STEPHEN MULLENS

Gainesville, FL stephen.mullens@ufl.edu

UNIVERSITY OF FLORIDA

Assistant Instructional Professor **University of Florida** **2019-Present**

Spearhead the creation of a new bachelor's degree program and minor in meteorology, serve as the meteorology program's undergraduate coordinator for the Geography Department, and develop and teach a majority of the core meteorology courses. Serve the department in other committee roles.

Awards Won:

2024 Advisor of the Year - UF Student Activities and Involvement
Nominated by students for service as faculty advisor of the American Meteorological Society (AMS) Gator Chapter since 2021. Consistently supported AMS activities alongside the executive board facilitating connections for meteorology related events.

2024 Faculty Award – CLAS Student Council
Nominated by students for commitment to teaching and excellence, going above and beyond to make a significant impact.

Service:

Meteorology Program Undergraduate Coordinator
Advise students in a course progression that prepares them for a forty-year career, including completing core courses, choosing electives, and completing certificates, minors, and dual degrees. Help students seek undergraduate research and internship opportunities. Revise the bachelor program catalog. Evaluate transfer credits. Worked with college advising to create a Pathway to Campus Enrollment (PaCE) program to increase student acceptance into the program. Spearheaded the creation of a minor program for students wanting advanced meteorology coursework to accompany their major.

Faculty Advisor for *AMS at UF* student organization
Worked with a student to help revive the organization in 2022. Oversaw the organization as it grew to 60 members with regular meeting and event membership. Oversaw the expansion of organization events and activities.

Experiential Learning Coordinator
Incorporated experiential learning initiatives from the college into the development of the new meteorology program.

Web and Social Media Coordinator
Manage the Geography Department's external presence. Create and edit department web pages, improve page layouts, and create social media posts featuring news announcements, alumni gatherings, fundraising efforts, and scientific publications.

Department Bylaws Committee
Contribute to the development of language required by the college and university.

Courses Taught:

Developed 7 original courses, never offered at UF before: MET3300, MET4230, MET4531, MET4753, MET4524, GEO4170 and GEO4938. Heavily modified and revived MET3503.

GEO 4170 - Communicating Science in the Geosciences
Provide best practices for communicating geoscience information to the nonexpert public relevant to a community need, and empowering the community to act in ways supported by evidence.

MET 1010 Introduction to Weather and Climate
Introductory, general education course. Provide introductory physics that govern atmospheric motions, how they result in observed global distribution of climatology patterns and midlatitude and tropical weather phenomena.

MET 3503 Weather and Forecasting
Intermediate course. Use observed weather data to analyze midlatitude weather phenomena and its temporal evolution. Discuss the history of meteorological knowledge and forecasting methods. Discuss current instruments used to observe the weather.

MET 3300 Atmospheric Dynamics
Advanced course. Use physics laws and mathematical methods to derive the equations that govern atmospheric wind flow and how the wind flow changes. Apply these equations to synoptic-scale mid-latitude flows.

MET 4230 Atmospheric Thermodynamics
Advanced course. Use physics laws and mathematical methods to derive the equations that govern the thermal characteristics and thermal changes of the atmosphere. Apply these equations to synoptic-scale mid-latitude flows.

MET 4531 Mesoscale Meteorology
Advanced course. Use physics laws and mathematical methods to derive the equations that govern atmospheric wind flow, thermal characteristics, and their changes. Apply these equations to mesoscale mid-latitude flows.

MET 4753 Pragmatic Python for Weather
Intermediate course that introduces python scripting to gather and analyze data related to common meteorological tasks.

MET 4524 Weather Briefing
Advanced course that combines knowledge learned in all advanced courses to analyze current and future weather events.

Will develop MET 4950 Capstone
Advanced course that helps a student transition from undergraduate study to either a beginning a career or graduate study.

GEO4938 Social Media and Weather
Advanced course that helps students craft weather hazards and safety messaging for dissemination on social media platforms.

Adjunct Assistant Professor **University of Florida** **2018-2019**

GEO 3930 - Social Media and Weather
Discusses best practices for communicating weather forecasts and warnings as a private business and government organization to the public and organization partners. Discusses how to empower the public to take action upon hearing the warnings.

GEO 4938 - Communicating Science
Discusses best practices for communicating science discoveries and warnings information to the nonexpert public.

PRIOR WORK EXPERIENCE

Research Associate **OU-Cooperative Institute of Mesoscale Meteorological Studies** **2014-2018**
National Weather Service's Warning Decision Training Division

Developed and delivered new training materials and operational tools to help National Weather Service (NWS) forecasters and their partners address the science, technology, communications, and human factors challenges of the warning process. Accomplishing this goal involved the following projects:

Social Media Training
Created online social media training materials to help NWS forecasters best communicate weather forecasts, hazards, and safety information to their partners and the public. The training material was a result of research into the best practices of operational Facebook and Twitter use from National Weather Service forecasters. Training material incorporated solicited guidance from behavioral science and communication best practices from other government and business research efforts.
See: http://training.weather.gov/wdtd/courses/woc/core.php

Social Media Data Mining Training
Led a team of seven NWS forecasters to create short, narrowly focused, training videos on how to data mine for weather reports during events. Training covered Facebook, Twitter, Tweetdeck, Hootsuite, YouTube, Instagram, Waze, and NextDoor platforms. Working with WDTD project leads and Decision Support and Communications Services Division leaders to publish the training.

Warning Operations Course and Severe Weather Forecast Challenge
Worked with the creator to expand and maintain the Severe Weather Forecast Challenge. Begun as a gamification learning tool just for the WOC students, the challenge was expanded to include all NWS employees. Developed the ability for NWS offices to compete against each other. Enhanced the user interface to better reflect the scoring rules and visualize forecasts and results. Code uses HTML, CSS, Perl, Python, Javascript, and jQuery languages.

Warning Operations Course - Winter Track
Worked on a team to manage lesson authors creating their training on aspects of winter weather operational forecasting and product consideration. Providing my own review of content and presentation quality, managed external reviews, and provided additional feedback when requested. Collaborated to create an interactive forecast challenge for students based on the success of the Severe Weather Forecast Challenge.
See: http://training.weather.gov/wdtd/courses/woc/winter.php

Radar and Applications Course Workshop
Worked in a team of instructors to train in-residence NWS forecasters the best practices of using AWIPS-2 software to analyze the mesoscale environment, accurately investigate the severity of severe storms, and correctly issue appropriate warning tornado, severe thunderstorm, and flash flood products. Instruction took place during displaced real-time simulated events, responding to

forecaster questions and actively engaging with real data.
See: http://training.weather.gov/wdtd/courses/rac/outline.php

Twitter Simulator
Developed prototype software aimed at helping NOAA forecasters, trainers, and researchers simulate the Twitter environment during a high-paced hazardous weather event. A training tool for operational forecasters to hone their skills in evaluating incoming information and communicating weather and safety information to NWS partners and the public. Participated in Office of Atmospheric Research / NWS Shark Tank event to pitch the Twitter Simulator as a research to operations tool. Code uses HTML, CSS, Javascript, and jQuery languages.
See: https://ams.confex.com/ams/45BC4WXCOMM/webprogram/Paper318272.html

Root Cause Analysis
Worked with a team of instructors to train forecasters how to perform a successful post-mortem analysis using the Root Cause Analysis method. Forecasters learned how to systematically gather and organize facts after an event occurred in an effort to find best practices and fix flaws in forecast processes. Worked with the team of instructors to grade all assignments.

Tornado Damage Surveys with the National Weather Service

Volunteer Experience with Norman, OK National Weather Service Forecast Office

Instructor **National Disaster Preparedness Training Center (NDPTC)** **2016-2018**
Delivered natural hazard related training to emergency managers, first responders, fire services, law enforcement, school, and other officials. Courses provide eight-hour in-residence training covering the science of weather; how weather hazard forecasts are created and communicated by the National Weather Service; and the fundamentals of weather safety during disaster preparedness, response, and recovery. Courses delivered include:

AWR-326 Tornado Awareness
AWR-331 Winter Weather Hazards

Training Instructor **OU-Cooperative Institute of Mesoscale Meteorological Studies** **2015-2016**
WeatherNews Inc.
Served on a 13-person team on a two-year training program with WeatherNews Inc., headquartered in Japan, to expand their forecaster's skills in mesoscale meteorology and the use of radar to determine hazards associated with severe weather. For each of the two years, three Japanese forecasters took online lesson material and then travelled to the National Weather Center in Oklahoma to receive five-week in-residence training from our training team. The training included principles of severe convective weather, tropical cyclones, flash flooding, dual-polarization Doppler radar, data interpretation, and warning decision-making.
See: http://cimms.ou.edu/index.php/2016/11/01/cimms-staff-trains-wni-forecasters/

Independent Research **2013-2014**
Researched a new way to measure whether synoptic Rossby waves have become more 'wavy,' as opposed to zonal, in recent decades. Previous methods made calculations using a representative geopotential height contour. New method here used all wind vectors from the NCAR Reanalysis to more accurately capture the entire wind flow without making geostrophic wind assumptions.
See: https://ams.confex.com/ams/94Annual/webprogram/Paper235411.html

Graduate Research **University of Oklahoma** **2008-2010**
National Severe Storms Laboratory
Created an automated procedure that uses multiple sources of observations to quantify the uncertainties of rain gauge observations from sources of physical measurement error. Algorithm used within the National Severe Storms Laboratory (NSSL) National Mosaic and Multi-Sensor QPE (NMQ), now Multiple Radar/Multiple Sensor (MRMS), system to improve national quantitative precipitation estimates. Presented research in the OU School of Meteorology Seminar Series with the title *Quantifying Uncertainties in Gauge Observations.*

Data Quality Assistant **Atmospheric Radiative Measurement (ARM) Program** **2007-2008**
Performed routine and non-routine data quality assessments of instruments deployed in the field. Was responsible for issuing weekly data quality reports for a range of U.S. Department of Energy (DOE) Atmospheric Radiative Measurement (ARM) instruments. Contributed to the development of the ARM Data Quality Office through contacts with other ARM engineers/scientists.

Undergraduate Capstone Research **University of Oklahoma** **2007-2008**
Assessed the post-landfall synoptic and mesoscale features of the remnants of Tropical Storm Erin (2007), including its re-intensification over Oklahoma. Analyzed data using initialized North American Model (NAM) products. Assessed the forecast accuracy of the NAM and determined its sources of uncertainty.

Session Chair and Committee Member **AMS Student Conference** **2013-2014**
Served on a volunteer team of committee members to organize a two-day conference. The student conference was designed to assist students in advancing their career through gaining advice from young professionals and networking. As the chair of the first of eight sessions, Stephen served as the official liaison between the session speakers and the planning committee. Stephen introduced the session

and its format, introduced each of three speakers, and moderated a 15-minute question and answer session with an audience of more than 600 students.

PRIOR TEACHING EXPERIENCE

Instructor of Meteorology — **Mid-American Christian University** — **2013-2014**

NATS 2503 (Intro to Meteorology)

Served as primary instructor for instensive, five-week online courses for the College of Adult and Graduate Studies. Received training in andrologogical education - effectively teaching non-traditional adult online learners through an experiential, applications-based, constructivist approach. Courses were taught through reading and writing assignments, but facilitated through online discussion forums amongst classmates that emphasize personal experiences and applications with the material.

Instructor of Mathematics — **University of Oklahoma OUTREACH** — **2012-2014**

DMAT 0123 (Fundamental Algebra)

DMAT 0115 (Intermediate Algebra)

Adjunct Professor of Mathematics — **Rose State College** — **2010-2014**

PHSC 1313 (Physical Science)

Served as primary instructor. Course introduced basic topics of physics, astronomy, meteorology, and geology. Designed and presented all lectures, exams, and assigned all grades.

MATH 0143 (Intermediate Algebra)

MATH 0123 (Elementary Algebra)

MATH 0113 (Prealgebra)

Adjunct Professor of Developmental Mathematics — **Oklahoma City Community College** — **2011-2014**

PHSC 1013 (Physical Science)

Served as primary instructor. Course introduced basic topics of physics, astronomy, meteorology, and geology. Designed and presented all lectures, exams, and assigned all grades.

MATH 0403 (College Prep Math IV)

MATH 0303 (College Prep Math III)

MATH 0203 (College Prep Math II)

Invited Speaker – Meteorology Lecture — **OU Center for English as a Second Language** — **2010-2013**

Presented an introductory overview of meteorology and global weather for international students. Students view applications of global weather and climate principles from their corners of the Earth. A question and answer session followed the presentation.

EDUCATION

M.S. in Meteorology, May 2010 — **University of Oklahoma** — **Norman, OK**

Graduate Research Assistant with the National Severe Storms Laboratory

B.S. in Meteorology, May 2008 — **University of Oklahoma** — **Norman, OK**

Graduated with Distinction

TRAINING COMPLETED

Open Educational Resources Faculty Learning Community	**Gainesville, FL**	**2023-2024**
Earth Educator Rendezvous – Active Learning in Meteorology	**Pasadena, CA**	**July 2023**
Mind the Gap 2.0 – Educating for Careers in Industry	**Albany, NY**	**June 2022**
Impact-based Decision Support Services (IDSS) Bootcamp	**NWS Training Center**	**July 2016**
Cause Mapping	**ThinkReliability**	**July 2016**
IS 100: Introduction to Incident Command System	**FEMA**	**June 2016**
IS 700: National Incident Management System	**FEMA**	**June 2016**
AWR-331 Winter Weather Hazards Course	**NDPTC**	**November 2015**
AWR-336 Tornado Awareness Course	**NDPTC**	**November 2015**

COMPUTING SKILLS

Programming languages: HTML • CSS • Javascript • jQuery • PYTHON • PERL • C++
Software: Apache HTTP Server • Articulate • Camtasia • Adobe Illustrator • Microsoft Excel • Word • Powerpoint
Operating systems: Mac OS X • LINUX/UNIX • Windows • Raspbian
Meteorology-Specific Software: AWIPS-2 • Gibson Ridge Software • GEMPAK • IDV
Learning Management Systems: Canvas • Pearson MyMathLab • Desire to Learn • Moodle