Christopher M. Zarzar

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Research Interests

hydrometeorology, human-land-atmosphere interactions, natural hazard risk visualization and communication

Education

Ph.D., Earth and Atmospheric Sciences; 2017
Mississippi State University, Mississippi State, MS
Advisor: Dr. Jamie Dyer
Dissertation Topic: *Assessment of remotely sensed image processing techniques for Unmanned Aerial System (UAS) applications.*

M.A., Geography; 2014
East Carolina University, Greenville, NC
Advisor: Dr. Tom Rickenbach
Thesis Topic: *Precipitation systems and regional hydrology in North Carolina*

B.S., Atmospheric Sciences; 2011
University of North Carolina Asheville, Asheville, NC
Distinction in Atmospheric Sciences
Minor in Management

Professional Experience

Assistant Professor, 2020 – present
North Carolina Central University, Department of Environmental, Earth, and Geospatial Sciences, Durham, NC

- Establishing campus sustainability initiative
- Contribute to development of new distance education geoscience program
- Maintain a diverse research portfolio involving university, industry, and government collaborations to explore human-environment interactions, urban sustainability, and hydrometeorological processes
- Coordinate student outreach opportunities with community partners

Assistant Research Professor & Teacher-Scholar Postdoctoral Fellow, 2018 – 2020
Wake Forest University, Department of Biology; Environmental Program, Winston-Salem, NC

- Established new Environment and Sustainability Major

- Developed and taught two new courses (Introduction to Earth Science and Environmental Solutions) and acquired ACE designation for Environmental Issues course using community-engaged project-based pedagogy
- Mentored multiple undergraduate student research projects
- Built a diverse research portfolio involving university, industry, and government collaborations to explore human-environment interactions, urban sustainability, and hydrometeorological processes
- Coordinate student outreach opportunities with community partners and developed website content

Director of Scientific Products and Operations, 2017 – present
EarthCast Technologies, LP, Madison, NC

- Research, maintain, and optimize commercial and military aerospace products
- Write, obtain, and manage multiple Small Business Innovation Research (SBIR) program proposals
- Develop and deliver documentation of end-to-end computing, processing, and product delivery systems

Lecturer, Spring 2018
Mississippi State University, Department of Geosciences, Mississippi State, MS

- Taught online Hydrometeorology course
- Assisted with the coordination of oyster restoration field campaigns

Adjunct Instructor, 2017 – 2018
Asheville-Buncombe Technical Community College, Asheville, NC

- Developed new course offerings in unmanned aircraft systems and geographic information systems (GIS)

Research Fellow, June 2016 – July 2016
National Water Center Innovators Program: Summer Institute of 2016, *Quantifying Uncertainty and Communicating Risk in Flood Inundation Mapping*, **NOAA National Water Center, Tuscaloosa, AL**

- Participated in seven-week intensive research program
- Collaborated with leading scientists and first responders to develop, execute, and deliver web-based flood inundation risk decision support tool

COO/Founder, 2016 – 2017
Veteran Unmanned Solutions LLC, Denver, CO

- Developed K-12 drone education program
- Obtained and managed drone operations
- Developed outreach and promotion materials

Research Assistant, 2015 –2017
Sensing Hazards with Operational Unmanned Technology (SHOUT), Dr. Jamie Dyer and Dr. Robert Moorhead, advisors. **Northern Gulf Institute, Mississippi State University, Starkville, MS**

- Planned and coordinated field research missions
    - Collected and processed water samples for algal pigments, toxic metals, suspended sediment, and harmful bacteria
    - Conducted field spectroscopy using a variety of instruments
- Processed UAS data for environmental research applications
    - Developed method for correcting and calibrating UAS imagery
    - Classified land surface features from UAS imagery using machine learning techniques

Research Assistant, 2014 – 2015
Atmospheric Modeling and Decision Aids: Field-based Numerical Weather Simulations and Analysis Support Tools, Dr. Jamie Dyer, advisor. **Department of Geosciences, Mississippi State University, Starkville, MS**

- Aided in development of a WRF numerical model uncertainty product for mobile tactical forecaster support
- Led product testing and debugging
- Presented final deliverables to Army Research Laboratories

Research Assistant, 2012 – 2014
A Precipitation Organization Climatology for North Carolina, Dr. Tom Rickenbach, advisor. **Department of Geography, East Carolina University, Greenville, NC**

- Created, visualized, and analyzed a four-year radar-based precipitation climatology and differentiated various precipitation regimes across the Southeast U.S.
- Converted four-year radar-based climatology into raster format for GIS integration

Research Assistant, 2011 – 2012
Great Smoky Mountain Rain Gauge Network (GSMNP), Dr. Douglas Miller, advisor. **Department of Atmospheric Sciences, University of North Carolina Asheville, Asheville, NC**

- Installed new rain gauge stations to existing rain gauge network across the Great Smoky Mountains in Western North Carolina
- Conducted general maintenance and data acquisition of rain gauge stations

Research Assistant, 2010 – 2012
Tropical Cloud Cluster Climatology, Variability, and Genesis Productivity, Dr. Chris Hennon, advisor. **Department of Atmospheric Sciences, University of North Carolina Asheville, Asheville, NC**

- Led a research group in the statistical analysis of a 28-year global tropical cloud cluster climatology

Research Assistant, 2010 – 2012
Sounding-based Experiment on Mixed Precipitation Events (SEMPE), Dr. Douglas Miller, advisor. **Department of Atmospheric Sciences, University of North Carolina Asheville, Asheville, NC**

- Prepared instrumentation for launches during intensive observation period (IOP) and plotted soundings to assist with NWS forecasting

Meteorology Intern, May 2010 – August 2010
WLOS News 13, Asheville, NC

- Prepared forecasts and products for broadcast
- Helped manage social media accounts

Publications

* = Featured article

Zarzar, C.M., P. Dash, J.L. Dyer, R. Moorhead, L. Hathcock, 2020: Development of a Simplified Radiometric Calibration Framework for Water-Based and Rapid Deployment Unmanned Aerial System (UAS) Operations. *Drones* **4** (2), 17. https://doi.org/10.3390/drones4020017 *

Zarzar, C. and J. Dyer, 2019: The Influence of Synoptic-Scale Air Mass Conditions on Seasonal Precipitation Patterns over North Carolina. *Atmosphere* **10** (10), 624. https://doi.org/10.3390/atmos10100624

Zarzar, C., P. Dash, J. Dyer, A. Mercer, and R. Moorhead, 2018: Application of Current Land Surface Classification Methods with Unmanned Aerial System (UAS) Imagery. (In Preparation).

Zarzar, C., H. Hosseiny, R. Siddique, M. Gomez, V. Smith, A. Mejia, and J. Dyer, 2018: A hydraulic multi-model ensemble framework for visualizing flood inundation uncertainty. *Journal of the American Water Resources Association* (JAWRA), 1–13. https://doi.org/10.1111/1752-1688.12656

Dyer, J., P. Amburn, R. Dumais, J. Raby, J. Smith, and **C. Zarzar**, 2016: Defining the influence of horizontal grid spacing on ensemble uncertainty within a regional modeling framework. *Wea. Forecasting*, **31**, 1997–2017. http://dx.doi.org/10.1175/WAF-D-16-0030.1.

Rickenbach, T. M., R. Nieto-Ferreira, **C. Zarzar**, and B. Nelson, 2015: A seasonal and diurnal climatology of precipitation organization in the southeastern United States. *Q.J.R. Meteorol. Soc.*, **141**, 1938–1956. http://dx.doi.org/10.1002/qj.2500.

Hennon, C. C., P. P. Papin, **C. M. Zarzar**, J. R. Michael, J. A. Caudill, C. R. Douglas, W. C. Groetsema, J. H. Lacy, Z. D. Maye, J. L. Reid, M. A. Scales, M. D. Talley, and C. N. Helms, 2012: Tropical cloud cluster climatology, variability, and genesis productivity. *J. Climate*, **26**, 3046–3066. http://dx.doi.org/10.1175/JCLI-D-12-00387.1.

Reports and Preprints

Zarzar, C. M. (Ed.), 2019. Innovative Student-Led Community-Driven Environmental Projects at Wake Forest University. Retrieved from Wake Forest University, WakeSpace: http://hdl.handle.net/10339/94120.

Zarzar, C., R. Siddique, H. Hosseiny, and M. Gomez, 2016: Quantifying uncertainty in flood inundation mapping using streamflow ensembles and hydraulic modeling techniques. Published in Maidment, D.R., A.Rajib, P. Lin, E. P. Clark (Eds.), *National Water Center Innovators Program Summer Institute Report 2016* (pp. 71-77). *Consortium of Universities for the Advancement of Hydrologic Science, Inc. Technical Report No. 13.* https://www.cuahsi.org/uploads/library/cuahsi_tr13_8.20.16.pdf

Zarzar, C., R. Moorhead, and J. Coffey, "2nd UAS Arctic and River Forecast Workshop Summary Report", NOAA Unmanned Aircraft Systems (UAS) Program. Anchorage, AK, September 15 2014. http://www.ngi.msstate.edu/noaa_uas_workshop_2014/UAS_Workshop_Summary.pdf.

Funded Projects

URECA Wake Forest Research Fellowship, 2019
A comparative analysis of precipitation events and nutrient management in North Carolina agriculture
Role: Research Advisor, Student: Cat Walwer
Amount awarded: $4000
Project Length: 4 months

URECA-X: Academic Year Exploration Award, 2019
Assessment of Spatial Variability in Serengeti Precipitation

Role: Research Advisor, Student: Julia McElhinny
Amount awarded: $500
Project Length: 3 months

Wake Forest University Center of Energy, Environment, and Sustainability Mini Grant, 2019
Redistribution of contaminants by flood water in the Muddy Creek watershed
Role: Principal Investigator
Amount awarded: $4,740
Project Length: 5 months

Pilot Research Grant, 2019
Investigation of Lower Boundary Layer Response to Prescribed Burns
Role: Principal Investigator
Amount awarded: $4,000
Project Length: 12 months

*Air Force Small Business Innovation Research (SBIR) Program Solicitation FY 18.2
(Proposal No. F182-001-0499), 2018*
AF182-001 Commercial Solutions for Weather Forecasting
Role: Co-Principal Investigator
Amount awarded: $49,830.40 (Phase I)
Project length: 3 months

Pending Projects

NSF Focused Coastlines and People (CoPe), 2020
Environmental Justice in Connected Coastal Communities through a Regional approach to Collaborative Community Science
Role: Subcontractor PI
Amount requested: $4,999,291
Subcontract requested: $348,588
Project Length: 5 years

Wake Forest University Pilot Research Grant, 2020
Development of an Ensemble Water Quality Model in Support of Nutrient Load Reduction and Harmful Algal Bloom Prevention.
Role: Principal Investigator
Amount requested: $10,000 (not selected, resubmission requested)
Project Length: 12 months

Student Advising and Mentoring

Ph.D. Students
- External Graduate Committee Service
  - Seyed Mohammad Hossein Hosseiny, "Sediment Transport in and Around Urbanized Coastal Areas", Villanova, (Graduated Spring 2020)

Master's Students
- Chair

- o Thomas Horne, "Evaluating the Impacts of Urbanization and Precipitation on Stream Discharge in the North Eno River Watershed", (2020)
  - ▪ Committee Member
    - o Richie Foster, "Using PyTorch for Image Classification of Drone Imagery", (2020)

Undergraduate Student Research Projects
- ▪ Julia McElhinny, "Assessment of Spatial Variability in Serengeti Precipitation", Fall 2019-present
- ▪ Matt Nagell, "Assessment of Renewable Energy Potential on Wake Forest University Campus", Spring 2020
- ▪ Julia McElhinny, "Lower Atmospheric Boundary Layer Response to Controlled Burns", Fall 2019-Summer 2020
- ▪ Sam Matezzeo, "Streamflow Changes Due to Channelization in Muddy Creek Watershed", Fall 2019-Fall 2020
- ▪ Cat Walwer, "A Comparative Analysis of Precipitation Events and Nutrient Management in North Carolina Agriculture", Fall 2019-present
- ▪ Jack Banas, "GIS-Based Approach for Mapping and Communication of Flood Inundation Risk", Fall 2019-Spring 2020
- ▪ Richie Horton, "Human Health Impacts Due to Flood Inundation Waters in Forsyth County", Fall 2019-Spring 2020
- ▪ Stephen Peters et al., "Improving Pawpaw Pollination Rates on Wake Forest Reynolda Campus", Fall 2018
- ▪ Gavin Fukawa et al., "Reynolda Gardens Native Meadow Restoration Long Term Management Plan", Fall 2018
- ▪ Nathan Allen et al., "City of Winston-Salem Stormwater Ordinances and Low Impact Development", Fall 2018
- ▪ Jake Bequette et al., "Comparative Life Cycle Assessment of Eco-Products' Cups on Wake Forest Reynolda Campus", Fall 2018
- ▪ Marshall Smith et al., "Composting Paper Towels at Wake Forest University", Fall 2018

Courses Taught

* = New course developed

North Carolina Central University
- ▪ *Oceanography* – Spring 2021
- ▪ *Climatology* – Spring 2021
- ▪ *Earth Science* – Fall 2020, Spring 2021
- ▪ *Geology* – Fall 2020
- ▪ *Online Weather* – Fall 2020

Wake Forest University
- ▪ *Introduction to Earth Science** – Spring 2019, Fall 2019, Spring 2020
- ▪ *Environmental Solutions** – Spring 2019
- ▪ *Environmental Issues (Acquired ACE course designation)* – Fall 2018, Fall 2019, Spring 2020
- ▪ *Foundations of Earth Science** – Spring 2019

Mississippi State University
- ▪ *Hydrometeorology* – Spring 2018 *(Distance Education)*

Asheville Buncombe Technical Community College, Workforce Development Program
- ▪ *GIS Fundamentals** – Spring 2018, Summer 2018
- ▪ *Drone Part 107** – Fall 2017, Winter 2018, Spring 2018
- ▪ *Drone Flight School** – Fall 2017, Summer 2018

Conference Presentations (10 of 26)

Zarzar, C. M. and J. L. Dyer, 2017: Quantifying and Visualizing Uncertainty in the National Water Model Forecasts (poster). *31st Conference on Hydrology,* American Meteorological Society, Seattle, WA, January 2017.

Zarzar, C. M., P. Dash, J. Dyer, and R. Moorhead, 2017: Quantifying Atmospheric Effects on Unmanned Aerial System Imagery (poster). *American Meteorological Society's Special Symposium on Meteorological Observations and Instrumentation,* American Meteorological Society, Seattle, WA, January 2017.

Zarzar, C. M., J. Dyer, P. Dash, R. Moorhead, and G. Turnage, 2016: Understanding Coastal Changes Using High Resolution Imagery from Unmanned Aerial Systems (oral). *2016 State of the Coast Conference*, New Orleans, LA, May 2016.

Zarzar, C. M., P. Dash, R. Moorhead, J. Dyer, and, G. Turnage, 2016: Defining Surface Land Cover Features Using High Resolution Imagery from Unmanned Aerial Systems (poster). *2016 Gulf of Mexico Oil Spill and Ecosystem Science Conference*, Tampa, FL, February 2016.

Zarzar, C. M., P. Dash, J. Dyer, G. Turnage, and R. Moorhead, 2016: Defining Surface Land Cover Features Using High Resolution Imagery from Unmanned Aerial Systems (oral). *30th Conference on Hydrology,* American Meteorological Society, New Orleans, LA, January 2016, Link to presentation.

Zarzar, C. M., P. Dash, J. Dyer, G. Turnage, and R. Moorhead, 2015: Application of Unmanned Aerial Systems (UAS) in Aquatic Plant Identification (oral). *MidSouth Aquatic Plant Management Society 34th Annual Meeting,* MidSouth Aquatic Plant Management, Mobile, AL, September 2015.

Zarzar, C. M., P. Dash, J. Dyer, L. Hathcock, R. Moorhead, G. Turnage, and J. Van Horn, 2015: Development of Spectral-based Classification Schemes Using Unmanned Aerial System Imagery (oral). *River Forecasting Center Post Mission Review*, Starkville, MS, August 2015.

Zarzar, C. M., T. Rickenbach, R. Nieto-Ferreira, and B. Nelson, 2014: Precipitation Organization and Regional Hydrology in North Carolina (oral). *Managing the Quality and Quantity of Water,* Association of American Geographers, Tampa, FL, April 2014.

Zarzar, C. M. and H. B. Lussenden, 2014: The New Era of Hazard Communication: A Review of Emergency Manager's Use of Social Media During Superstorm Sandy (oral). *31st Conference on Hurricanes and Tropical Meteorology*, American Meteorological Society, San Diego, CA, March 2014, Link to presentation.

Zarzar, C. M. and R. Munroe, 2013: Sandy 2012: The Perfect Surge (oral). *38th National Weather Association Annual Meeting,* National Weather Association, North Charleston, SC, October 2013,

Invited Talks

Guest Lecturer, December 4, 2019
Physics and Chemistry of Environment, **Wake Forest University**, Winston-Salem, NC
"Fresh Water; Testing the Limits of a Limited Resource"

Guest Speaker, October 17, 2018
Ecology and Evolutionary Biology Lunch and Learn, **Wake Forest University**, Winston-Salem, NC
"Drones: How Going Local Helps Predict Climate Change"

Guest Lecturer, April 9, 2018
Carthage College, Kenosha, WI

"Unmanned Aerial Systems (Drones) in Geosciences, UAS Mission Planning"

Panelist, Alumni Experiences and Reflection
University of North Carolina Asheville The Cloud - Computer Science & Atmospheric Science Living Learning Community

Guest Lecturer, November 19, 2014 & November 21, 2014
Mississippi State University, Starkville, MS
"Introduction to Meteorology, Precipitation Mechanisms and Atmospheric Optics"

Guest Lecturer, November 5, 2013
East Carolina University, Greenville, NC
"Weather and Climate, Weather Forecasting"

Professional Service

Departmental Service
Department of Environmental, Earth, and Geospatial Science, *North Carolina Central University*

- Meet the Deans Academic Showcase, Fall 2020
- Coordinated Campus Talks
  - Geosciences and Oyster Farming; How Ryan Bethea Found His Pearl, Ryan Bethea, October 26, 2020

Department of Biology, Environmental Program*, Wake Forest University*

- Website Content Development, Environmental Program, Wake Forest University, Fall 2018

Department of Geosciences*, Mississippi State University*

- Student coordinator and host for on-campus faculty interviews, 2016
- Coordinator for Fall departmental potluck, 2014

University Service
Wake Forest University

- Helped develop and establish new Environment and Sustainability Major
- Safe Zone Faculty Member, Wake Forest University, 2018 – present

Asheville-Buncombe Technical Community College

- Coordinator, Student experience on the National Ecological Observatory Network (NEON) reconnaissance aircraft, 2017

East Carolina University

- Founder, East Carolina University Student Chapter of the American Meteorological Society, 2013
- President, East Carolina University Student Chapter of the American Meteorological Society, Greenville, North Carolina, 2013 – 2014
- Group Leader, 3rd Annual High School STEM Day, 2014

External Service
Grant Proposal Reviewer

- Collaborative Pilot Grants, Wake Forest university, 2020
- NC Attorney General Environmental Enhancement Grant, 2019 & 2020

Expert Journal Reviewer (# papers reviewed)

- Journal of Flood Risk Management (1)
- Journal of Operational Meteorology (2)
- Remote Sensing (1)
- Remote Sensing of Environment (1)

Faculty Affiliate, Southeast Urban Sustainability Summit (SUESS), 2019-present
Faculty Affiliate, Center for Energy, Environment and Sustainability, Wake Forest University, 2018-present
Member, Massive Science Consortium, massivesci.com, 2019 – present
Teacher and Supporter, stackoverflow, stackoverflow.com, 2015 – present
Member, Student Conference Planning Committee, 2015 American Meteorological Society Student Conference
Member, Student Conference Planning Committee, 2016 American Meteorological Society Student Conference
SkyWarn Storm Spotter, Spotter ID: 13-183

Public Engagement

- *Crowd Hydrology Gauge Installation,* http://www.crowdhydrology.com/, 2020
    - Deployed first crowd hydrology gauge in North Carolina
- *Volunteer*, Gateway Nature Preserve, Winston-Salem Pollinator Garden Development, 2019
- *Coordinator and Group Leader,* Winston-Salem Big Sweep, Washington Park, 2019
- *Teaching Volunteer*, Hydrologic cycle demonstrations, Severe Weather Saturday, Kaleideum Museum, Winston-Salem, NC, 2019
- *Coordinator and Group Leader,* Winston-Salem Great American Cleanup, Washington Park, 2019
- *Live-Interview,* WFMY Channel 2, Greensboro, NC, October 11, 2018
- *Live-Interview,* WPTF 680 AM Talk Radio, Raleigh, NC, October 11, 2018
- *Article*, Wake Forest News, October 10, 2018
    - "Using drones for better flood forecasts"
- *Interview/Article,* Outer Banks Sentinel, Nags Head, NC, September 17, 2018
    - "Science of Tracking Storms"
- *Interview,* WPTF 680 AM Talk Radio, Raleigh, NC, September 14, 2018
- *Article,* Wake Forest News, September 13, 2018
    - "Flood forecasting challenges"
- *Feature Article,* University of North Carolina Asheville News Center, May 17, 2018
    - "Alumnus Chris Zarzar on Drones, Meteorology, and Always Looking Up"
- *Article,* A-B Tech Education Journal (pp. 10), Fall 2017
    - "Drone Pilot, Weather Forecasting and GIS Basics"

Certifications

FAA Part 107 Airmen Remote Pilot Certificate

NCDOT UAS Commercial Operator Permit

Certification in Distance Instruction, Mississippi State University

Geospatial and Remote Sensing Technologies Certificate, Mississippi State University

NASBLA Boating Certificate

Computer Experience

Python	ArcGIS	eCognition
ArcPy	QGIS	ERDAS IMAGINE
R	WRF	SPSS
UNIX/Linux	WRF-Hydro	GARP
GitHub	iRIC	Microsoft Office
Tethys	HEC-RAS	Weather and Climate Toolkit
IDL	SLURM & PBS	Panoply

Honors and Awards

- Office of Sustainability Champions of Change Award; Academics and Engagement, Wake Forest University, 2019
- Open Access Publishing Fund Award (**$665.25**), Wake Forest University, 2019
- Graduate Research Support Award, Mississippi State University, 2018
- Travel Award (**$500**), The Nexus of Climate Data, Insurance, and Adaptive Capacity Workshop, 2018
- Research Fellow, CUASHI Summer Institute, 2016
- 2nd Place, 30th AMS Conference on Hydrology Student Oral Presentation Competition, 2016
- Travel Award, Student Government Association, East Carolina University, 2013
- Graduate Scholar Award, East Carolina University, 2012 & 2013
- Overall City Winner**,** WxChallenge (Newark, NJ), 2013
- NCAA Division I Athlete, Goalkeeper, University of North Carolina Asheville Men's Soccer

Professional Memberships

- National Association of Geoscience Teachers (NAGT)
- American Meteorological Society (AMS)
- American Geophysical Union (AGU)
- Phi Kappa Phi Honor Society
- Golden Key International Honour Society
- Gamma Theta Upsilon (GTU) Geography Honor Society
- Association of American Geographers (AAG)
- National Weather Association (NWA)

Professional Development

- Office of Faculty Professional Development, North Carolina Central University
  - Improving student success in Online Courses: Sense of Belonging, Fall 2020
  - The Assessment Blueprint - Aligning Learning Outcomes and Assessments, Fall 2020
  - Stop, Start, Continue: Pivoting Your Course for Student Success, Fall 2020
  - Facilitating Engaging Lectures, Discussions and Projects, Fall 2020
- McGraw-Hill Professional Development Webinar Series
  - Application Based Activities in the Geosciences, Fall 2020
  - Concept Sketches to Promote Deep Understanding of GeoScience Topics, Fall 2020
  - Cognition-based Learning in the Geosciences

- Services for the Water-Education Community, Consortium of Universities for the Advancement of Hydrologic Science, Inc. (CUAHSI), Fall 2020
- Active Shooter Emergency Training, Winston Hall, Wake Forest University, Spring 2019
- NCAR Winter WRF Tutorial Workshop, NCAR Foothills Lab Campus, Winter 2019
- Michigan State University Webinar Series: Telecoupling 101: Concepts, Terminology, and Published Case Studies, Winter 2019
- The Nexus of Climate Data, Insurance, and Adaptive Capacity Workshop, The Collider, Asheville, NC, Fall 2018
- Entrepreneurship workshop, Wake Forest University, Spring 2019
- LGBTQ Center, Wake Forest University
  - Safe Zone Workshop, Fall 2018
  - Inclusive Practice Beyond the Binary, Safe Zone Lunch and Learn, Fall 2018
  - Lunch and Learn Introduction, Safe Zone Lunch and Learn, Summer 2018
- InTeGrate Professional Development Webinar Series
  - Sustaining Your Interdisciplinary Environmental and Sustainability Program: Opportunities and Resources, Fall 2018
  - Systems Thinking Webinar, Fall 2017
- Teaching and Learning Collaborative, Wake Forest University
  - Engaged Learning with Campus Collections, Fall 2019
  - What is Community Engaged Teaching, Winter 2019
  - Learning and Learner-Centered Teaching, TA and PostDoc Series, Winter 2019
  - Syllabus Design, TA and PostDoc Series, Fall 2018
  - Active Learning, TA and PostDoc Series, Fall 2018
  - Writing a Teaching Philosophy Statement, TA and PostDoc Series, Fall 2018
- New Faculty in The Forest, Wake Forest University
  - International Student Services, Winter 2019
  - Opportunities for Professional Growth, Winter 2019
  - Engaged Learning at Reynolda House and Gardens, Fall 2018
  - International Student Services, Fall 2018
  - Student and Campus Life, Fall 2018
  - Student Career Resources, Fall 2018
- "From The Forest" PEER Series, *Incoming WFU 2018 Students: What They Know about Academic Reading and Writing*, Teaching and Learning Collaborative, Wake Forest University, Summer 2018
- Sakai – Getting Started, Wake Forest University, Summer 2018
- Best Practices in Online Instruction, Mississippi State University, Winter 2018
- Adjunct Faculty "Jumpstart", NC-NET, Fall 2017
- NC Community College System (NCCCS) Virtual Learning Community (VLC) Online Workshops
  - Flipped Learning Ideas, Fall 2017
  - Active Learning Strategies: Engaging the Online Learner, Fall 2017
- Mississippi State University Research Workshops
  - Publishing 101: Navigating the Academic Publishing Process, Fall 2016
  - Conference Poster Design, Fall 2016