. Lancaster-Lebanon Watershed Forum and Science Symposium, Elizabethtown, PA.
2. Lisenbee, W.A., J. Hathaway, R. Winston, M. Youssef and L. Negm. September 23-26, 2018. Promoting Successful Urban Watershed Restoration through Enhanced Bioretention Cell Modeling. 11<sup>th</sup> International Conference on Urban Drainage Modelling, Palermo, Italy.
3. Lisenbee, W.A., and J. Hathaway. July 29-August 1, 2018. Promoting Successful Urban Watershed Restoration through Enhanced Bioretention Cell Modeling. Consortium of Universities for the Advancement of Hydrologic Science, Inc. (CUAHSI) 2018 Biennial Colloquium, Shepherdstown, WV.
4. Lisenbee, W.A. and J. Hathaway, March 1, 2018. Promoting Successful Urban Watershed Restoration through Enhanced Bioretention Cell Modeling. Women in STEM Research Symposium, Knoxville, TN.
5. Lisenbee, W.A. and J. Hathaway, January 22-23, 2018. Promoting Successful Urban Watershed Restoration through Enhanced Bioretention Cell Modeling. GEM-ASEE Doctoral Engineering Research Showcase, Washington, D.C.
6. Lisenbee, W.A., G.A. Fox, A.A. Saenz, and R.B. Miller, June 7-9, 2016. Comparison of Field Jet Erosion Tests and WEPP-Predicted Erodibility Parameters for Varying Land Cover. American Ecological Engineering Society (AEES) Annual Meeting, Knoxville, TN.
7. Lisenbee, W.A., G.A. Fox, and R.B. Miller, March 29-30, 2016. Evaluation of Field Jet Erosion Tests and WEPP-Predicted Erodibility Parameters in Forests and Grasslands. Oklahoma Clean Lakes and Watersheds Association (OCLWA), Stillwater, OK.
8. Lisenbee, W., G.A. Fox, and R.B. Miller. December 3, 2015. Evaluation of Field Jet Erosion Tests and WEPP-Predicted Erodibility Parameters in Forests and Grasslands. Oklahoma NSF EPSCoR 2015 Annual State Conference, Norman, OK.
9. Lisenbee, W.A., G.A. Fox, and R.B. Miller, December 1, 2015. Evaluation of Field Jet Erosion Tests and WEPP-Predicted Erodibility Parameters in Forests and Grasslands. 36th Annual Oklahoma Governor's Water Conference and Research Symposium, Norman, OK.
10. Lisenbee, W.A., G.A. Fox, C. Zou, D.E. Storm, C.J. Penn, E. Stebler, and A. Mittelstet. April 8-9, 2015. Predicted Influence of Red Cedar Removal on Water Quantity and Quality using WEPP. Oklahoma Clean Lakes and Watersheds Association (OCLWA), Stillwater, OK.
11. Lisenbee, W.A., April 2-3, 2014. Designing an Alum Microfloc Curtain for Water Treatment in Lake Wister. Oklahoma Clean Lakes and Watersheds Association (OCLWA), Stillwater, OK.
12. Lisenbee, W.A., July 21-24, 2013. The Effects of Vegetation on Stream Bank Stability and Soil Erodibility. ASABE Annual International Meeting, Kansas City, MO.
13. Lisenbee, W.A., April 4-5, 2013. The Effects of Vegetation on Stream Bank Stability and Soil Erodibility. Student Water Conference, Oklahoma State University, Stillwater, OK.
14. Lisenbee, W.A., April 18-19, 2013. The Effects of Vegetation on Stream Bank Stability and Soil Erodibility. Oklahoma Clean Lakes and Watersheds Association (OCLWA), Stillwater, OK.

15. Lisenbee, W.A., November 13-14, 2012. Plant Growth in Light Weight Green Roof Media. 33rd Annual Oklahoma Governor's Water Conference and Research Symposium, Tulsa, OK.

## TEACHING EXPERIENCE

- Fall 2017-19: Teaching Assistant, University of Tennessee, Knoxville, TN  
 Dr. Jon Hathaway, Ph.D., P.E., Associate Professor  
 CE 391: Water Resources Engineering I  
 Taught three lectures covering hydrology material and organized a weekly review session
- Spring 2017: UT-CIRTL Associate Level Certification in Teaching and Learning  
 Attended a two-day workshop to learn about methods for "Facilitating Undergraduate Evidence-Based Learning" hosted by the University of Tennessee Center for the Integration of Research, Teaching and Learning (UT-CIRTL)
- Spring 2017: Teaching Assistant, University of Tennessee, Knoxville, TN  
 Dr. Jennifer Retherford, Ph.D., Lecturer  
 CE 205: Professional Development I  
 Attended lectures to help with in-class exercises, graded participation assignments as well as formatting and references of technical papers
- Fall 2015: Teaching Assistant, Oklahoma State University, Stillwater, OK  
 Dr. Glenn Brown, Ph.D., P.E., Regent's Professor  
 ENSC 3233: Fluid Mechanics  
 Taught discussion section weekly for 25 students from a class of 250 students, graded weekly homework, quizzes and tests, & held weekly tutoring sessions
- Fall 2013: Teaching Assistant, Oklahoma State University, Stillwater, OK  
 Dr. Garey A. Fox, Ph.D., P.E., Professor and Buchanan Chair  
 BAE 1012: Introduction to Biosystems Engineering  
 Managed classroom activities, graded assignments and held weekly tutoring sessions to prepare students for an engineering degree
- Fall 2012: Success Coaching for the Academic Excellence Center, OSU, Stillwater, OK  
 Mentored freshmen in an Introduction to Engineering class to introduce them to resources at Oklahoma State University (OSU) such as tutoring, student organizations, and research

## MENTORING

- 2022 Emma Luksic, *Project Drawdown Summer Research Experience*- Evaluating land suitability of urban BMPs using the SUSTAIN model
- 2020 Mariah Yau, *Research Experience for Seniors program*- Agricultural field-scale SWAT modeling of cover crop treatments
- 2020 Luis Alonso Aguirre Soto, *Clean Water Science Network mentoring program*
- 2018 Danielle Ursprung, *Undergraduate Research Assistant*- Rain garden outreach project to enhance environmental literacy and STEM education in area high schools
- 2017-18 Sierra Sims, *Undergraduate Research Assistant*- Quantifying the contributions of urban trees to stormwater management by monitoring rainfall interception

## PROFESSIONAL EXPERIENCE

- 2014-16: Support Assistant, Oklahoma Water Resources Center, Stillwater, OK  
Organized materials for conferences, constructed and reviewed newsletters and social media content, and promoted preservation of water resources in Oklahoma
- 2014: Pilot Plant Intern at City of Tulsa AB Jewell Water Treatment Plant, Tulsa, OK  
Managed an ongoing project by sampling, testing, and monitoring the pilot plant
- 2012: Environmental Intern at Chesapeake Energy Corporation, Oklahoma City, OK  
Implemented a new online waste management database, visited field operating sites, & communicated with personnel in the field locations

## AWARDS AND HONORS

- 2019: 2<sup>nd</sup> Place Student Poster: UT 7<sup>th</sup> Annual Watershed Symposium
- 2018: P.E.O. Scholar Award: 1 of 100 chosen from 741 nominees for a prestigious national award for women in Ph.D. programs dedicated to making significant contributions to their respective fields of study and providing support and encouragement to other women
- 2016: Chancellor's Fellowship: Department of Civil and Environmental Engineering, UT-Knoxville 4-year scholarship in addition to assistantship
- 2016: 3<sup>rd</sup> Place Paper: Boyd-Scott Graduate Student Paper Award, American Society of Agricultural and Biological Engineers (ASABE) Annual International Meeting
- 2014: OSU Alumni Association's Senior of Significance: top 40 seniors
- 2014: OSU College of Agricultural Sciences and Natural Resources Senior of Distinction: top 10 senior
- 2014: 1<sup>st</sup> Place Paper: Kenneth K. Barnes Undergraduate Student Paper Award, ASABE Annual International Meeting
- 2014: 1st Place in Student Poster: Oklahoma Clean Lakes and Watershed Association (OCLWA) Conference
- 2014: 2<sup>nd</sup> Place in Design Competition: ASABE G.B. Gunlogson Fountain Wars as Cowboy Waterworks Team President
- 2013: 2<sup>nd</sup> Place in Student Poster: OCLWA Conference
- 2013: 3<sup>rd</sup> Place in Design Competition: ASABE G.B. Gunlogson Fountain Wars as Cowboy Waterworks Team Member
- 2013: 1<sup>st</sup> Place Paper: Physical Sciences & Technology Undergraduate Competition, OSU 24<sup>th</sup> Annual Research Symposium

## OUTREACH

- 2021 Penn State Arboretum Mini-Camp- "Digging Deeper: The Story of Soil"  
Assisted with teaching 3-5<sup>th</sup> graders about soil science and ecology
- 2019 North Knox County Library Rain Garden Installation  
Designed and installed rain garden demonstration at local library with Hydrolunteers
- 2017-18 Baker Creek Water Quality Project  
Volunteered to assist with field stream water quality sampling demonstrations for elementary and middle-school students

- 2016-19     NSF Career Award Rain Garden Project in Knoxville High Schools  
Lead outreach project at four Knoxville high schools by teaching lessons on rain gardens and installing monitoring equipment for students to lead their own research projects
- 2016-19     Adopted Second Creek Cleanups  
Organized regular stream cleanups for Hydrolunteers student group
- 2017-19     Keep Knoxville Beautiful River Rescue Stream Cleanup  
Organized Hydrolunteers student team to take part in a local stream cleanup event
- 2015         National FFA Convention and Expo- Invited by ASABE national headquarters to represent Soil and Water Engineering  
Participated in recruiting activities and demonstrated stream engineering and restoration using the OSU Stream Trailer to approximately 5000 high school students and educators
- 2015         Kansas State Jet Erosion Test (JET) Workshop  
Performed test demonstrations of the Jet Erosion Test at workshop for Kansas State University, Biosystems and Agricultural Engineering Graduate Program, June 8-9, 2015, Manhattan, KS.
- 2014-16     Oklahoma EPSCOR Women in Science Conference-OSU BAE Recruiter  
Recruited female middle-school students to the Biosystems and Agricultural Engineering (BAE) department at OSU with a liquid nitrogen ice cream demonstration

## PROFESSIONAL AND HONOR SOCIETIES

American Society of Agricultural and Biological Engineers (ASABE)

-Young Professionals Community Executive Committee-Member-At-Large

-Committee member for NRES 21-Hydrology and NRES 25-Streams, Reservoirs and Wetlands

-Oral Presentation Judge for G.B. Gunlogson Fountain Wars Design Competition

American Society of Civil Engineers (ASCE)- Environment, Water and Natural Resources (EWRI)

American Ecological Engineering Society (AEES)

American Society of Engineering Education (ASEE)

Alpha Epsilon- ASABE Honor Society

Phi Kappa Phi Honor Society

Mortar Board National College Senior Honor Society

## COMMUNITY AND CAMPUS INVOLVEMENT (*Leadership Positions*)

2016-2020     Hydrolunteers (Environmental Student Group)

*2018-20: Vice President*

*2016-18: Volunteer Coordinator*

2014-2019     Future City Middle School Design Competition-

*2018-19: Competition Judge*

*2017: Team Mentor*

*2014-16: Competition Judge*

2014-16         Biosystems and Agricultural Engineering Graduate Student Association (BAEGSA)

*2015-16: Social Chair*

*2014-15: Graduate Student Government Representative*



2013-14 Engineering Freshman Mentor  
2012-14 Cowboy Waterworks (Student Design Team)  
*2014-15: Graduate Advisor*  
*2013-14: President, 2<sup>nd</sup> Place in ASABE Fountain Wars Competition*  
*2012-13: 3<sup>rd</sup> Place in ASABE Fountain Wars Competition*  
2012-14 Biosystems & Agricultural Engineering Ambassador  
2010-14 Delta Delta Delta  
*2013-14: Reference Chairman*  
*2012-13: Academic Development Chairman*  
*2012-13: Standards Committee*  
*2011-12: Risk Management Chairman*  
2010-14 American Society Agricultural & Biological Engineers Student Chapter  
2007-14 American Cancer Society's Relay for Life  
*2007-14: Committee Member*  
*2012-14: Luminaria Committee Chair*  
*2010-11: Residential Life Recruitment Chair*