



## What is Industrial Hygiene?

- **Industrial hygiene** is the science and art devoted to the anticipation, recognition, evaluation and control of environmental factors or stresses arising in or from the workplace, which may cause sickness, impaired health and well-being, or significant discomfort among workers or among the citizens of the community.
- **Industrial hygienists** use environmental monitoring and analytical methods to detect the extent of worker exposure and employ various methods to control potential health hazards.

## My Research Focus

- As a certified industrial hygienist, my research focus is the recognition, evaluation and control of health hazards in the workplace.
- My research involved the characterization of adsorbent materials for respirator improvement, exposure assessment of understudied working populations, effectiveness of worker protection methods, and worker knowledge, attitudes and practices regarding personal protective equipment.
- My research is very well interconnected with my teaching, since my courses cover worker health, exposure assessment and risk reduction.



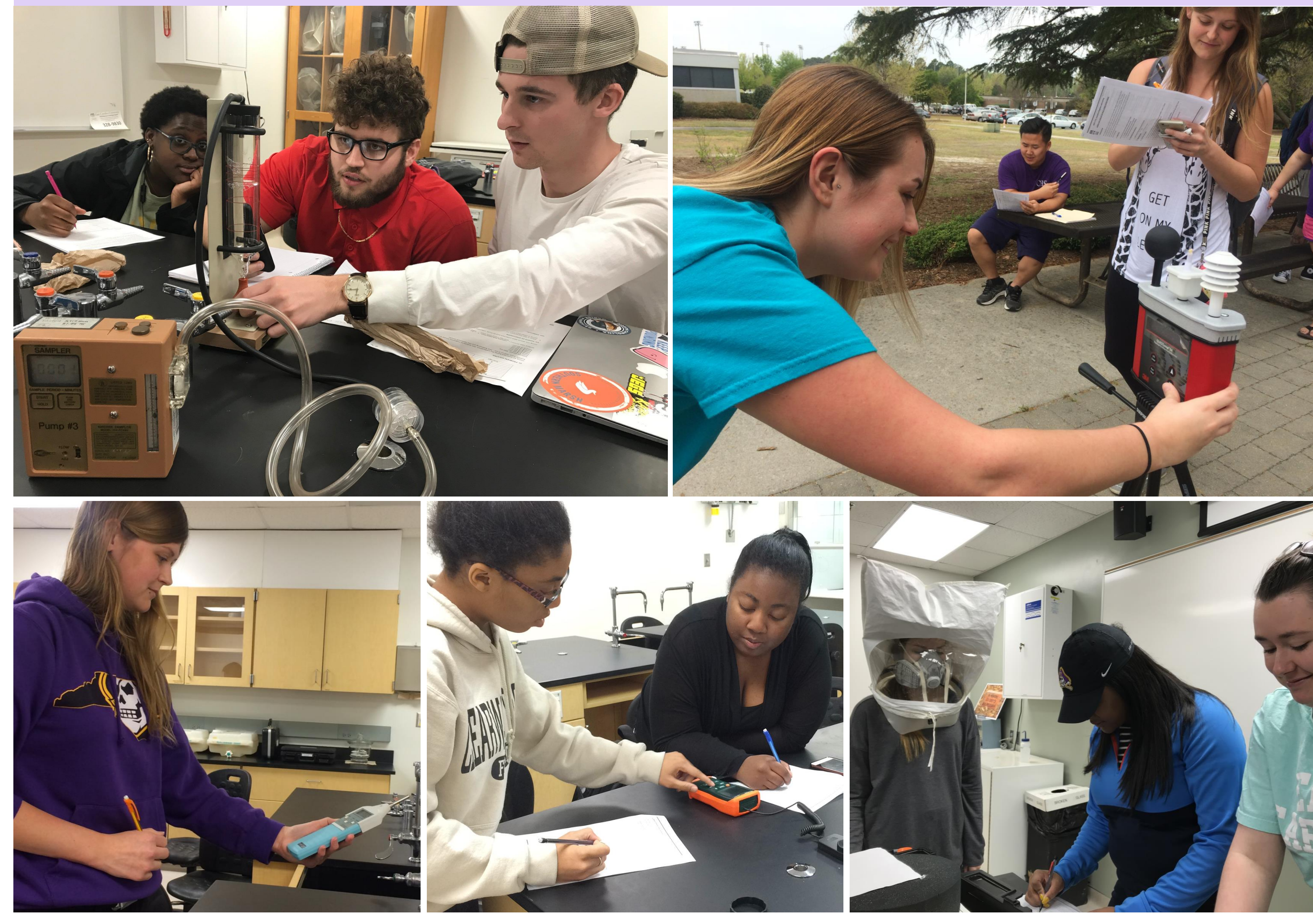
## Student Involvement in My Scholarly Activities

- 56 journal articles (30 with student co-authors), 2 book chapters and 1 technical framework
- 78 research presentations at scientific conferences/ meetings (24 with student co-authors)
- 11 research proposals with mentored students submitted (6 with graduate students; 5 with undergraduate students)

## Integrating Research in Undergraduate Lab Course

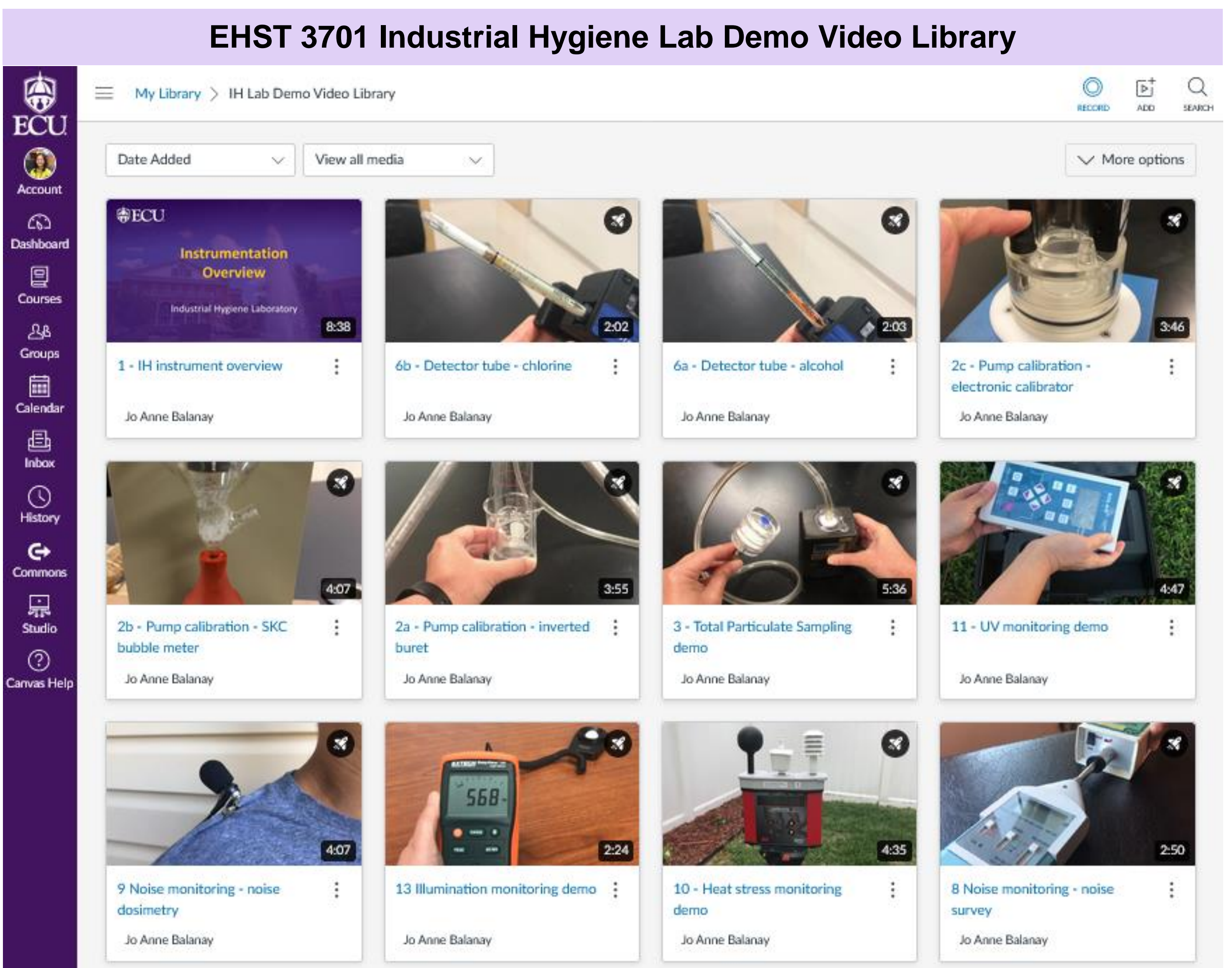
- EHST 3701: Industrial Hygiene Laboratory is my most effective tool in enticing students to get involved in industrial hygiene research.
- Most the lab sessions involve actual collection of measurement data by the students themselves using various types of instrumentation. Such exposure to IH research methods has encouraged students to be involved in undergraduate research projects (i.e., URCA).

### Industrial Hygiene Lab Activities Demonstrating Research Integration



- I created a lab demo video library through a \$10,000 teaching grant award to enhance learning and boost interest in IH research.

### EHST 3701 Industrial Hygiene Lab Demo Video Library



The screenshot shows a video library interface with a sidebar on the left containing navigation options like Account, Dashboard, Courses, Groups, Calendar, Inbox, History, Commons, Studio, and Canvas Help. The main content area displays a grid of video thumbnails with titles such as 'Instrumentation Overview', '1 - IH instrument overview', '6a - Detector tube - chlorine', '6a - Detector tube - alcohol', '2c - Pump calibration - electronic calibrator', '2b - Pump calibration - SKC bubble meter', '2a - Pump calibration - inverted buret', '3 - Total Particulate Sampling demo', '11 - UV monitoring demo', '9 - Noise monitoring - noise dosimetry', '13 - Illumination monitoring demo', '10 - Heat stress monitoring demo', and '8 - Noise monitoring - noise survey'.



## Teaching Undergraduate Students Through Hands-on Research Projects

- Three undergraduate students I mentored or co-mentored received the ECU Undergraduate Research and Creativity Award (URCA).



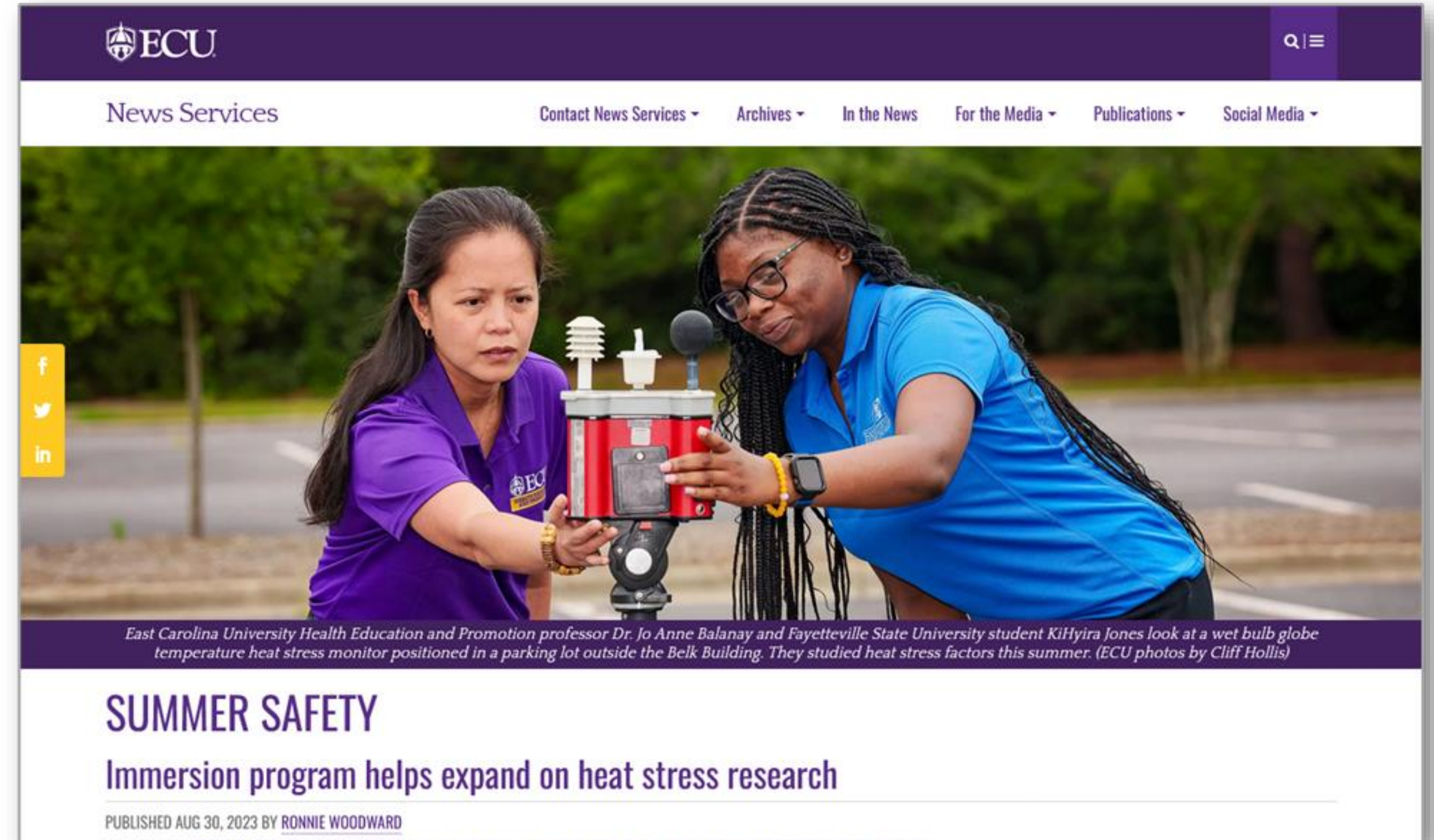
- **Emily Bethea (BS Environmental Health 2016)**  
 • URCA Project Title: Assessment of Occupational Exposure of Animal Facility Personnel to Mouse Urinary Aeroallergens  
 • Presented her research during the ECU Research and Creative Achievement Week 2016 and National Public Health Week 2016
- **Rene Vanek (BS Environmental Health 2017)**  
 • URCA Project Title: Assessment of Exposure to Volatile Organic Compounds during 3D Printing in a Laboratory at East Carolina University  
 • Presented her research during the ECU Research and Creative Achievement Week 2017, National Public Health Week 2017 and AIHA Carolinas Spring Conference 2017
- **Kellyn Reese (BS Public Health, Environmental Health minor 2018)**  
 • Volatile Organic Compound Emission in a University Printing Press Facility in Eastern North Carolina  
 • Presented her research in 3 conferences (local and national)  
 • Published her research findings in a peer-reviewed journal (Indoor and Built Environment)

## Strengthening Research Skills of Graduate Students in Environmental Health Writing Course Series

- Since 2011, I have mentored 25 graduate students as their dissertation, thesis or professional paper committee chair through a series of required writing courses. Through these writing series, I instill in my students the proper conduct of research in each phase of the writing process. Out of my 25 student mentees, 10 has produced published journal articles. I have also involved my students in writing research proposals for external grant submissions that served as financial support for their research projects.

## Research Adviser for Undergraduate STEM Summer Immersion Program



**SUMMER SAFETY**  
 Immersion program helps expand on heat stress research  
 PUBLISHED AUG 30, 2023 BY RONNIE WOODWARD

- I participated as a research adviser in the very first STEM Summer Immersion, which is a part of an ECU and Fayetteville State University (FSU) partnership that secured more than \$1.3 million in grant funding from the North Carolina GlaxoSmithKline (GSK) Foundation. An undergraduate student from FSU was assigned as my summer research intern and conducted a research project that aimed to compare heat stress exposures of outdoor workers on two different surfaces: pavement vs. grass. Two new articles featured her summer research.