

EAST TENNESSEE STATE UNIVERSITY  
BOARD OF TRUSTEES  
ACADEMIC, RESEARCH, AND STUDENT SUCCESS COMMITTEE  
SEPTEMBER 2023 MEETING

8:00–9:30 a.m. EDT  
Friday  
September 15, 2023

East Tennessee Room  
D.P. Culp Student Center  
412 J.L. Seehorn Road  
Johnson City, TN

**COMMITTEE MEMBERS**

Janet Ayers, Committee Chair  
Charles Allen, Jr.  
Dr. Steph Frye-Clark  
Dr. Linda Latimer  
Tony Treadway  
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**AGENDA**

- I. Call to Order
- II. Roll Call
- III. [Approval of the Committee Minutes from April 21, 2023](#)

**ACTION ITEMS**

- IV. [Recommendations for Tenure Upon Appointment of Faculty Member – \*McCorkle\* \(5 minutes\)](#)

**INFORMATION AND DISCUSSION ITEMS**

- V. [Academic Notification for Period of January 1, 2023 through July 21, 2023 – \*McCorkle\* \(10 minutes\)](#)
- VI. [Provost’s Update – \*McCorkle\* \(20 minutes\)](#)
- VII. [Tennessee Climate Office Presentation – \*Joyner\* \(20 minutes\)](#)
- VIII. [Annual ETSU Research Corporation Update – \*Golden\* \(30 minutes\)](#)

## **GENERAL INFORMATION ITEMS**

- IX. Committee Discussions
  - General Discussion
- X. Other Business
- XI. Adjournment

EAST TENNESSEE STATE UNIVERSITY  
BOARD OF TRUSTEES

ACTION ITEM

DATE: September 15, 2023

ITEM: Approval of the Minutes from April 21, 2023

COMMITTEE: Academic, Research, and Student Success Committee

RECOMMENDED ACTION: Approve

PRESENTED BY: Dr. Adam Green  
Board Secretary

The minutes of the April 21, 2023 meeting of the Academic, Research, and Student Success Committee are included in the meeting materials.

**MOTION: I move that the Board of Trustees adopt the resolution, approving the minutes as outlined in the meeting materials.**

**RESOLVED: The reading of the minutes of the April 21, 2023 meeting of the Academic, Research, and Student Success Committee is omitted, and the minutes are approved as presented in the meeting materials, provided that the Secretary is authorized to make any necessary edits to correct spelling errors, grammatical errors, format errors, or other technical errors subsequently identified.**

EAST TENNESSEE STATE UNIVERSITY  
BOARD OF TRUSTEES  
ACADEMIC, RESEARCH, AND STUDENT SUCCESS COMMITTEE

MINUTES

April 21, 2023  
Johnson City, Tennessee

The East Tennessee State University Board of Trustees' Academic, Research, and Student Success Committee met on Friday, April 21, 2023, at 8:00 a.m. in the East Tennessee Room of the D.P. Culp Student Center.

**I. Call to Order**

Committee Chair Janet Ayers called the meeting to order at 8:00 a.m.

**II. Roll Call**

Board Secretary Dr. Adam Green conducted the roll call. Committee members present were:

Committee Chair Janet Ayers  
Trustee Charles Allen  
Trustee Dr. Virginia Foley  
Trustee Dr. Linda Latimer  
Trustee Melissa Steagall-Jones

Other Trustees who attended the committee meeting included: Allen Archer, Steve DeCarlo, and Dorothy Grisham.

**III. Approval of the Committee Minutes from February 17, 2023**

The minutes from the February 17, 2023, meeting of the Academic, Research, and Student Success Committee were approved as submitted with Trustee Latimer making the motion and Trustee Foley seconding the motion. The motion passed unanimously.

**ACTION ITEMS**

**IV. Promotion and Tenure of Faculty Members**

After briefly describing the promotion and tenure processes, which begin in the fall semester, Provost Kimberly McCorkle presented to the committee the names of 56 ETSU faculty members being recommended for promotion and/or tenure. Trustee Foley made a motion that the recommendations be approved as presented, and Trustee Steagall-Jones seconded the motion. The motion passed unanimously.

#### **V. Proposed Change of Name: Clemmer College**

In presenting the rationale for a proposed name change, Clemmer College Dean Janna Scarborough said Clemmer currently includes 10 undergraduate majors/concentrations, 16 minors, 23 graduate degree programs including three doctoral programs, 16 graduate certificate programs, four research and practice centers, University School, and a Community Counseling Center. Dean Scarborough said the college is best known for educating thousands of the region's teachers, but about half of the college's graduates do not go into teaching. She described the various kinds of careers that Clemmer graduates are pursuing.

Dean Scarborough told the committee that in 2017, the college engaged in a renaming process, with the name Clemmer College put forward in 2018. However, instead of reflecting the variety and complexity of the college, that name change created vagueness and confusion. Thus began a strategic visioning process to reexamine the name, with a desire for representation, clarity, and connections. College faculty and staff examined peer universities for ideas and trends, reviewed the most popular names previously put forward by faculty and staff, and reopened a naming survey. The name that received the most support among constituent groups of the college and achieved consensus within the college's leadership team was: Clemmer College of Education and Human Development.

Trustee Foley made a motion that the board approve the new name, *Clemmer College of Education and Human Development*. Trustee Latimer seconded the motion. The motion passed unanimously.

### **INFORMATION AND DISCUSSION ITEMS**

#### **VI. Update on Center for Nursing Advancement**

Committee members received a status report on the Appalachian Highlands Center for Nursing Advancement from Dr. Leann Horsley, Dean of the ETSU College of Nursing, and Dr. Holly Wei, Associate Dean for Research and Scholarship.

Dr. Wei pointed out that among the issues prompting the formation of the center are nurse well-being and the need for a healthy work force, given the fact that nurses are at the front and center of our health care system.

Addressing these needs and many others, the Tennessee Center for Nursing Advancement was established by the General Assembly and was charged with:

- Developing a statewide plan for nurses based on a detailed analysis of workforce needs;
- Establishing and maintaining a database of nursing workforce needs;
- Routinely convening representatives of nursing professionals, healthcare professional organizations, business and industry leaders, and others to solicit their views and recommendations for the Center;
- Recognizing nurses and the accomplishments of nurses and conveying a positive image of nursing to Tennessee; and
- Increasing the pipeline for nursing education.

Dean Horsley then reviewed the history of the Appalachian Highlands Center for Nursing Advancement. The center's four foci are: building a pipeline for CNA, LPN, and RN quality education in all areas of Tennessee; innovative clinical and academic models; nurse well-being; and developing, aggregating, and increasing accessibility to nursing data. Primary objectives of the center for 2023 include:

- Establish well-being baselines and identify trends relating to recruitment and retention across 30 trial hospitals;
- Test programs within the region and demonstrate activity with a positive impact on recruitment and/or retention; and
- Establish organizational strategy, structure, systems, and partnerships, ready for 2024 within approved budget.

Discussion took place about strategies to recruit more nursing students and how to retain them in the region once they graduate. Committee members stressed the need for nurse well-being in addressing these pipeline issues.

## **VII. Faculty Research Update: Supporting STEM Education in Northeast Tennessee and Beyond**

Dr. Alissa Lange, Director of the Center of Excellence in STEM Education at ETSU, spoke to the committee about the collaborative nature of the work currently occurring both on the campus and beyond.

Dr. Lange indicated that growth in STEM-related jobs will continue to be strong, with an eight percent increase expected by 2029, compared to all other jobs at under four percent. Yet, she said, opportunities are not equal. To illustrate that point, she shared a map showing origins of inventors and patent rates by area where children grew up. The lowest numbers are in the southeastern United States. However, she asserted, this can be

changed through several priorities: to engage in equity, to focus on innovation, to empower educators, to cultivate partnerships, and to expand our reach.

As examples of those priorities, she highlighted:

- Libraries Count, a three-year applied research project focusing on mathematics for diverse young children and their families
- Coding camps for elementary and middle schoolers led by Washington Elementary and ETSU
- STEM collaboration involving the university, area schools, and communities that has already resulted in 19 publications that will be part of STEM curricula
- STEM education-work force partnerships “from cradle to career”
- A three-year grant exceeding \$5 million awarded to ETSU’s Dr. Chih-Che Tai by the Institute of Education Sciences to improve computational thinking and literacy for school leaders

Dr. Noland described the commonality between this presentation and the previous one on the nursing profession as they are two vital pipeline programs. As an example, he told the committee that the U.S. needs some 300,000 more nuclear engineers than we currently have in the workforce. He said the foundation for these careers, and careers in nursing, starts in STEM. He added that Dr. Tai’s grant is “transformational.”

### **VIII. Student Life and Enrollment Update**

Dr. Joe Sherlin, Vice President for Student Life and Enrollment, told the committee that ETSU’s efforts to attract new students focus on four pillars, from recruitment through orientation: academic quality, experience, affordability, and location. He said that data collected since the pandemic indicate we are succeeding:

- Individual campus tours are up 27 percent and group tours 200 percent
- Counselor Connect events are up 104 percent
- Intents to enroll are up 56 percent
- Nashville area admits are up 33 percent as ETSU expands its footprint
- Preview attendance is up 30 percent

Furthermore, Dr. Sherlin announced the availability of Navigate Student, a virtual one-stop shop to schedule appointments with advisors and tutors, view course schedules, and look up information for over 80 ETSU resources.

In the vital area of student well-being, student CARE team reports are up 107 percent over the last five-year period. Mental health reports are up 200 percent during that same

period. And this year, the amount of food distributed through Bucky’s Pantry is up 20 percent, at 11,000 pounds.

In the category of student engagement, Dr. Sherlin reported the following:

- Buctainment participation for the fall semester of 2022 was up 28 percent
- The Student Government Association concert series is on track to surpass 10,000 attendees
- Peer involvement mentoring is up 70 percent over the last five years
- ETSU VOTES was recognized by the Tennessee Secretary of State for its 2022 voter registration efforts
- Volunteer ETSU is partnering with over 150 nonprofit agencies
- The *East Tennessean* student newspaper observed its 100<sup>th</sup> anniversary this year

Dr. Sherlin told the committee that student mental health continues to be one of the most serious challenges faced by ETSU and colleges and universities all across the country. He said the most cited stressors among college students are anxiety, depression, and isolation. In a nationwide survey, 40 percent of undergraduates expressed feelings of emotional stress and have considered dropping out of school in the last six months. Persistent feelings of sadness or hopelessness have increased almost 10 percent in high school males and over 20 percent in high school females over the last 10 years. In addition, 60 percent of parents say the pandemic had a negative effect on their college students’ learning, and almost half think the effect is ongoing. Rural, underserved, and low-income communities are disproportionately affected.

Dr. Sherlin said ETSU is addressing these challenges through holistic, relationship-rich support and by closing equity gaps. ETSU leads the state in improvement of six-year, first-time, full-time graduation rates. Complicating the situation in our region, however, are downward trends in college-going rates. In particular, beginning with 2017 and going through 2021, Dr. Sherlin noted Washington County’s decrease of almost 21 percent, Sullivan’s decrease of 11 percent, and Carter’s drop of over 15 percent. He added that these figures are a call for P20 efforts.

Trustee Ayers added that Unicoi County is not seeing these kinds of decreases and lauded that county’s “one student at a time” approach as a major reason why.

## **GENERAL INFORMATION ITEMS**

### **IX. Committee Discussions**

No further discussions were held.



**X. Other Business**

There was no other business to come before the committee.

**XI. Adjournment**

The committee was adjourned by Trustee Ayers at 9:37 a.m.

EAST TENNESSEE STATE UNIVERSITY  
BOARD OF TRUSTEES

ACTION ITEM

DATE: September 15, 2023

ITEM: Recommendation for Tenure Upon Appointment of  
Faculty Member

RECOMMENDATION: Approve

COMMITTEE: Academic, Research, and Student Success

PRESENTED BY: Dr. Kimberly D. McCorkle  
Provost and Senior Vice President for Academic Affairs

The University awards tenure to faculty whose professional abilities and accomplishments warrant the degree of permanence afforded by academic tenure. Faculty rank recognizes the past achievements of a faculty member and expresses confidence that the faculty member is capable of even greater accomplishments and increased levels of responsibilities that support the mission of the University.

**MOTION: I move that the Academic, Research, and Student Success Committee recommend adoption of the following Resolution by the Board of Trustees:**

**RESOLVED: Faculty rank and the awarding of tenure is granted to the faculty member recommended by the President as outlined in the meeting materials.**



**East Tennessee State University  
Office of the President**

Box 70734 • Johnson City, Tennessee 37614-1710 • (423) 439-4211 • Fax: (423) 439-4004

September 15, 2023

Dr. Adam Green  
Secretary of the Board of Trustees  
East Tennessee State University

Dr. Green,

I recommend that the Board of Trustees award the appropriate faculty rank and tenure upon appointment to Dr. Rodney Handy, whose accomplishments are described below.

**Recommended for Tenure upon Appointment**

**Dr. Rodney Handy**

**Environmental Health**

College of Public Health

Dr. Rodney Handy was appointed to serve as professor and chair in the Department of Environmental Health in the College of Public Health on July 1, 2023. During his career, he has secured funding for over 175 projects that resulted in a total of \$15 million awarded. He led the master's program in occupational health with an emphasis in industrial hygiene through ABET re-accreditation and led over 75 continuing education sessions for companies or government entities. Dr. Handy comes to East Tennessee State University from the University of Utah where he held the position of Interim Vice Chair of Education and Research, tenured professor, and Director of Industrial Hygiene, Occupational and Environmental Health programs in the Department of Family and Preventative Medicine. Dr. Handy earned his Ph.D. in Environmental Engineering Sciences from the University of Florida. He earned his M.B.A. from Ball State University, a B.S. in Mechanical Engineering from Purdue University, and an A.A.S. in Mechanical Engineering Technology from Purdue University. He has held special faculty status at the University of North Carolina at Chapel Hill as well as tenured positions at Western Kentucky University and Purdue University. Dr. Handy holds national distinction in his field and is recognized for his leadership, consultation, and scholarly work in industrial engineering.

I am honored to recommend Dr. Handy for tenure at the rank of professor.

Sincerely,

Brian Noland  
President

CC: Kimberly D. McCorkle, Provost and Senior Vice President for Academic Affairs  
Human Resources

# **RODNEY G. HANDY, MBA, PhD, CIH**

## ***Current Position and Recent Appointments***

*Professor, Department of Family and Preventive Medicine (7/15-present) Tenured Interim Vice Chair of Education and Research – Department of Family and Preventive Medicine, University of Utah: (10/18-7/19)*

*Director of Industrial Hygiene and NIOSH Targeted Research Training (TRT) – Division of Occupational and Environmental Health - Department of Family and Preventive Medicine, University of Utah: (7/15-6/19)*

*Special faculty status in Gillings School of Global Public Health (NC-OSHERC), The University of North Carolina at Chapel Hill*

## ***Research Interests***

Exposure Sciences, Environmental Health & Safety Engineering, Heat Stress Assessments, Green Engineering and Sustainability, Construction Health & Safety Issues

## ***Candidate's Summary***

I am a technical professional with a strong industry background and over thirty years of experience. This experience has been divided up between academia, consulting, and industry. After completing my baccalaureate degree, I was a plant/manufacturing engineer in the automotive industry. My teaching and industrial training/consulting experience has been primarily in engineering technology, industrial environmental management, and environmental/occupational health. During my career, I have been instrumental in securing more than one hundred seventy-five funded projects, with the majority in the role of PI. Lastly, I have approximately fifteen years of program director and vice/associate chair leadership experience in either permanent or interim roles.

## ***Education***

Ph.D., *Environmental Engineering Sciences*, University of Florida, 1990-95

Master *Business Administration (MBA)*, Ball State University, 1987-89

B.S., *Mechanical Technology (now Mechanical Engr Tech)*, Purdue University, 1981-83

A.A.S., *Mechanical Engineering Technology*, Purdue University, 1979-81

## ***Professional Societies***

American Board of Industrial Hygiene (ABIH)

American Industrial Hygiene Association (AIHA) & Utah Section AIHA (president)

American Conference of Governmental Industrial Hygienists (ACGIH)

## ***Certifications***

Certified Industrial Hygienist (CIH) 1999

## ***University Courses Taught (1995 through 2022)***

### **Graduate level:**

OEHS 6756 Hazardous Substances (University of Utah – August 2021 through current)  
OEHS 6752 Introduction to Industrial and Environmental Toxicology and Physiology (University of Utah – January 2016 through current)  
OEHS 6754 Noise and Other Physical Agents (University of Utah – August 2015 through current)  
OEHS 6730 Quantitative Risk Assessment (University of Utah – August 2016 through December 2016)  
OEHS 7800 TRT Doctoral Seminar (University of Utah – January 2017 through December 2019)  
CMET 6240 Safety and Risk Management (University of North Carolina Charlotte – August 2012 through May 2015)  
MET 5900 Organizational Environmental Quality (Purdue University – 2004 through 2012)  
EOHS 510 Water/Wastewater Science (Western Kentucky University 2000 through 2004)  
PH 584 Environmental Health (Western Kentucky University – 2000 through 2004)  
EOHS 580 Solid and Hazardous Wastes (Western Kentucky University – 2000 through 2004)  
EOHS 571 Air Pollution Control (Western Kentucky University – 2000 through 2004)  
EOHS 577 Toxicology (Western Kentucky University – 2000 through 2004)  
Environmental Fate Transport (Old Dominion University – 1995 through 1996)  
Fundamentals of Industrial Hygiene (Old Dominion University – 1995 through 1996)

### **Undergraduate level:**

ETFS 1244 Water-Based Fire Suppression (University of North Carolina Charlotte – 2014 through 2015)  
ETFS 2230 Hazardous Materials (University of North Carolina Charlotte – 2013 through 2015)  
ETFS 4243 Research Methodology (University of North Carolina Charlotte – 2013 through 2015)  
ETME 3283 HVAV Engineering Design and Application (University of North Carolina Charlotte - 2012 through 2015)  
ETME 4244L Thermal Fluids Laboratory (UNC Charlotte - 2012 through 2015)  
MET 490 Green Manufacturing & Sustainability (Purdue Univ. - 2004 through 2012)  
MET 313 Fluid Mechanics (Purdue University - 2008 through 2012)  
MET 241 Polymeric Materials and Processes (Purdue University - 2004 through 2008)  
MET 144 Materials and Processes (Purdue University - 2004 through 2012)  
EHS 280 Introduction to Environmental Science (Western Kentucky University - 1996 through 2004)  
Several courses such as Fundamentals of Industrial Hygiene, Water/Wastewater Science, Air Pollution Sciences, Risk Assessment, Solid and Hazardous Wastes (Western Kentucky University – 1996 through 2004)

## ***Professional Experience***

- 2015-2019     University of Utah  
*Professor of Industrial Hygiene and Occupational and Environmental Health Programs – Director of Industrial Hygiene, Occupational and Environmental Health Programs and Targeted Research Training – Interim Vice Chair of Education and Research (2018-19):* Responsibilities included instruction of courses in noise and physical agents, environmental and occupational toxicology and physiology, quantitative risk assessment, and targeted research training seminars. During the time frame, I acted as the vice chair of education and research for the department as well as the director of industrial hygiene, occupational and environmental health programs, and targeted research training (TRT). I served as the chair of the education mission committee for the department from 2016-2019 and on 7 departmental search committees during this time, co-chairing the recent division chief of public health search. Instrumental in increasing the number of graduate students pursuing a MSOH degree by approximately 100% since 2015.
- 2012-2015     University of North Carolina Charlotte  
*Professor of Fire Safety Engineering Technology:* Responsibilities included courses in hazardous materials management, fire suppression science, and risk and safety management/sciences. I acted as the associate chair for research cultivation. Significant research contracts were secured from the USDOE – B&W/Y-12, Parker Hannifin and ASHRAE. I was initially hired as a tenured, full professor. Due to unique opportunities for both my spouse and I at the University of Utah, with an overall 20% pay increase, the decision was made to resign our positions and relocate to Utah.
- 2004-2012     Purdue University  
*Associate-to-Professor of Engineering Technology:* Responsibilities included teaching courses in green manufacturing/processes and organizational environmental quality. I acted as both the departmental health and safety chair and the graduate education chair during my tenure. Sought and received funding from several sources, most notably from Alcoa Inc., US Department of Energy and the US Department of Labor. I provided significant environmental health and safety assistance to Indiana business and industry through the Purdue Technical Assistance Program (TAP). I was promoted from associate professor to full professor in 2011. Due to a leadership opportunity being offered to me at the University of North Carolina Charlotte in a program more aligned with my background, the decision was made to resign my position and relocate to North Carolina.

## ***Professional Experience (continued)***

- 1996-2004     Western Kentucky University  
*Director of the Environmental Health Sciences Program and the Environmental Health & Safety Resource Center (EHSRC), Assistant-to-Associate Professor of Engineering Technology/Public Health:* Responsible for teaching courses both undergraduate and graduate courses in environmental science, environmental health, fundamentals of industrial hygiene, chemical and physical hazards, hazardous waste management, water/wastewater, air pollution control, and environmental engineering sciences. Sought and received funding from several private sources for applied research. I was the Director of EHSRC from 1999-2004 and the undergraduate academic program director from 2002-2004. I was tenured and promoted to associate professor in 2000. Due to opportunities at my alma mater for both my spouse and I, the decision was made to resign our positions and relocate to Indiana.
- 1995-1996     Old Dominion University  
*Assistant Professor of Industrial Hygiene and Environmental Health Sciences:* Responsibilities included teaching courses in the industrial hygiene, environmental fate transport, hazardous waste management, and OSHA program management. I served on Ph.D. and MS graduate committees for environmental health students. In order to get closer to my family, the decision was made to resign this position and relocate after just one year.
- 1984-1989     Ford Motor Co.-EED  
*Plant/Manufacturing Engineer:* Responsibilities included capital justification, facilities maintenance supervision, mechanical and electrical design, industrial hygiene sampling, facilities layout, environmental controls, and OSHA compliance. My major oversight responsibilities included a significant expansion of the overall facilities and production operations. While working full-time in this position, I decided to teach part-time during the evening. I really enjoyed teaching and decided to resign my position and go back to school full-time for my MBA and PhD. I was a full-time PhD student from 1990-1995.
- 1981-1983     Wabash-Datatech  
*Electromechanical Technician:* Responsibilities included maintenance and troubleshooting of all facility automation and equipment. This was an original computer floppy diskette company, making 8-1/2" and 5-1/4" diskettes for Tandy, Commodore and IBM. I decided to resign this position to return to the main campus of Purdue to complete my BS degree in 1983.

***Journal Articles*** (13 first author; 15 senior author)

- (1) Mathis, T., Handy, R., Daher, N., Edie, R., Henry, T, Spooner, S. (in review). A preliminary study involving ethylene oxide (EtO) ambient air exposures and human health modeling in the Rocky Mountain West. *Hygiene and Environmental Health Advances*.
- (2) Boregowda, S., Handy, R., and Whitt, M. (in review). Entropic assessment of physiological stress response using statistical process control charts. *Entropy*.
- (3) Kuhre, J., Handy, R., Thiese, M., Schaefer, C., and Sleeth, D. (in review). A comparison of occupational blood lead level (BLL) prevalence and airborne lead concentration in Utah and nationally. *Journal of Heavy Metal Toxicity and Diseases*.
- (4) Ho, A., Handy, R., Sleeth, D., Schaefer, C., Zhang, Y., Pahler, L., Ramsay, J., and Collingwood, S. (in review). Aerosol measurement degradation in low-cost particle sensors using laboratory calibration and field validation. *Toxics*.
- (5) Teniza, G., Sleeth, D., Handy, R., Jones, R., Verpaele, and Harper, M. (in review). Comparison of comparable aerosol samplers during simulated personal sampling. *Journal of Occupational & Environmental Hygiene*.
- (6) Riches, N., Pahler, L., Ramsay, N., Schreiber, M., Sleeth, D., Thiese, M., Handy, R., and Perry, K. (in review). Multipollutant profile of PM 2.5 for Salt Lake City, UT. *Journal of Environmental Health*.
- (7) Mashhadi, A., Handy, R., Farhadmanesh, M., Honda, T., Sleeth, D., Henry, T. (2022). Feasibility study of using nebulizer-retrofitted UAVs at construction projects: The case study of residential jobsites in Utah. *Journal of Construction Engineering and Management*, 148(10) 05022009.
- (8) Agyemang, D., Madden, E., English, K., Venner, K., Handy, R. Singh, T., Qeadan, F. (2022). A Trend Analysis of the Prevalence of Opioid Misuse, Social Support, and Suicide Attempt among American Indian/Alaska Native High School Students in New Mexico: 2009-2019 Youth Risk Resiliency Survey (YRRS). *BMC Public Health*, 22(370).
- (9) Agyemang, D., Madden, E., English, K., Venner, K., Handy, R. Singh, T., Qeadan, F. (2022). The mediation and moderation effect of social support on the relationship between opioid misuse and suicide attempts among Native American youth in New Mexico: 2009-2019 Youth Risk Resiliency Survey (NM-YRRS). *BMS Psychiatry*, 22(243).



- (10) Young, B., Sleeth, D., Handy, R. and Pahler, L. (2021). The recovery of volatile organic compounds and volatile sulfur compounds in fused-silica lined canisters, polyvinyl fluoride/Tedlar® bags, and foil-lined bags. *ACS Chemical Health & Safety* 28(6), 426-435.
- (11) Reeves, K., Loder, R., Handy, R., Sleeth, D., Schaefer, C. (2021). A review of anthropogenic environmental hazards encountered by National Park first responders. *Disaster Medicine*, 9, 1-2.
- (12) Scholl, L., Thiese, M., Handy, R. (2022). Incidence of workers' compensation claims in opioid-using truck drivers. *Journal of Occupational and Environmental Medicine*, 64(4), 314-319.
- (13) Handy, R., Jackman, J., Moloney-Johns, A., Loder, R., Curran, S., Valentin, V., Rolls, J., and Schaefer, C. (2021). Administering a physician assistant program during the COVID-19 pandemic. *Journal of Physician Education Association*, 32(2), 119-122.
- (14) Robello, R., Lake, K., Handy, R., Sleeth, D., Schaefer, C., and Collingwood, S. (2021). A quantitative comparison of heavy metals concentrations in the soils on two Rocky Mountain West tribal reservations. *Journal of Student Research*, 10(1). doi.org/10.47611/jsr.v10i1.1182.
- (15) Ellis, M., Handy, R., Pahler, L., Sleeth, D., and Schaefer, C. (2021). A pilot observational study comparing wet bulb globe temperature (WBGT) parameter measurements as a result of kitchen configurations. *Journal of Student Research*, 10(1). doi.org/10.47611/jsr.v10i1.1181.
- (16) Boregowda, S., Downing, B., and Handy R. (2021). Quantitative assessment of psychophysiological stress reactivity using thermodynamics. *Journal of Human Ergology*, 50(1), 29-38.
- (17) Webb, L., Handy, R., Stenberg, J., Sleeth, D., Schaefer, C., Qeadan, F., and Collingwood, S. (2021). Indoor air quality issues for Rocky Mountain West tribes. *Frontiers in Public Health* 9:606430. doi: 10.3389/fpubh.2021.606430.
- (18) Mecate, D., Handy, R., Pahler, L., Sleeth, D., and Ramsay, J., C. Schaefer (2020). Temperature inversion and ultrafine particulate/near ultrafine particulate matter concentrations in the Salt Lake Valley. *Technium: Romanian Journal of Applied Sciences and Technology*, 2(7), 422-435.
- (19) Phillips, H., Handy, R. Sleeth, D., Thiese, M., Schaefer, C., and Stubbs, J. (2020). Taking the "LEED" in indoor air quality: Does certification result in healthier buildings? *Journal of Green Building*, 15(3), 55-66.

- (20) Haggerty, L., Reischl, U., Handy, R., Sleeth, D., Adams, K., and Schaefer, C. (2020). The thermodynamics of indoor air pollution: A pilot study emulating traditional Kenyan cooking techniques. *Sustainable Cities and Society*, 53, 101926.
- (21) Thomas, J., Pahler, L., Handy, R., Thiese, M., and Schaefer, C. (2019). Pilot study predicting body core temperatures in hot work environments using thermal imagery. *Journal of Chemical Health and Safety*, 26(6), 75-83.
- (22) Thiese, M., Okorie, O., Murtaugh, M., Sheng, X., Handy, R. and Hegmann, K. (2019). Relationships between poor health and calories from fat among commercial drivers. *Journal of Occupational and Environmental Medicine*, 61(11), 944-948.
- (23) Cox, A., Handy, R., Thiese, M. and Sleeth, D. (2019). Development of an empirical formula for describing human inhalability of particles at low wind speeds and calm air. *Annals of Work Exposures and Health*, 63(9), 1046-1060.
- (24) Borsh, F., Sleeth, D., Handy, R., Pahler, L., Andrews, R., and Ashley, K. (2019). Evaluation of a 25-mm disposable sampler relative to the inhalable aerosol convention. *Journal of Occupational and Environmental Hygiene*, 16(9), 634-642.  
doi.org/10.1080/15459624.2019.1632463
- (25) Pahler, L., Zmoos, J., Wong, B., Sleeth, D., Handy, R., and Collingwood, S. (2019). Investigating measurement variation of modified low-cost particle sensors. *Journal of Aerosol Science*, 135, 21-32.  
doi.org/10.1016/j.jaerosci.2019.04.017
- (26) Cox, A., Sleeth, D., Handy, R., and Alaves, V. (2019). Characterization of CO and NO<sub>2</sub> exposures of ice skating rink maintenance. *Journal of Occupational and Environmental Hygiene*, 16(2), 101-108.
- (27) Clingenpeel, S., Handy, R., Pahler, L., and Sleeth, D. (2019). A comparative evaluation of the effectiveness of wipe sampling materials to remove beryllium from differently textured surfaces using zinc oxide as a surrogate. *Journal of Chemical Health and Safety*, 26(1), 15-22.
- (28) Vercellino, R., Sleeth, D., Handy, R., Collingwood, S. (2018). Laboratory evaluation of a low-cost, real-time, networked aerosol multi-sensor. *Journal of Occupational and Environmental Hygiene*, 15(7), 559-567.
- (29) Jackson, M., Nelson, J., Whitfield, M., Morrell, J., Handy, R., and Schmidt, P. (2018). Chip formation and similarity in the plano-grinding of

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### ***Books and Book Chapters***

- (1) Jackson, M., Whitfield, M., Morrell, J., and Handy, R. (2016). Grinding technology. In H. Geng (Ed.), *Manufacturing Engineering Handbook (2<sup>nd</sup> Ed.)*. New York, NY: McGraw-Hill, pp. 29(1)-29(32).
- (2) Jackson, M., Handy, R., Whitfield, M., Burgess, J., Robinson, G., and Novakov, T. (2015). Machining medical grade titanium alloys using nonabrasive nanolayered cutting tools. In M. Aliofkhazraei (Ed.), *Anti-abrasive nanocoatings*. Oxford, UK: Woodhead Publishing, pp. 225-246.
- (3) Handy, R., Whitt, M., and Rodriguez, M. (2015). Environmental issues with nanoparticles. In S. Ahmed and M. Jackson (Eds.), *Emerging nanotechnologies for manufacturing*. 2<sup>nd</sup> Ed. New York, NY: Elsevier Publishers, pp. 255-268.

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- (8) Jackson, M., Whitfield, M., Robinson, G., Handy, R., and Morrell, J. (2013). Grinding of uranium and uranium alloys. In J. Morrell and M. Jackson (Eds.), *Uranium processing and processing*. New York, NY: Springer Publishing, pp. 95-122.
- (9) Jackson, M., Robinson, G., Whitfield, M., Handy, R., and Morrell, J. (2013). Machining of uranium and uranium alloys using coated cutting tools. In J. Morrell and M. Jackson (Eds.), *Uranium processing and properties*. New York, NY: Springer Publishing, pp. 71-94.
- (10) Handy, R. (2012). Environmental, health and safety in biomedical device manufacturing. In P. Davim and M. Jackson (Eds.), *Medical device manufacturing*. New York, NY: Nova Scientific Publishing, pp.47-63.
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- (12) Handy, R., Whitt, M., and Rodriguez, M. (2009). Environmental issues with nanoparticles. In S. Ahmed and M. Jackson (Eds.), *Emerging nanotechnologies for manufacturing*. New York, NY: Elsevier Publishers, pp. 235-249.
- (13) Jackson, M., Whitt, M., Handy, R., Robinson, G., and Whitfield, M. (2009). Commercialization of nanotechnologies: technology transfer from university research laboratories. In S. Ahmed and M. Jackson (Eds.), *Emerging nanotechnologies for manufacturing*. New York, NY: Academic Press/Elsevier Publishers, pp.252-260.
- (14) Whitt, M., Handy, R., and Gosiengfiao, B. (2009). Statistical process control. In H. Bidgoli (Ed.), *The handbook of technology management*. New York, NY: Wiley Publishing, pp. 932-954.



- (15) Jackson, M.J., Handy, R., Whitt, M., Whitfield, M.D., and Morrell, J.S. (2009). Analysis of machining hardened steels using coated cutting tools. In M. Jackson and J. Morrell (Eds.), *Machining with nanomaterials*. Boston, MA: Springer Verlag Publishers, pp. 259-295.
- (16) Jackson, M.J., Whitfield, M.D., Morrell, J.S., Handy, R., and Whitt, M. (2009). Economic analysis of machining with nanostructured coatings. In M. Jackson and J. Morrell (Eds.), *Machining with nanomaterials*. Boston, MA: Springer Verlag Publishers, pp. 229-257.
- (17) Handy, R. and Lafreniere, M. (2007). Environmental and engineering controls and monitoring in biomedical device manufacturing. In S. Ahmed and M. Jackson (Eds.), *Surface engineered surgical tools and medical devices*. Boston, MA: Springer Verlag Publishers, pp. 273-339.
- (18) George, D., DiNardi, S., and Handy, R. (2003). An introduction to the design of local exhaust ventilation systems. In S. DiNardi (Ed.), *The occupational environment: Its evaluation, control, and management* (pp. 846-901). Fairfax, VA: American Industrial Hygiene Association.
- (19) May, M., Handy, R., and Lafreniere, M. (1999). *Environmental regulations*. Chapel Hill, NC: University of North Carolina Occupational Health and Safety Educational Resource Center.
- (20) Handy, R., and George, D. (1998). *Manual of hazardous waste operations and emergency response*. Bowling Green, KY: Western Kentucky University Department of Continuing Education.
- (21) Handy, R., and LeDuc, A. (1992). *Mathematics for manufacturing*. Muncie, IN: Ball State University Department of Continuing Education.
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**Abstracts, Proceedings, Presentations, & Workshops.** (Approximate Revenue: \$350K)

- (1) Spruit, L., Bell D., O’Flanerty K., Lombardi, D., Handy, R., Coombs, J. (2022). COVID-19 severity in people living with HIV: A pilot study in the Rocky Mountain West. *JAAPA*, Dec 1;35(12):1. Abstract
- (2) Catherine, C., Henderson, S., Oldroyd, M., Sanyer, C., Elrod, L., Handy, R., and Coombs, J. (2022). Chronic care management at South Main Clinic: A retrospective perspective. *JAAPA*, Dec 1;35(12):1. Abstract
- (3) Handy, R. (2022, October). *Toxicology for the Non-Toxicologist*. Professional development course presented at the 39<sup>th</sup> Annual Utah Conference on Safety and Industrial Hygiene, Salt Lake City, UT.
- (4) Handy, R. and Collingwood, S. (2022, October). *Sampling Methods for the Non-Industrial Hygienist*. Professional development course presented at the 39<sup>th</sup> Annual Utah Conference on Safety and Industrial Hygiene, Salt Lake City, UT.
- (5) Lillquist, D. and Handy R. (2022, October). *Ethics in Practice for the Industrial Hygiene Professional*, Special session course at the 39<sup>th</sup> Annual Utah Conference on Safety and Industrial Hygiene, Salt Lake City, UT.
- (6) Collingwood, S., Handy, R., Bulbul, A., Kim, H., and Sleeth, D. (2022, September). *Environmental assessment and health protection – modern technology applied to dated tools (RERAS)*. Poster presented at International Society of Exposure Science (ISES), Lisbon, Portugal.
- (7) Handy, R.G. (2022, August). *Comprehensive Review of Industrial Hygiene*. Lecture presented on *Community Exposure*, RMCOEH Continuing Education, Salt Lake City, UT.
- (8) Handy, R. (2022, March). *Nebulizer-retrofitted drone deployment at residential construction sites*. Invited Webinar presentation for CPWR, Silver Springs, MD.
- (9) Collingwood, S., Handy, R., Bulbul, A., Kim, H., and Sleeth, D. (2022, June). *The Design, Development, and Piloting of a Respiratory Emergency Response Alert System (RERAS) for Remote Safety Monitoring*. Military Health System Research Symposium (MHSRS), Washington, DC.
- (10) Collingwood, S., Bulbul, A., Handy, R. (2020, October). *Smart Respirators Pulling Respirator Technology into the 21<sup>st</sup> Century*. Presentation (S.

Collingwood and A. Bulbul) at the 37<sup>th</sup> Annual Utah Conference on Safety and Industrial Hygiene, Salt Lake City, UT.

- (11) Handy, R.G. (2019, November). *Electrical Hazards*. Lecture presented for Workplace Safety Days, University of Utah.
- (12) Handy, R.G. (2019, August). *Comprehensive Review of Industrial Hygiene*. Lecture presented on *Community Exposure*, RMCOEH Continuing Education, Salt Lake City, UT.
- (13) Lake, K., Sleeth, D., Handy, R., Collingwood, S., Riches, N., and Stenberg, J. (2019, May). *Characterization of Environmental Contaminants in a Frontier Community in Western Utah*. Poster session presentation at American Industrial Hygiene Conference and Exhibition (AIHce), Minneapolis, MN.
- (14) Ho, A., Sleeth, D., Collingwood, S., Pahler, L., Handy, R. (2019, May). *Pre- and Post Calibration Equations of Low-Cost Sensors Using a Calibration Chamber and Reference Instrument*. Poster session presentation at American Industrial Hygiene Conference and Exhibition (AIHce), Minneapolis, MN.
- (15) Handy, R.G. (2019, May). *Industrial Hygiene*. Invited lecture presented at the Utah Environmental Health Association Spring Conference 2019, Southern Utah University, Cedar City, UT.
- (16) Lake, K., Sleeth, D., Handy, R., Collingwood, S., Riches, N., Stenberg, J. (2019, April). *Characterization of Environmental Contaminants in a Frontier Community in West Utah*. Poster presentation given at the 17th Annual Regional National Occupational Research Agenda (NORA) Young/New Investigators Symposium, Salt Lake City, UT.
- (17) Haggerty, L., Reischl, U., Handy, R., Sleeth, D., and Adams, K. (2019, April). *The Thermodynamics of Indoor Air Pollution – A Pilot Study Emulating Traditional Kenyan Cooking Techniques*. Poster presentation given at the 17th Annual Regional National Occupational Research Agenda (NORA) Young/New Investigators Symposium, Salt Lake City, UT.
- (18) Ho, A., Sleeth, D., Collingwood, S., Pahler, L., and Handy, R. (2019, April). *Pre- and Post-Calibration Equations of Low-Cost Sensors Using a Calibration Chamber and Reference Instrument*. Poster presentation given at the 17th Annual Regional National Occupational Research Agenda (NORA) Young/New Investigators Symposium, Salt Lake City, UT.

- (19) Robello, R., Webb, L., Ellis, M., Handy, R., Rock, T., Schaefer, C., Sleeth, D., and Collingwood, S. (2019, April). *Descriptive Analysis of Heavy Metal Soil Presence and PM 2.5 Levels on the Wind River Reservation*. Poster presentation given at the 1<sup>st</sup> Annual Education, Research, and Community Engagement Student Poster Summit, Department of Family and Preventive Medicine, University of Utah, Salt Lake City, UT.
- (20) Thomas, J., Pahler, L., Handy, R., Thiese, M., and Schaefer, C. (2019, April). *Pilot Study Predicting Body Core Temperatures in Hot Work Environments Using Thermal Imagery*. Poster presentation given at the 1<sup>st</sup> Annual Education, Research, and Community Engagement Student Poster Summit, Department of Family and Preventive Medicine, University of Utah, Salt Lake City, UT.
- (21) Lake, K., Sleeth, D., Handy, R., Collingwood, S., Riches, N., Stenberg, J. (2019, April). *Characterization of Environmental Contaminants in a Frontier Community in West Utah*. Poster presentation given at the 1<sup>st</sup> Annual Education, Research, and Community Engagement Student Poster Summit, Department of Family and Preventive Medicine, University of Utah, Salt Lake City, UT.
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- (23) Ho, A., Sleeth, D., Collingwood, S., Pahler, L., and Handy, R. (2019, April). *Pre- and Post-Calibration Equations of Low-Cost Sensors Using a Calibration Chamber and Reference Instrument*. Poster presentation given at the 1<sup>st</sup> Annual Education, Research, and Community Engagement Student Poster Summit, Department of Family and Preventive Medicine, University of Utah, Salt Lake City, UT.
- (24) Handy, R.G. (2109, March). *Product Stewardship and Green Manufacturing*. Invited lecture presented at the March meeting of the Utah chapter of the American Industrial Hygiene Association, Salt Lake City, UT.
- (25) Whitt, M., Denton, N., Heylman, C., and Handy R. (2019, June). Lead user experiential learning – learning improvements and pathway to university, college, and community financial self-sufficiency. In Proceedings of ASEE’s 126th Annual Conference & Exposition.

- (26) Handy, R. and Farley, C. (2018, October). *DOT Hazardous Materials Transportation and Refresher*. Professional development course presented at the 35<sup>th</sup> Annual Utah Conference on Safety & Industrial Hygiene, Salt Lake City, UT.
- (27) Riches, N., Schreiber, M., Ramsay, J. Handy, R., Sleeth, D., and Perry, K. (2018, August). *Modeling Transport of Windblown Soil Using HYSPLIT*. Poster session presentation at ISES-ISEE 2018, Ottawa, CA.
- (28) Handy, R.G. (2018, August). *Comprehensive Review of Industrial Hygiene*. Lecture presented on *Community Exposure*, RMCOEH Continuing Education, Salt Lake City, UT.
- (29) Mecate, D., Handy, R., Pahler, L., Sleeth, D., and Ramsay, J. (2018, May). *Temperature Inversion and Ultrafine/Near Ultrafine Particulate Matter Concentrations in the Salt Lake Valley*. Poster session presentation at American Industrial Hygiene Conference and Exhibition (AIHce), Philadelphia, PA.
- (30) Cox, A., Sleeth, D., Handy, R., and Alaves, M. (2018, May). *Characterization of CO and NO<sub>2</sub> Exposures of Ice Skating Rink Maintenance Workers*. Poster session presentation at American Industrial Hygiene Conference and Exhibition (AIHce), Philadelphia, PA.
- (31) Thomas, J., Pahler, L., Handy, R., and Thiese, M. (2018, May). *Pilot Study Predicting Body Core Temperatures in Hot Work Environments Using Thermal Imagery*. Poster session presentation at American Industrial Hygiene Conference and Exhibition (AIHce), Philadelphia, PA.
- (32) Thomas, J., Pahler, L., Handy, R., and Thiese, M. (2018, April). *Pilot Study Predicting Body Core Temperatures in Hot Work Environments Using Thermal Imagery*. Presentation given at the 16th Annual Regional National Occupational Research Agenda (NORA) Young/New Investigators Symposium, Salt Lake City, UT.
- (33) Cox, A., Sleeth, D., Handy, R., and Alaves, M. (2018, April). *Characterization of CO and NO<sub>2</sub> Exposures of Ice Skating Rink Maintenance Workers*. Presentation given at the 16th Annual Regional National Occupational Research Agenda (NORA) Young/New Investigators Symposium, Salt Lake City, UT.
- (34) Cox, A., Sleeth, D., Handy, R., Thiese, M., and Lidn, G. (2018, April). *Development of an Empirical Formula for Describing Human Inhalability of Airborne Particles at Low Wind Speeds and in Calm Air*. Presentation given at the 16th Annual Regional National Occupational

Research Agenda (NORA) Young/New Investigators Symposium, Salt Lake City, UT.

- (35) Mecate, D., Handy, R., Pahler, L., Sleeth, D., and Ramsay, J. (2018, April). *Temperature Inversion and Ultrafine Particulate Matter Concentrations in the Salt Lake Valley*. Presentation given at the 16th Annual Regional National Occupational Research Agenda (NORA) Young/New Investigators Symposium, Salt Lake City, UT.
- (36) Robison-Hanchett, C., Pahler, L., Handy, R., and Merryweather, A. (2018, April). *Comparison of Dynamic Coefficient of Friction Between Normal and Slip-Resistant Footwear Using an Ankle/Foot Simulator Robot*. Presentation given at the 16th Annual Regional National Occupational Research Agenda (NORA) Young/New Investigators Symposium, Salt Lake City, UT.
- (37) Handy, R.G. & Linville, D. (2018, March). *Industrial Hygiene Sampling*. Professional development course presented at the 38th Annual Occupational Safety & Health Winter Institute, University of North Carolina OSHERC, Tampa, FL.
- (38) Handy, R.G. (2017, August). *Comprehensive Review of Industrial Hygiene*. Lecture presented on *Community Exposure*, RMCOEH Continuing Education, Salt Lake City, UT.
- (39) Handy, R. (2017, June). *DOT Hazardous Materials Transportation and Refresher*. Course prepared and delivered for RMCOEH Continuing Education, Salt Lake City, UT
- (40) Mecate, D., Handy, R., Pahler, L., and Sleeth, D. (2017, June). *Temperature Inversion and Ultrafine Particulate Matter Concentrations in the Salt Lake Valley*. Poster session presentation at American Industrial Hygiene Conference and Exhibition (AIHce), Seattle, WA.
- (41) Thorsen, M., Handy, R., Thiese, M., Sleeth, D., and Riches, N. (2017, June). *A Comparison Study between Previous and Current Shoreline Concentrations of Heavy Metals at the Great Salt Lake Using Portable X-ray Fluorescence*. Poster session presentation at American Industrial Hygiene Conference and Exhibition (AIHce), Seattle, WA.
- (42) Clingenpeel, S., Handy, R., Pahler, L. and Sleeth, D. (2017, June). *A Comparative Evaluation of the Effectiveness of Wipe Sampling Materials to Remove Beryllium from Differently Textured Surfaces Using Zinc Oxide as a Surrogate*. Poster session presentation at American Industrial Hygiene Conference and Exhibition (AIHce), Seattle, WA.

- (43) Vercellino, R., Sleeth, D., Handy, R., and Collingwood, S. (2017, June). *Laboratory Evaluation of a Low-cost, Real-time, Networked Aerosol Multi-Sensor*. Poster session presentation at American Industrial Hygiene Conference and Exhibition (AIHce), Seattle, WA.
- (44) Van Orman, S., Pahler, L., Handy, R., and Sleeth, D. (2017, June). *Estimation of Body Core Temperatures in a Hot Work Environment Using Thermal Imagery*. Poster session presentation at American Industrial Hygiene Conference and Exhibition (AIHce), Seattle, WA.
- (45) Fabian, R., Pahler, L., Handy, R., and Sleeth, D. (2017, June). *Evaluation of Field Extraction Compared to Lab Extraction of Isocyanate Sampling*. Poster session presentation at American Industrial Hygiene Conference and Exhibition (AIHce), Seattle, WA.
- (46) Vercellino, R., Sleeth, D.K., Handy, R., Min, K., and Collingwood, S. (2017, April). *Laboratory Evaluation of a Low-cost, Real-time, Networked Aerosol Multi-Sensor*. Presentation given at the 15th Annual Regional National Occupational Research Agenda (NORA) Young/New Investigators Symposium, Salt Lake City, UT.
- (47) Clingenpeel, S., Handy, R., Pahler, L., and Sleeth, D. (2017, April). *A Comparative Evaluation of the Effectiveness of Wipe Sampling Materials to Remove Beryllium from Differently Textured Surfaces*. Presentation given at the 15th Annual Regional National Occupational Research Agenda (NORA) Young/New Investigators Symposium, Salt Lake City, UT.
- (48) Handy, R.G. (2017, March). *MSOH & PhD Programs in Industrial Hygiene (IH)*. Utah Chapter of the American Industrial Hygiene Association, Salt Lake City, UT.
- (49) Handy, R.G. (2016, October). *Thermal Stress Monitoring and Evaluation*. Lecture presented at the 33<sup>rd</sup> Annual Utah Conference on Safety & Industrial Hygiene, Salt Lake City, UT.
- (50) Handy, R.G. (2016, October). *Potential Health, Safety, and Environmental Implications of Hydraulic Fracturing or “Fracking”*. Lecture presented at the 33<sup>rd</sup> Annual Utah Conference on Safety & Industrial Hygiene, Salt Lake City, UT.
- (51) Handy, R.G. (2016, August). *Comprehensive Review of Industrial Hygiene*. Lecture presented on *Community Exposure*, RMCOEH Continuing Education, Salt Lake City, UT.

- (52) Handy, R.G. & Linville, D. (2016, July). *Industrial Hygiene Sampling*. Professional development course presented at the 39th Annual Occupational Safety & Health Summer Institute, University of North Carolina OSHERC, Portsmouth, VA.
- (53) Holm, C., Pahler, L., Thiese, M., and Handy, R. (2016, May). *Evaluation of Physiological Strain in Hot Work Areas using Thermal Imagery*. Poster session presented at American Industrial Hygiene Conference and Exhibition (AIHce), Baltimore, MD.
- (54) Stewart, J., Sleeth, D., Handy, R., Anthony, T. and Volckens, J. (2016, May). *Wind Tunnel Testing of a Disposable, Inhalable Aerosol Sampler at Two Sampling Rates*. Poster session presented at American Industrial Hygiene Conference and Exhibition (AIHce), Baltimore, MD.
- (55) Holm, C., Pahler, L., Thiese, M., and Handy, R. (2016, April). *Evaluation of Physiological Strain in Hot Work Areas using Thermal Imagery*. Poster and presentation given at the 14<sup>th</sup> Annual Regional National Occupational Research Agenda (NORA) Young/New Investigators Symposium, Salt Lake City, UT.
- (56) Arnold, Z., Pahler, L., Thiese, M., and Handy, R. (2016, April). *A Pilot Study Predicting Core Temperatures of Smelter Workers with Thermal Imagery and Infrared Thermometry*. Poster and presentation given at the 14<sup>th</sup> Annual Regional National Occupational Research Agenda (NORA) Young/New Investigators Symposium, Salt Lake City, UT.
- (57) Shahan, A., Sleeth, D., Handy, R., and Pahler, L. (2016, April). *Comparison of a New Low-Cost Inhalable Sampler and IOM Sampler for Field Testing of Metal Refinery Workers*. Poster and presentation given at the 14<sup>th</sup> Annual Regional National Occupational Research Agenda (NORA) Young/New Investigators Symposium, Salt Lake City, UT.
- (58) Hampton, M. & Handy, R. (2016, March). *40-Hour OSHA Compliance Refresher (HAZWOPER)*. Workshop presented for University of Utah ERC, Salt Lake City, UT.
- (59) Pahler, L. & Handy, R. (2015, October). *Resource Conservation and Recovery Act (RCRA)*. Workshop presented for the 32<sup>nd</sup> Annual Utah Conference on Safety & Industrial Hygiene, Salt Lake City, UT.
- (60) Hampton, M. & Handy, R. (2015, August). *8-Hour OSHA Compliance Refresher*. Workshop presented for University of Utah ERC, Salt Lake City, UT.



- (61) Handy, R.G. (2015, March). *Potential Health, Safety, and Environmental Implications of Hydraulic Fracturing or “Fracking”*. Invited lecture presented at Western Kentucky University, Department of Public Health, Bowling Green, KY.
- (62) Handy, R.G. (2014, October). *Introduction to HVAC Design*. Professional development course presented at UNC Charlotte Center City Campus, Charlotte, NC.
- (63) Handy, R.G. & Linville, D. (2014, August). *Industrial Hygiene Sampling*. Professional development course presented at the 37th Annual Occupational Safety & Health Summer Institute, University of North Carolina OSHERC, Portsmouth, VA.
- (64) Handy, R.G. & Linville, D. (2013, July). *Industrial Hygiene Sampling*. Professional development course presented at the 36th Annual Occupational Safety & Health Summer Institute, University of North Carolina OSHERC, Norfolk, VA.
- (65) Handy, R.G. & Linville, D. (2012, July). *Industrial Hygiene Sampling*. Professional development course presented at the 35th Annual Occupational Safety & Health Summer Institute, University of North Carolina OSHERC, Norfolk, VA.
- (66) Rodgers, K., Hutzler, W., Dana, M. and Handy, R. (2012, May). *Can plants save money: a look at the biowall*. Paper presented at the International High Performance Buildings Conference, Purdue University, West Lafayette, IN.
- (67) Lafreniere, M., and Handy, R.G. (2011, October). *Designing and implementing a collaboratory for STEM education*. Lecture-demonstration at the STEMtech Conference, Indianapolis, IN.
- (68) Handy, R.G. & Linville, D. (2011, July). *Industrial Hygiene Sampling*. Professional development course presented at the 34th Annual Occupational Safety & Health Summer Institute, University of North Carolina OSHERC, Norfolk, VA.
- (69) Reed, A.S., Fowler, L.M., Lechtenberg, V.L., and Handy, R. (2008, November). Green jobs and the university role. In D.R. Campion (Chair), *Council on engagement and outreach*. Symposium conducted at the NASULGC 121<sup>st</sup> Annual Meeting: Navigating in a Climate of Change, Chicago, IL.
- (70) Wey, A., Handy, R., Zheng, Y., and Kim, C. (2007, October). IR-excited fuel for improved engine efficiency. In B. Verdegan (Chair), *Engine fuel*

*filtration*. Symposium conducted at the 3<sup>rd</sup> AFS Conference: Emissions Solutions in Transportation, Ann Arbor, MI.

- (71) Handy, R.G. (2007, October). *First Responder – Operations Level*. Workshop presented at Ohio University’s Environmental Training and Research Center (ETRC) for Kenworth Automotive, Chillicothe, OH.
- (72) Handy, R.G. (2007, September). *First Responder – Operations Level*. Workshop presented at Ohio University’s Environmental Training and Research Center (ETRC) for Kenworth Automotive, Chillicothe, OH.
- (73) Whitt, M., Ratcliffe, M., and Handy, R. (2006). Engineering technology students: their role in the global economy. In Proceedings of the 2006 American Society for Engineering Education Annual Conference and Exposition.
- (74) Handy, R., Whitt, M., and Lafreniere, M. (2006). The introduction of environmental and industrial health and safety issues and emerging technologies in a beginning manufacturing processes course. In Proceedings of the 2006 American Society for Engineering Education Annual Conference and Exposition.
- (75) Handy, R., Jackson, M., Rodriguez, M., Goodman, D., Robinson, G., and Lafreniere, M. (2006). The characterization of particles generated and removed during a bone drilling process with surface coated tools. In Proceedings 5th International Surface Engineering Congress, pp 47-52. Seattle, WA:ASM International.
- (76) Handy, R., Jackson, M., Goodman, D., Rodriguez, M., and Robinson, G. (2006). Local exhaust/dilution ventilation considerations for biological nanoparticle exhaust during medical drilling operations. In Proceedings 5th International Surface Engineering Congress, pp 53-56. Seattle, WA:ASM International.
- (77) Rodriguez, M., Handy, R., Jackson, M., Robinson, G., and Goodman, D. (2006). A review of available fibrous filter technology for use in aerosol deposition and removal in surface engineering applications. In Proceedings 5th International Surface Engineering Congress, pp 57-62. Seattle, WA:ASM International.
- (78) Goodman, D., Handy, R., Jackson, M., Leong, K., Bozell, B., and Zajac, P. (2006). Nanoparticle concentration sensor concept. In Proceedings 5th International Surface Engineering Congress, pp 73-77. Seattle, WA:ASM International.

- (79) Jackson, M., Gorrepati, V., Alcorta, E., French, M., and Handy, R. (2006). Fluid dynamic analysis of a high speed projector for environmentally sustainable impact machining operations. In Proceedings of the 5th International Surface Engineering Congress, pp 160-164. Seattle, WA:ASM International.
- (80) Handy, R.G. (2006, August). *First Responder – Operations Level*. Workshop presented at Ohio University’s Environmental Training and Research Center (ETRC) for DuPont Chemical, Inc., Chillicothe, OH.
- (81) Handy, R.G. & Harris, K.S. (2006, July). *Environmental Regulations for Occupational Health and Safety Professionals*. Professional development course presented at the 29th Annual Occupational Safety & Health Summer Institute, University of North Carolina OSHERC, Marco Island, FL.
- (82) Handy, R., Jackson, M., Robinson, G., and Lafreniere, M. (2005). The measurement of ultrafine particles created during a surface micromachining process using a portable particle counting technique. In Proceedings of the International Surface Engineering Congress & Exhibition 2005, ISEC13-7830. Minneapolis, MN: ISEC.
- (83) Handy, R., Jackson, M., Robinson, G., and Lafreniere, M. (2005). A review of viable monitoring techniques for nanoparticle exposure assessment. In Proceedings of the International Surface Engineering Congress & Exhibition 2005, ISEC13-7832. Minneapolis, MN: ISEC.
- (84) Handy, R., French, M., and Jackson, M.J. (2005). Introducing environmental sustainability in a manufacturing processes course. In Proceedings of the 35th ASEE/IEEE Frontiers in Education Conference [CD ROM], S1D7 – S1D9. Indianapolis, IN: ASSE/IEEE.
- (85) Handy, R.G. & May, M.T. (2005, August). *Environmental Regulations for Occupational Health and Safety Professionals*. Professional development course presented at the 28th Annual Occupational Safety & Health Summer Institute, University of North Carolina OSHERC, Marco Island, FL.
- (86) Whitt, M., and Handy, R. (2005, November). Engaging engineering technology students in heat stress related research: medical device design and development. Paper presented at *Advancing Innovations in Engineering Technology Education*, San Diego, CA.
- (87) Handy, R.G. (2005, April) *First Responder – Operations Level*. Workshop presented for Adams County Ohio Emergency Planning Commission, Adams County, OH.

- (88) Handy, R.G. (2005, April) *First Responder – Operations Level*. Workshop presented for Jackson County Ohio Emergency Planning Commission, Jackson County, OH.
- (89) Handy, R.G. & Lafreniere, M.D. (2005, February). *8-Hour OSHA Compliance Refresher*. Workshop presented for Trogden Environmental, Inc., Jasper, IN.
- (90) Handy, R.G. & May, M.T. (2004, August). *Environmental Regulations for Occupational Health and Safety Professionals*. Professional development course presented at the 27th Annual Occupational Safety & Health Summer Institute, University of North Carolina OSHERC, Norfolk, VA.
- (91) Handy, R.G. & Lafreniere, M.D. (2004, March). *8-Hour OSHA Compliance Refresher*. Workshop presented for Siemer Milling, Hopkinsville, KY.
- (92) Lafreniere, M.D. & Handy, R.G. (2004, January). *DOT Hazardous Materials Transportation Refresher*. Workshop presented for General Motors-Corvette Plant, Bowling Green, KY.
- (93) Cummins, J., and Handy, R. (2003, November). Analysis of soil lead levels in historic districts of south central city. Poster session presented at the *American Public Health Association's 131<sup>st</sup> Annual Meeting and Exposition*, San Francisco, CA.
- (94) Gardner, M., Higgins, W., Wainwright, C., Handy, R., and Brown, L. (2003, November). Emergency medical services preparedness for weapons of mass destruction. Paper presented at *the American Public Health Association's 131<sup>st</sup> Annual Meeting and Exposition*, San Francisco, CA.
- (95) Lafreniere, M.D. & Handy, R.G. (2003, September). *DOT HazMat Transportation Refresher*. Workshop presented for General Motors-Corvette Plant, Bowling Green, KY.
- (96) Lafreniere, M.D. & Handy, R.G. (2003, August). *DOT HazMat Transportation Refresher*. Workshop presented for General Motors-Corvette Plant, Bowling Green, KY.
- (97) Handy, R.G. & May, M.T. (2003, August). *Environmental Regulations for Occupational Health and Safety Professionals*. Professional development course presented at the 26th Annual Occupational Safety & Health Summer Institute, University of North Carolina OSHERC, Norfolk, VA.

- (98) Handy, R.G. & Lafreniere, M.D. (2003, July). *40-Hr OSHA Compliance (HAZWOPER)*. Workshop presented for The Children's Hospital of Atlanta, Bowling Green, KY.
- (99) Handy, R.G. & Lafreniere, M.D. (2003, May). *8-Hour OSHA Compliance Refresher*. Workshop presented for Western Kentucky University's Department of Continuing Education, Bowling Green, KY.
- (100) Handy, R.G. & Lafreniere, M.D. (2002, December). *40-Hr OSHA Compliance (HAZWOPER)*. Workshop presented for Hinkle Construction, Inc., Lexington, KY.
- (101) George, D., and Handy, R. (2002). Project-based learning in occupational safety and health. In Proceedings of the NIOSH 6th International Conference Scientific Committee on Education and Training in Occupational Health (pp. 217-221). Cincinnati, OH: National Institute of Occupational Safety & Health.
- (102) Handy, R.G. & Lafreniere, M.D. (2002, May). *8-Hour OSHA Compliance Refresher*. Workshop presented for Western Kentucky University's Department of Continuing Education, Bowling Green, KY.
- (103) Handy, R.G. & Lafreniere, M.D. (2002, May). *Industrial Environmental Management*. Professional development course presented at The Kentucky Governor's Safety & Health Conference and Exhibition, Louisville, KY.
- (104) Handy, R.G. & Lafreniere, M.D. (2002, January). *8-Hour OSHA Compliance Refresher*. Workshop presented for Siemer Milling, Hopkinsville, KY.
- (105) Handy, R.G. & Lafreniere, M.D. (2002, January). *8-Hour OSHA Compliance Refresher*. Workshop presented for SR of Kentucky, Bowling Green, KY.
- (106) Handy, R.G., May, M.T., & Lafreniere, M.D. (2002, January). *Environmental Regulations for Occupational Health and Safety Professionals*. Professional development course presented at the 22nd Annual Occupational Safety & Health Winter Institute, University of North Carolina OSHERC, Daytona, FL.
- (107) Handy, R.G., May, M.T. & Lafreniere, M.D. (2001, August). *Environmental Regulations for Occupational Health and Safety Professionals*. Professional development course presented at the 24th Annual Occupational Safety & Health Summer Institute, University of North Carolina OSHERC, Norfolk, VA

- (108) Lafreniere, M., and Handy, R. (2001, July). The use of digital multimedia in industrial hygiene practice. Paper presented at the *Annual Environmental Health and Safety Conference and Exposition*, New Orleans, LA.
- (109) Handy, R., and Lafreniere, M. (2001, July). Difficulties encountered in sampling and correlation of health effects from biologically derived airborne contaminants. Paper presented at the *Annual Environmental Health and Safety Conference and Exposition*, New Orleans, LA.
- (110) Handy, R.G. & Lafreniere, M.D. (2001, May). *8-Hour OSHA Compliance Refresher*. Workshop presented for Western Kentucky University's Department of Continuing Education, Bowling Green, KY.
- (111) Handy, R.G. & Lafreniere, M.D. (2001, May). *Indoor Air Quality Measurement and Evaluation*. Professional development course presented at The Kentucky Governor's Safety & Health Conference and Exhibition, Louisville, KY.
- (112) Handy, R., and May, M. (2001). *Fundamentals of environmental health*. Chapel Hill, NC: University of North Carolina Occupational Health and Safety Educational Resource Center.
- (113) George, D., and Handy, R. (2000, October). Industrial partnerships for industrial hygiene curricula: A necessity, not a luxury. Paper presented at the *ABET 2000 Annual Meeting*, Atlanta, GA.
- (114) Handy, R.G., May, M.T. & Lafreniere, M.D. (2000, August). *Environmental Regulations for Occupational Health and Safety Professionals*. Professional development course presented at the 23rd Annual Occupational Safety & Health Summer Institute, University of North Carolina OSHERC, Norfolk, VA.
- (115) Handy, R.G. & Lafreniere, M.D. (2000, May). *Indoor Air Quality Measurement and Evaluation*. Professional development course presented at The Kentucky Governor's Safety & Health Conference and Exhibition, Louisville, KY.
- (116) Handy, R.G. & Lafreniere, M.D. (2000, May). *8-Hour OSHA Compliance Refresher*. Workshop presented for Western Kentucky University's Department of Continuing Education, Bowling Green, KY.
- (117) Handy, R., and Lafreniere, M. (1999). Automated sampling and characterization using an integrated systems approach. In *Proceedings of Waste Management Symposium*, [CD ROM], 23-10-1 – 23-10-13. Tucson, AZ: Laser Options.

- (118) George, D., Russell, J., and Handy, R. (1999). The industrial hygiene program at WKU. In J. Nelson (Ed.), In Proceedings of the 1999 ASEE Southeastern Educational Conference [CD ROM], 5-1-1 – 5-1-10. Washington, DC: American Society of Engineering Education.
- (119) Lafreniere, M., and Handy, R. (1999). An automated system for indoor air quality monitoring. In Proceedings of the First NSF International Conference on Indoor Air Health (pp. 204-210). Ann, Arbor, MI: NSF International.
- (120) Lafreniere, M.D. & Handy, R.G. (1999, August). *8-Hour OSHA Compliance Refresher*. Workshop presented for YSK Corporation, Marietta, OH.
- (121) Handy, R.G. & Lafreniere, M.D. (1999, August). *Confined Space Entry Refresher*. Workshop presented for DESA International, Inc., Bowling Green, KY.
- (122) Handy, R.G., May, M.T. & Lafreniere, M.D. (1999, August). *Environmental Regulations for Occupational Health and Safety Professionals*. Professional development course presented at the 22nd Annual Occupational Safety & Health Summer Institute, University of North Carolina OSHERC, Williamsburg, VA.
- (123) Lafreniere, M.D. & Handy, R.G. (1999, July). *8-Hour OSHA Compliance Refresher*. Workshop presented for Ohio Precious Metals, Inc, Jackson, OH.
- (124) Lafreniere, M.D. & Handy, R.G. (1999, June). *16-Hour Confined Space Entry*. Workshop presented at Ohio University's Environmental Training and Research Center (ETRC), Chillicothe, OH.
- (125) Handy, R.G. (1999, June). *First Responder – Awareness Level*. Workshop presented for DANA Corporation, Franklin, KY.
- (126) Handy, R.G. & Lafreniere, M.D. (1999, May). *8-Hour OSHA Compliance Refresher*. Workshop presented for Paxton & Ball Environmental, Inc. and ECM, Inc., Dundee, KY.
- (127) Handy, R.G. & Lafreniere, M.D. (1999, May). *8-Hour OSHA Compliance Refresher*. Workshop present ed for Western Kentucky University's Department of Continuing Education, Bowling Green, KY.
- (128) Handy, R.G. & Lafreniere, M.D. (1999, May). *Indoor Air Quality Measurement and Evaluation*. Professional development course

presented at The Kentucky Governor's Safety & Health Conference and Exhibition, Louisville, KY.

- (129) Lafreniere, M.D. & Handy, R.G. (1999, March). *16-Hour Confined Space Entry*. Workshop presented for TPM Environmental, Inc, Bowling Green, KY.
- (130) Handy, R.G., May, M.T., & Lafreniere, M.D. (1999, January). *Environmental Regulations for Occupational Health and Safety Professionals*. Professional development course presented at the 19th Annual Occupational Safety & Health Winter Institute, University of North Carolina OSHERC, St. Petersburg, FL.
- (131) Handy, R.G. & Lafreniere, M.D. (1998, November). *8-Hour OSHA Compliance Refresher*. Workshop presented for TPM Environmental, Inc. Bowling Green, KY.
- (132) Handy, R.G. & Lafreniere, M.D. (1998, October). *8-Hour OSHA Compliance Refresher*. Workshop presented for Uticon, Inc., Morgantown, KY.
- (133) Handy, R.G. (1998, October). *Title V Air Permitting*. Workshop presented for Western Kentucky University's Department of Environmental Health and Safety, Bowling Green, KY.
- (134) Handy, R.G., May, M.T. & Lafreniere, M.D. (1998, July). *Environmental Regulations for Occupational Health and Safety Professionals*. Professional development course presented at the 21st Annual Occupational Safety & Health Summer Institute, Univ. of North Carolina OSHERC, Norfolk, VA.
- (135) Lafreniere, M.D. & Handy, R.G. (1998, July). *16-Hour Confined Space Entry*. Workshop presented at Ohio University's Environmental Training and Research Center (ETRC), Chillicothe, OH.
- (136) Handy, R.G. & Lafreniere, M.D. (1998, May). *40-Hr OSHA Compliance (HAZWOPER)*. Workshop presented for the Environmental Health and Safety Resource Center at Western Kentucky University, Bowling Green, KY.
- (137) Handy, R.G. & Lafreniere, M.D. (1998, May). *8-Hour OSHA Compliance Refresher*. Workshop presented for the Environmental Health and Safety Resource Center at Western Kentucky University, Bowling Green, KY.
- (138) Handy, R.G. & Lafreniere, M.D. (1998, April). *Automated Environmental Instrumentation*. Professional development course presented at The



Kentucky Governor's Safety & Health Conference and Exhibition,  
Louisville, KY.

- (139) Handy, R., and Lafreniere, M. (1998). An automated survey method for site air pollutant characterization. In Proceedings of The International Symposium on the Measurement of Toxic and Related Air Pollutants (pp. 123-127). Pittsburg, PA: Air and Waste Management Association.
- (140) Handy, R.G., May, M.T., & Lafreniere, M.D. (1998, January). *Environmental Regulations for Occupational Health and Safety Professionals*. Professional development course presented at the 18th Annual Occupational Safety & Health Winter Institute, University of North Carolina OSHERC, St. Petersburg, FL.
- (141) Handy, R.G. (1998, January). *8-Hour OSHA Compliance Refresher*. Workshop presented for ATC Associates, Louisville, KY.
- (142) Handy, R.G., May, M.T. & Lafreniere, M.D. (1997, August). *Environmental Regulations for Occupational Health and Safety Professionals*. Professional development course presented at the 20th Annual Occupational Safety & Health Summer Institute, Univ. of North Carolina OSHERC, Norfolk, VA.
- (143) Handy, R.G. (1997, July). *Fundamentals of Industrial Hygiene*. UNET Workshop presented for Texas Gas, Inc., Owensboro, KY.
- (144) Handy, R.G. (1997, July). *Science for the Non-Scientist*. UNET Workshop presented for Texas Gas, Inc., Owensboro, KY.
- (145) Handy, R.G. & Lafreniere, M.D. (1997, May). *40-Hr OSHA Compliance (HAZWOPER)*. Workshop presented for the Environmental Health and Safety Resource Center at Western Kentucky University, Bowling Green, KY.
- (146) Handy, R.G. & Lafreniere, M.D. (1997, May). *8-Hour OSHA Compliance Refresher*. Workshop presented for the Environmental Health and Safety Resource Center at Western Kentucky University, Bowling Green, KY.
- (147) Handy, R.G. (1997, April). *The RAC-ABET Accredited Industrial Hygiene Program at WKU*. Presentation for the South Central Kentucky Environmental Managers (SCKEM), The Plaza Hotel, Bowling Green, KY.
- (148) Handy, R.G. (1997, April). *Automated Environmental Instrumentation*. Professional development course presented at The Kentucky Governor's Safety & Health Conference and Exhibition, Louisville, KY.

- (149) Lafreniere, M.D. & Handy, R.G. (1997, March). *8-Hour OSHA Compliance Refresher*. Workshop presented for Ohio University's Environmental Training and Research Center (ETRC), Chillicothe, OH.
- (150) Handy, R.G. (1997, January). *Certified Hazardous Materials Manager (CHMM) Review Course: Clean Water Act*. Professional development course prepared for the Navy Institute on Occupational Health and Safety, Virginia Beach, VA.
- (151) Handy, R.G. (1996, May). *40-Hr OSHA Compliance (HAZWOPER)*. Workshop presented for Old Dominion's Department of Environmental Health, Norfolk, VA.
- (152) Harder, G., Bolch, W., and Handy, R. (1995). Increasing quality assurance through an integrated survey system. In *Proceedings of the Waste Management Symposium*, [CD ROM], 27-56-1 – 27-56-8. Tucson, AZ: Laser Options.
- (153) Handy, R., and Lafreniere, M. (1995, May). An automated environmental characterization system for indoor surveys. Poster session presented at the *AIHA Annual Conference and Exposition*, Kansas City, KS.
- (154) Handy, R., Bolch, W., Lafreniere, M., Thompson, J., and Smith, M. (1995). An indoor radiological characterization survey using automated positioning. In *Proceedings of Waste Management Symposium*, [CD ROM], 27-17-1 – 27-17-10. Tucson, AZ: Laser Options.
- (155) Handy, R., and Bolch, E. (1994). An automated radiological survey method for performing site remediation and decommissioning. In *Proceedings of the Waste Management Symposium*, (pp. 228-232). Tucson, AZ: Laser Options.
- (156) Brunner, W. & Handy, R.G. (1994, September). *40-Hr OSHA Compliance (HAZWOPER)*. Workshop presented for Ohio University's Department of Hazardous Materials Technology, Chillicothe, OH.
- (157) Handy, R.G., and Bolch, W.E. (1992, February). An automated environmental monitoring and assessment system for indoor remediation projects. Poster session for the *Health Physics Society Mid-Year Annual Meeting*, Albany, NY.

**Grants and Awards** (Approximate Total Awarded: \$15 million – 10% effort average)

- 1) NIEHS – RISE R25, *Training in Performance-Based Approaches and Multi-Layered Measurement Strategies (PALMS) for Enhanced Indoor Air Quality Management* (pending)  
Duration of funding: 7/23 – 6/28  
Total amount of funding: \$995,000  
Role: Subcontract PI
- 2) NIOSH – CDC R21, *Drone Deployment at Construction Sites: A Misting Strategy to Reduce Worker Heat Stress and Dust Exposures* (pending)  
Duration of funding: 7/23 – 6/25  
Total amount of funding: \$275,000  
Role: Principal Investigator
- 3) OSHA – USDOL Susan Harwood Training Grants, *An Interactive Safety Training Platform for Welding, Cutting, and Brazing Health Hazards in the Construction Industry* (pending)  
Duration of funding: 5/23 – 4/24  
Total amount of funding: \$75,000  
Role: Co-Principal Investigator
- 4) University of Utah SOM, *Teaching Technology Funds - Open Range Software for IH Lab Data Management Applications*  
Duration of funding: 8/21-7/24  
Total amount of funding: \$10,500  
Role: Co-Principal Investigator
- 5) NIOSH-CDC, *Incorporating Worksite Interventions in Safety and Health (IWISH): Building Capacity for Total Worker Health*  
Duration of funding: 9/21 – 8/24  
Total amount of funding: \$1,481,427  
Role: Co-Investigator
- 6) NIH-NIEHS R25, *Biological Hazard Site Training in Emerging Technology (BioSTET) for Health and Safety*  
Duration of funding: 9/21 – 8/26  
Total amount of funding: \$1,126,841  
Role: Co-Principal Investigator
- 7) Utah Division of Air Quality  
USEPA Community-Scale Air Toxics Ambient Monitoring Grant, *Ambient Monitoring and Health Risk Assessment of Ethylene Oxide Emissions from Major Commercial Sterilizers in Utah*  
Duration of funding: 5/21-4/23  
Total amount of funding: \$364,954 Role: Subcontract PI

- 8) Health Resources and Service Administration (HRSA), *PA Primary Care Training for Substance Abuse and Mental Health*  
Duration of funding: 9/19 – 8/24  
Total amount of funding: \$1,486,271  
Role: Co-Investigator
  
- 9) University of Utah: Emerging COVID-19/SARS CoV-2 Research *Healthcare workers' exposures to SARS-CoV-2 and effectiveness of exposure controls*  
Duration of funding: 4/20 – 3/21  
Total amount of funding: \$25,000  
Role: Co-Investigator
  
- 10) University of Utah Special Emphasis: Emerging COVID-19/SARS CoV-2 Research *Performance Testing of Alternative Respiratory Protection during a Pandemic*  
Duration of funding: 4/20 – 3/21  
Total amount of funding: \$25,000  
Role: Co-Investigator
  
- 11) DFPM Health Studies Fund, *The Design and Development of a Retrofitted for Respirator Emergency Alert System (RERAS)*  
Duration of funding: 4/20-3/21  
Total amount of funding: \$7,800  
Role: Co-Investigator
  
- 12) NIH (R01) *Mechanisms Linking Daily Psychological and Environmental Stress to Sleep Deficiencies Among African Americans* (under review)  
Duration of funding: 1/22-12/25  
Total amount of funding: 1,850,000  
Role: Co-Investigator
  
- 13) CPWR, *Nebulizer-Retrofitted Drone Deployment at Residential Construction Sites*  
Duration of funding: 6/20 – 5/21  
Total amount of funding: \$30,000  
Role: Principal Investigator
  
- 14) DFPM Health Studies Fund, *A Comparison of Perceived Competencies between Hurricane, Utah's Local Emergency Planning Committee (LEPC) and Zion National Park (ZNP) First Responders*  
Duration of funding: 1/20-12/20  
Total amount of funding: \$7,000  
Role: Mentor

- 15) DFPM Health Studies Fund, *A Comparison of Heat Stress Conditions Based on Kitchen Configurations in the Full Service Restaurant Industry*  
Duration of funding: 4/19-3/20  
Total amount of funding: \$5,000  
Role: Principle Investigator
- 16) NIEHS R21, *Environmental Exposures of the Northern Arapaho Tribe: An Exploratory Study*  
Duration of funding: 7/21 – 6/23  
Total amount of funding: \$423,244  
Role: Co-Investigator
- 17) High Plains Intermountain Center for Agricultural Health & Safety (HICAHS) - CSU, *Potential Total Petroleum Hydrocarbon Exposures in Native American Communities along the Missouri River*  
Duration of funding: 1/19 – 12/19  
Total amount of funding: \$25,000 Role: Co-PI
- 18) NIOSH-OSHERC Training Grant 2T42/OH008414  
Duration of funding: 7/15 – 6/23  
Total amount of funding: \$8,430,000  
Role: Co-Investigator and Director of IH (2/16 – 6/19)
- 19) SHTG-FY-17-01 USDOL Susan Harwood Training Grants, *Hazardous Materials Handling and Injury Prevention for Oil and Gas Workers*  
Duration of funding: 7/17-6/18  
Total amount of funding: \$148,820  
Role: Principal Investigator
- 20) DFPM Health Studies Fund, *The Assessment of Goshute Tribe Community Exposures to Environmental Contaminants*  
Duration of funding: 11/17-6/18  
Total amount of funding: \$3,900  
Role: Principal Investigator
- 21) DFPM Health Studies Fund, *Temperature Inversion and Ultrafine Particle Matter Concentrations in the Salt Lake Valley*  
Duration of funding: 11/16-10/17  
Total amount of funding: \$5,000  
Role: Principle Investigator
- 22) USPCAS-W Course Mentoring Program, *Occupational Health and Safety Course Development at MUET*  
Duration of funding: 8/16-12/17  
Total amount of funding: \$7,640  
Role: Project personnel

- 23) PAR-15-303 NIOSH-OSHERC (T42), *Targeted Research Training (TRT)*  
 Duration of funding: 7/16-6/18  
 Total amount of funding: \$605,000  
 Role: Program Director and Co-PI
- 24) PPRT NIOSH, *Evaluation of Wipes for Removing Beryllium from Surfaces of Different Textures*  
 Duration of funding: 7/16-6/17  
 Total amount of funding: \$4,480  
 Role: Mentor
- 25) PPRT NIOSH, *The Development of an Airborne Contaminant Exposure Model at the Great Salt Lake Based Upon Environmental Sampling of by Portable XRF*  
 Duration of funding: 7/16-6/17  
 Total amount of funding: \$4,390  
 Role: Mentor
- 26) DFPM Health Studies Fund, *The Development of a Predictive Algorithm for Individualistic Heat Stress Characterization and Assessment*  
 Duration of funding: 8/15-7/16  
 Total amount of funding: \$5,000  
 Role: Principle Investigator
- 27) ASHRAE Senior Undergraduate Project Grant, *Solar Ejector Refrigeration System*  
 Duration of funding: 8/15-5/16  
 Total amount of funding: \$5,000  
 Role: Co-Principal Investigator
- 28) Parker Hannifin Corporation, *Mechanical Device Pump Analysis*  
 Duration of funding: 1/15-9/15  
 Total amount of funding: \$33,000  
 Role: Co-Principal Investigator
- 29) U.S. Department of Energy, *Residual Stress Characterization of Metals and Alloys During Machining Processes*  
 Duration of funding: 3/13-12/14  
 Total amount of funding: \$100,000  
 Role: Principal Investigator
- 30) U.S. Department of Energy, *Acoustic Emission Detection of Metals and Alloys During Machining Processes*  
 Duration of funding: 8/11-12/11  
 Total amount of funding: \$120,000  
 Role: Principal Investigator

- 31) ALCOA, Inc, *Development of a Sustainable Manufacturing Portal: Phase II*  
Duration of funding: 7/11-6/12  
Total amount of funding: \$48,070  
Role: Principal Investigator
- 32) ALCOA, Inc, *Development of a Sustainable Manufacturing Portal: Phase I*  
Duration of funding: 6/10-5/11  
Total amount of funding: \$49,000  
Role: Principal Investigator
- 33) Odorox Environmental LLC, *The Characterization of Bioaerosol and Surface Contamination Before/After the Operation of a Hydroxyl Generating Air Cleaner*  
Duration of funding: 1/10-6/10  
Total amount of award: \$10,000  
Role: Principal Investigator
- 34) U.S. Department of Labor (Purdue TAP), *Green Product Design Modules*  
Duration of funding: 5/09-8/09  
Total amount of award: \$40,000  
Role: Principal Investigator
- 35) U.S. Department of Labor (WIRED) Grant, *Green Workforce Development*  
Duration of funding: 1/08-8/09  
Total amount of award: \$514,807  
Role: Co-Principal Investigator
- 36) Purdue Technical Assistance Program (TAP), *Green Workforce Development*  
Duration of funding: 8/07 – 12/07  
Total amount of award: \$30,000  
Role: Project Personnel
- 37) Luvata Copper-Franklin, *Air Sampling Post Corrective Action*  
Duration of funding: 7/1/07-8/31/07  
Total amount of award: \$3,500  
Role: Principal Investigator
- 38) Luvata Copper-Franklin, *Follow-up Air Sampling Survey with Noise Dosimetry*  
Duration of funding: 5/1/07-6/30/07  
Total amount of award: \$6,049      Role: Principal Investigator
- 39) Ford Research Fund, *Engine Test Stand*  
Duration of funding: 8/06 – 12/06  
Total amount of award: \$12,000  
Role: Project Personnel

- 40) Ford Research Fund, *Portable XRF Metal Analyzer*  
Duration of funding: 8/06 – 12/06  
Total amount of award: \$27,000  
Role: Project Personnel
- 41) CIM in Higher Ed Alliance, *Development of a “Sustainability in Manufacturing” Course*  
Duration of funding: 7/1/07 – 7/31/07  
Total amount of award: \$9,091  
Role: Principal Investigator
- 42) SME Manufacturing Engineering Ed Foundation, *Curriculum Modules in PLM for Engineering/Technology Students & Industrial Practitioners*  
Duration of funding: 10/1/05 – 9/30/07  
Total amount of award: \$274,000 Role: Co-Principal Investigator
- 43) Ford Research Fund, *Materials Selector software*  
Duration of funding: 8/05 – 12/05  
Total amount of award: \$55,000  
Role: Project Personnel
- 44) ALDI/The Gilliam Group, *Investigation of FIR Device*  
Duration of funding: 8/31/06 – 2/28/07  
Total amount of award: \$30,000  
Role: Principal Investigator
- 45) Steel Parts Corporation, *Environmental Assessment ISO 14001 Audit*  
Duration of funding: 4/1/06 – 4/30/06  
Total amount of award: \$1,319  
Role: Principal Investigator
- 46) Outokumpu Copper-Franklin, *On-Site Air Sampling*  
Duration of funding: 8/1/05 – 7/31/06  
Total amount of award: \$4,500  
Role: Principal Investigator
- 47) DESA International, *EH&S Safety Program Review*  
Duration of funding: 4/04-5/04  
Total amount of award: \$1,573  
Role: Principal Investigator
- 48) S-R of Kentucky, *HEAT Unit Services and Certification*  
Duration of funding: 12/03-1/04  
Total amount of award: \$978  
Role: Principal Investigator



- 49) Pride Plastics, *Environmental Monitoring*  
Duration of funding: 10/03-12/03  
Total amount of award: \$1,490  
Role: Principal Investigator
- 50) City of Bowling Green, *HEAT Unit Services*  
Duration of funding: 9/03-10/03  
Total amount of award: \$978  
Role: Principal Investigator
- 51) SCA Hygiene Products, *Humidity Control Analysis*  
Duration of funding: 9/03-12/03  
Total amount of award: \$3,163  
Role: Principal Investigator
- 52) Valspar Industries, *HEAT Unit Services*  
Duration of funding: 9/03-10/03  
Total amount of award: \$978  
Role: Principal Investigator
- 53) Harman-Becker Automotive Systems, *Respirator Fit Testing*  
Duration of funding: 8/03-10/03  
Total amount of award: \$810  
Role: Principal Investigator
- 54) Weyerhaeuser-Kentucky Mills, *Indoor Air Quality Assessment II*  
Duration of funding: 8/03-10/03  
Total amount of award: \$713  
Role: Principal Investigator
- 55) Children's Health Care of Atlanta, *HAZWOPER*  
Duration of funding: 6/03-7/03  
Total amount of award: \$6,711  
Role: Principal Investigator
- 56) Weyerhaeuser-Kentucky Mills, *Indoor Air Quality Assessment I*  
Duration of funding: 4/03-5/03  
Total amount of award: \$713  
Role: Principal Investigator
- 57) Federal Mogul, *HEAT Mobile Unit Services*  
Duration of funding: 3/03-4/03  
Total amount of award: \$977  
Role: Principal Investigator

- 58) DESA International, *Lock-Out/Tag-Out*  
Duration of funding: 2/03-3/03  
Total amount of award: \$980  
Role: Principal Investigator
- 59) DESA International, *EH&S Programs Review*  
Duration of funding: 2/03-5/03  
Total amount of award: \$1,974  
Role: Principal Investigator
- 60) Seimer Milling, Inc., *HEAT Mobile Unit Services and Certification*  
Duration of funding: 1/03-2/03  
Total amount of award: \$977  
Role: Principal Investigator
- 61) S-R of Kentucky, *HEAT Mobile Unit Services and Certification*  
Duration of funding: 1/03-2/03  
Total amount of award: \$977  
Role: Principal Investigator
- 62) S-R of Kentucky, *Fume Hood Testing*  
Duration of funding: 1/03-3/03  
Total amount of award: \$1,199  
Role: Principal Investigator
- 63) Weyerhaeuser-Kentucky Mills, *Asbestos Sampling and Reporting*  
Duration of funding: 1/03-3/03  
Total amount of award: \$1,485  
Role: Principal Investigator
- 64) Ohio University ETRC, *HEAT Mobile Unit Services*  
Duration of funding: 12/02-1/03  
Total amount of award: \$2,142  
Role: Principal Investigator
- 65) ZUA Autoparts, Inc., *Lead Analysis and Summary of Findings*  
Duration of funding: 12/02-1/03  
Total amount of award: \$590  
Role: Principal Investigator
- 66) Willamette Industries, Inc., *Air Monitoring*  
Duration of funding: 9/02-11/02  
Total amount of award: \$3,992  
Role: Principal Investigator

- 67) Pan-Oston Company, *Sampling for Welding Fumes*  
Duration of funding: 9/02-11/02  
Total amount of award: \$615  
Role: Principal Investigator
- 68) Valspar Corporation, *HAZWOPER Training with Certification*  
Duration of funding: 8/02-9/02  
Total amount of award: \$1,900  
Role: Principal Investigator
- 69) Curry Timber, *Noise Dosimetry*  
Duration of funding: 7/02-8/02  
Total amount of award: \$1,470  
Role: Principal Investigator
- 70) DESA International, *Environmental Health and Safety Program Review*  
Duration of funding: 5/02-8/02  
Total amount of award: \$1,953  
Role: Principal Investigator
- 71) Weyerhaeuser, Inc., *Noise Survey*  
Duration of funding: 5/02-7/02  
Total amount of award: \$2,495  
Role: Principal Investigator
- 72) Barren County School System, *Qualitative IAQ Survey*  
Duration of funding: 3/02-5/02  
Total amount of award: \$2,984  
Role: Principal Investigator
- 73) Willamette Industries, Inc., *Welding Fume Profile*  
Duration of funding: 2/02-5/02  
Total amount of award: \$6,433  
Role: Principal Investigator
- 74) DESA International, *Environmental Health and Safety Programs Review*  
Duration of funding: 1/02-4/02  
Total amount of award: \$1,953  
Role: Principal Investigator
- 75) Brownyard Claims Management, *Air and Swipe Samples for Pesticides II*  
Duration of funding: 11/01-2/02  
Total amount of award: \$3,855  
Role: Principal Investigator

- 76) EnSafe, Inc., *Collecting Baseline Noise Exposure Assessments*  
Duration of funding: 11/01-1/02  
Total amount of award: \$1,708  
Role: Principal Investigator
- 77) Brownyard Claims Management, *Air and Swipe Samples for Pesticides I*  
Duration of funding: 11/01-1/02  
Total amount of award: \$2,484  
Role: Principal Investigator
- 78) EnSafe, Inc., *Air Sampling*  
Duration of funding: 11/01-12/01  
Total amount of award: \$299  
Role: Principal Investigator
- 79) Weyerhaeuser, Inc., *Collect, Submit, and Review Formaldehyde Samples*  
Duration of funding: 10/01-12/01  
Total amount of award: \$889  
Role: Principal Investigator
- 80) Eagle Industries, Inc., *Environmental Health and Safety Inspections*  
Duration of funding: 10/01-12/01  
Total amount of award: \$6,698  
Role: Principal Investigator
- 81) DESA International, Inc., *Environmental Health and Safety Programs Review*  
Duration of funding: 10/01-1/02  
Total amount of award: \$1,953  
Role: Principal Investigator
- 82) Warren County Fiscal Court, *Survey for Asbestos in Old Jail*  
Duration of funding: 10/01-11/01  
Total amount of award: \$879  
Role: Principal Investigator
- 83) Pan-Oston Company, *Sampling for Welding Fumes*  
Duration of funding: 9/01-11/01  
Total amount of award: \$615  
Role: Principal Investigator
- 84) Willamette Industries, Inc., *Air Monitoring*  
Duration of funding: 9/01-11/01  
Total amount of award: \$3,992  
Role: Principal Investigator

- 85) Willamette Industries, Inc., *Pre-Corrective Action Air Sampling*  
Duration of funding: 7/01-9/01  
Total amount of award: \$2,248  
Role: Principal Investigator
- 86) EnScience, Inc., *Area Air Sampling*  
Duration of funding: 7/01-9/01  
Total amount of award: \$1,111  
Role: Principal Investigator
- 87) Lexington Fayette Urban City Government, *Bioaerosol Sampling and Testing*  
Duration of funding: 6/01-8/01  
Total amount of award: \$1,994  
Role: Principal Investigator
- 88) DESA International, Inc., *Environmental Health and Safety Services*  
Duration of funding: 6/01-9/01  
Total amount of award: \$1,953  
Role: Principal Investigator
- 89) Lexington Fayette Urban City Government, *Indoor Air Quality Investigation*  
Duration of funding: 4/01-6/01  
Total amount of award: \$2,595  
Role: Principal Investigator
- 90) Trinity Glass International, *Screen Printing Room Air Sampling Project*  
Duration of funding: 2/01-4/01  
Total amount of award: \$1,354  
Role: Principal Investigator
- 91) Weyerhaeuser, Inc., *Collection of Formaldehyde and Reviewing of Data*  
Duration of funding: 10/00-12/00  
Total amount of award: \$841  
Role: Principal Investigator
- 92) Monitoring Technologies Corporation, *Photovac Snapshot with Field Kit*  
Duration of funding: 10/00-11/00  
Total amount of award: \$6000  
Role: Principal Investigator
- 93) DESA International, Inc., *Environmental Health and Safety Services*  
Duration of funding: 9/00-12/00  
Total amount of award: \$1,948  
Role: Principal Investigator

- 94) Lilly Industries, Inc., *On-Site Survey/Stormwater and Groundwater Plan*  
Duration of funding: 9/00-11/00  
Total amount of award: \$3,871  
Role: Principal Investigator
- 95) Team Environment, *Area Sampling for Hydrogen Fluoride and Nitric Acid*  
Duration of funding: 6/00-8/00  
Total amount of award: \$1,988  
Role: Principal Investigator
- 96) Hildreth-Hopper Oil Company, *Phase I Environmental Assessment*  
Duration of funding: 6/00-8/00  
Total amount of award: \$2,475  
Role: Principal Investigator
- 97) Willamette Industries, *Bleached Pulp Mill IH Survey*  
Duration of funding: 5/00-7/00  
Total amount of award: \$4,911  
Role: Principal Investigator
- 98) DESA International, Inc., *Environmental Health and Safety Programs Review*  
Duration of funding: 5/00-8/00  
Total amount of award: \$1,948  
Role: Principal Investigator
- 99) Huish Detergents, Inc., *Pre-Mix Operation Air Sampling*  
Duration of funding: 4/00-6/00  
Total amount of award: \$1,935  
Role: Principal Investigator
- 100) Kentucky Micro-Finishing, Inc., *Industrial Drive Facility OSHA Compliance Study*  
Duration of funding: 4/00-5/00  
Total amount of award: \$3,260  
Role: Principal Investigator
- 101) Kerr Group, Inc., *Southwood Court OSHA and EPA Compliance Requirements*  
Duration of funding: 4/00-5/00  
Total amount of award: \$3,260  
Role: Principal Investigator
- 102) Willamette Industries, Inc., *Evaluation of Swipe Samples for Silica and Welding Metals*  
Duration of funding: 3/00-5/00  
Total amount of award: \$2,484  
Role: Principal Investigator

- 103) Mail-Well Label, *Records Review/Hazardous Materials Reporting*  
Duration of funding: 2/00-3/00  
Total amount of award: \$611  
Role: Principal Investigator
- 104) Bowling Green Municipal Utilities, *Indoor Air Quality Survey*  
Duration of funding: 2/00-4/00  
Total amount of award: \$2,130  
Role: Principal Investigator
- 105) DESA International, Inc., *OSHA Compliance Audit*  
Duration of funding: 2/00-4/00  
Total amount of award: \$1948  
Role: Principal Investigator
- 106) EMPE, Inc., *Industrial Hygiene Field Investigation II*  
Duration of funding: 11/99-12/99  
Total amount of award: \$435  
Role: Principal Investigator
- 107) DESA International, Inc., *Confined Space Assessment*  
Duration of funding: 10/99-11/99  
Total amount of award: \$4,423  
Role: Principal Investigator
- 108) Mail-Well Label, *Noise Dosimetry*  
Duration of funding: 10/99-11/99  
Total amount of award: \$1,063  
Role: Principal Investigator
- 109) Mail-Well Label, *Development of Training Programs*  
Duration of funding: 10/99-12/99  
Total amount of award: \$3,231  
Role: Principal Investigator
- 110) EMPE, Inc., *Industrial Hygiene Investigation I*  
Duration of funding: 9/99-10/99  
Total amount of award: \$330  
Role: Principal Investigator
- 111) DESA International, Inc., *Industrial Hygiene Assessment*  
Duration of funding: 12/98-2/88  
Total amount of award: \$2,880  
Role: Principal Investigator

- 112) Triad LLC, *Industrial Hygiene Sampling, Characterization and Assessment*  
Duration of funding: 11/98-1/99  
Total amount of award: \$3,099  
Role: Principal Investigator
- 113) SCA Hygiene Products, *Industrial Hygiene Sampling*  
Duration of funding: 10/98-11/98  
Total amount of award: \$412  
Role: Principal Investigator
- 114) Country Oven Bakery, *Ergonomics Study*  
Duration of funding: 8/98-11/98  
Total amount of award: \$4,663  
Role: Principal Investigator
- 115) Risk Management Group, *Environmental Health and Safety Services*  
Duration of funding: 8/98-11/98  
Total amount of award: \$3,828  
Role: Principal Investigator
- 116) Lexington Fayette Urban City Government, *IAQ Project #1*  
Duration of funding: 3/98-5/98  
Total amount of award: \$2,551  
Role: Principal Investigator
- 117) Great Southern Entertainment Corporation, *Environmental Noise Sampling*  
Duration of funding: 10/97-12/97  
Total amount of award: \$6,268  
Role: Principal Investigator
- 118) Sarah Budde & Associates, *Noise Dosimetry Study*  
Duration of funding: 6/97-8-97  
Total amount of award: \$2,440  
Role: Principal Investigator
- 119) International Paper, Inc., *Economic Development Project*  
Duration of funding: 1/97-6/97  
Total amount of award: \$4,697  
Role: Principal Investigator
- 120) Weyerhaeuser, Inc., *Noise Level Assessment*  
Duration of funding: 1/97-3/97  
Total amount of award: \$3,140  
Candidate's role: Principal Investigator



- 121) Commonwealth of Kentucky Program of Distinction Grant - Engaging Students, *EHSRC*  
Duration of funding: 1998-2004  
Total amount of award: \$320,000  
Role: Center Director
- 122) National Institute of Occupational Safety and Health, *NIOSH Training Grant Program*  
Duration of funding: 1996-2004  
Total amount of award: \$32,500/year  
Role: Project Personnel
- 123) Western Kentucky University Summer Faculty Grant Funding, *Automated Sampling for Lead in the Occupational Environment*  
Duration of funding: 5/03-8/03  
Total amount of award: \$5,500  
Role: Principal Investigator
- 124) Kentucky Department of Public Health, *Proposal to Develop Survey to Assess Preparedness, Planning, Readiness, & Basic Competencies of First Responders*  
Duration of funding: 10/02-10/04  
Total amount of award: \$130,000  
Role: Project Personnel
- 125) McConnell Appropriations, *Rural Health Initiative-HEAT Unit*  
Duration of funding: 7/02-6/04  
Total amount of award: \$520,000  
Role: Co-Principal Investigator (internal)
- 126) Western Kentucky University New Faculty Grant, *Indoor Air Quality Monitoring*  
Duration of funding: 5/97-8/97  
Total amount of award: \$5000  
Role: Principal Investigator
- 127) Western Kentucky University President Special Grant Funding, *PID & Instrumentation*  
Duration of funding: 2/97  
Total amount of award: \$2500  
Role: Principal Investigator
- 128) WKU President Special Grant Funding, *Indoor Air Quality Monitor*  
Duration of funding: 11/96  
Total amount of award: \$3750  
Role: Principal Investigator

- 129) Old Dominion University Faculty Development Funds, *Automated Sampling Techniques* Duration of funding: 8/05-5/06  
Total amount of award: \$3000  
Role: Principal Investigator
- 130) Old Dominion Summer Fellowship, *Systems Development in Automated Sampling*  
Duration of funding: 5/06-7/06  
Total amount of award: \$5000  
Role: Principal Investigator
- 131) Ohio Board of Regents, *Productivity Improvement Challenge*  
Duration of funding: 1/94-12/94  
Total amount of award: \$33,000  
Role: Principal Investigator
- 132) U.S. Department of Labor, ORAU *Health Physics Fellowship*  
Duration of funding: 8/92-5/94  
Total amount of award: \$150,000  
Role: Project personnel (doctoral support)
- 133) University of Miami, *National Accredited Business School Merit Fellowship*  
Duration of funding: 8/90-5/91  
Total amount of award: \$12,000/year  
Role: Recipient
- 134) Ball State University, *Computer Competency Grant*  
Duration of funding: 3/90-8-90  
Total amount of award: \$3000  
Role: Principal Investigator
- 135) Ball State University, *Terry Business Graduate Scholarship*  
Duration of funding: 8/88-12/88  
Total amount of award: \$4000  
Role: Recipient

## ***Service and Engagement***

*Sponsored consulting/applied research projects (Approximate Total Awarded: \$450,000)*

- 1) 12/16-1/17, Technical Regulatory and Compliance Experts – Utah (TRaCE-Utah) project with PacifiCorp of Point of Rock, WY, *Welding System Evaluation*. (\$1,257.57)
- 2) 12/16-2/17, Technical Regulatory and Compliance Experts – Utah (TRaCE-Utah) project with Sweetwater Memorial Hospital of Rock Springs, WY, *Quantitative Respiratory Fit Test Training*. (\$2,009.17)
- 3) 8/11-10/11, Purdue Technical Assistance Program (TAP) project with Thorpe Woodworks of New Albany, IN, *Discuss air quality certification requirements*.
- 4) 8/11-10/11, TAP project with Jasper Engines of Jasper, IN, *Welding process EHS assistance*.
- 5) 4/11-6/11, TAP project with Mayfield Corporation of Wanatah, IN, *Title V air permit assistance*.
- 6) 3/11-6/11, TAP project with Electro-Spec of Franklin, IN, *Follow-up study from 2008 air emission study #11449*.
- 7) 2/11-6/11, TAP project with Alcoa, Inc. of Lafayette, IN, *Provide recommendations to control/remediate noise levels originating from aluminum extrusion and tubing cut-off saws*.
- 8) 7/10-9/10, TAP project with Agri Processing Services, LLC of Carmel, IN, *Provide overview of shipping and handling of HAZMAT materials per state and federal transportation agencies*.
- 9) 6/10-current, TAP project with RR Donnelley & Sons Co. of Warsaw, IN, *Provide guidance and assistance on several aspects of cooling tower system*.
- 10) 2/10-5/10, TAP project with Scott County Economic Development Corporation of Scottsburg, IN, *Impact of wood-fueled electricity generator on local air quality*.
- 11) 12/09-4/10, TAP project with Vector USA of Kentland, IN, *Assist with technical questions for an environmental permit application*.
- 12) 12/09-3/10, TAP project with Cook Biotech Inc., West Lafayette, IN, *Provide three 4-hour sessions on hazardous materials training*.

- 13) 11/09-1/10, TAP project with Kirby Risk of Lafayette, IN, *Provide an ISO 14001 Audit.*
- 14) 10/09-8/10, TAP project with Construction Recycling Solutions of Fort Wayne, IN, *IDEM marketing and distribution permit for recycled ground wood product containing OSB and plywood.*
- 15) 11/09-1/10, TAP project with Odorox Environmental, LLC of Westfield, IN, *Discuss ozone measurement in the presence of hydroxyls and the science behind the hydroxyl generating device.*
- 16) 9/09-11/09, TAP Project with Robert Weed Plywood of Bristol, IN, *Abatement of noise in lamination trim process.*
- 17) 4/09-7/09, TAP project with Hiler Industries of LaPorte, IN, *Determine approaches to reduce CO emissions from resin coated sand molds.*
- 18) 4/09-7/09, TAP project with Dorel Juvenile of Columbus, IN, *Assist client with environmental compliance processes.*
- 19) 4/09-5/09, TAP project with Donaldson Company, Inc. of Monticello, IN, *Discuss cleaning of rotational molding tank.*
- 20) 3/09-7/09, TAP project with Firestone Diversified Products of Indianapolis, IN, *Find potential use for foam dust bricks.*
- 21) 3/09-6/09, TAP project with Wood-Mizer Products of Lizton, IN, *Discuss emissions of biomass furnace with multiple fuel options.*
- 22) 3/09-6/09, TAP project with Greenbush Industries of Lafayette, IN, *Discuss how to recycle multi-material product.*
- 23) 1/09-6/09, TAP project with Wayne Combustion Systems of Fort Wayne, IN, *Determination of environmental permits required to burn chicken litter in a particular type of proprietary furnace.*
- 24) 1/09-7/09, TAP project with RR Donnelley of Warsaw, IN, *Provide guidance and recommendations for an iron filtration system for plant water.*
- 25) 11/08-5/09, TAP project with RR Donnelley of Warsaw, IN, *Provide assistance in measuring true output of industrial air compressors.*
- 26) 07/08-11/08, TAP project with Columbian Home Products of Terre Haute, IN, *Energy recapture feasibility study.*

- 27) 07/08-11/08, TAP project with Jayco, Inc., of Middlebury, IN, *Provide feasibility analysis for waste wood boiler system.*
- 28) 07/08-9/08, TAP project with Tru-Flex Metal Hose of West Baden, IN, *Provide an ISO 14001 audit.*
- 29) 07/08-09/08, TAP project with Hoffco Comet Industries of Richmond, IN, *Provide an ISO 14001 audit.*
- 30) 03/08-04/08, TAP project with Tru-Flex Metal Hose of West Baden, IN, *Provide and environmental noise assessment.*
- 31) 02/08-06/08, TAP project with Eli Lilly Tippecanoe Laboratories of West Lafayette, IN, *Hydroelectric power feasibility from wastewater stream.*
- 32) 02/08-4/08, TAP project with Electro-Spec of Franklin, IN, *Guidance on air monitoring for assembly facility.*
- 33) 01/08-3/08, TAP project with C&D Technologies of Attica, IN, *An evaluation of alternative battery lid adhesives.*
- 34) 01/08-3/08, TAP project with Cook Biotech of West Lafayette, IN, *Determination of the energy efficiency of a facility HVAC system.*
- 35) 01/08-3/08, TAP project with Griffin Analytical of West Lafayette, IN, *DOT HazMat and OSHA HazCom training and program development.*
- 36) 12/07-5/08, TAP project with Indiana Heat Transfer of Plymouth, IN, *Environmental assessment and recommendations.*
- 37) 10/07-12/07, TAP project with Consolidated Leisure Industries of Middlebury, IN, *An air sampling survey for VOCs in the recreational vehicle/trailer industry.*
- 38) 10/07-12/07, TAP project with Kruz of Knox, IN, *Industrial hygiene air sampling and engineering controls assessment.*
- 39) 8/07-10/07, TAP project with Subaru of Indiana Automotive (SIA) of Lafayette, IN, *Energy audit of paint shop area.*
- 40) 4/07-5/07, TAP project with Cook Group, Inc. of Bloomington, IN, *Indoor air quality survey: French Lick Resort and Casino (follow-up).*
- 41) 3/07-4/07, TAP project with Cook Group, Inc. of Bloomington, IN, *French Lick Resort and Casino air quality walk-through survey.*

- 42) 01/06-10/06, TAP project with Brogan Pharmaceuticals of Schereville, IN, *Second phase of assistance in specifying a clean room and ensuring compliance with standards.*
- 43) 02/06-03/06, TAP project with Sinclair Glass of Hartford City, IN, *Evaluation of energy efficiency of custom glass maker.*
- 44) 01/06-02/06, TAP project with The Republic of Columbus, IN, *Evaluation of an indoor air quality and ventilation problem in a printing press operation.*
- 45) 09/05-01/06, TAP project with Brogan Pharmaceuticals of Schereville, IN, *Assistance in specifying a clean room and ensuring compliance with various standards.*
- 46) 05/05-08/05, TAP project with Grand Terrain Products of South Bend, IN, *Environmental assessment of PLA packaging.*
- 47) 10/04-2/05, TAP project with Grand Terrain Products of South Bend, IN, *Evaluation of the moldability of a polylactic polymer.*

*Graduate Student Committee Membership (2006 – present; 29 Chair & 5 Co-Chair):*

- 1) 5/27 – Doreen Denso, PhD degree (*Chair*), Exposure science characterization and modeling for heavy metal concentrations in various media
- 2) 5/24 – Thomas Rodriguez, PhD degree (*Chair*), Evaluating hearing conservation educational materials, possible interventions, and novel training protocol to encourage proper hearing protection placement in U.S. military service members
- 3) 5/24 – Clayton Garner, MS degree (*Chair*), Assessment of hearing conservation programs in the U.S. military
- 4) 5/24 – Lucas Pettit, MS degree (*Chair*), Assessment of hearing conservation strategies for general public and industry
- 5) 5/24 – Karly Anderson, MS degree (*Chair*), The use of human exposure modeling (HEM-4) to model ethylene oxide emissions from major commercial sterilizers in Utah
- 6) 5/23 – Muhammad Aiman, MS degree, Environmental Exposures of the Northern Arapaho Tribe: An Exploratory Study

- 7) 5/23 – Travis Jacobs, MS degree, Industry Survey of the Most Common Respirable, Inhalable, and Total Dust Sampling Methods
- 8) 5/23 – Zachary Palmer, MS degree, Indoor Air Quality (PM2.5 and CO2) monitoring on the University of Utah Campus
- 9) 5/23 – Skyler Spooner, MS degree (*Chair*), Ambient monitoring and health risk assessment of ethylene oxide emissions from major commercial sterilizers in Utah
- 10) 8/22 – Cam Catherine, MS degree PA, Chronic care management at South Main Clinic: A retrospective perspective
- 11) 8/22 – Stacie Henderson, MS degree PA, Chronic care management at South Main Clinic: A retrospective perspective
- 12) 8/22 – Millie Oldroyd, MS degree PA, Chronic care management at South Main Clinic: A retrospective perspective
- 13) 8/22 – Cari Sanyer, MS degree PA, Chronic care management at South Main Clinic: A retrospective perspective
- 14) 8/22 – Deborah Bell, MS degree PA, COVID-19 severity in people living with HIV: A pilot study in the Rocky Mountain West
- 15) 8/22 – Laura Spruit, MS degree PA, COVID-19 severity in people living with HIV: A pilot study in the Rocky Mountain West
- 16) 8/22 – Tyler Brown, MS degree PA, COVID-19 severity in people living with HIV: A pilot study in the Rocky Mountain West
- 17) 8/22 – Katie O’Flanerty, MS degree PA, COVID-19 severity in people living with HIV: A pilot study in the Rocky Mountain West
- 18) 5/22 – Tyler Mathis, MS degree (*Chair*), Ambient monitoring and health risk assessment of ethylene oxide emissions from major commercial sterilizers in Utah
- 19) 5/22 – John Doyle, MS degree, A qualitative analysis of the effects of post-concussive dizziness on the ability of Post-9/11 Veterans to perform meaningful activity
- 20) 8/22 – Daniel Agyemang, PhD degree, The mediation and moderation effect of social support on the relationship between opioid misuse and suicide attempts among Native American youth in New Mexico: 2009-2019 Youth Risk Resiliency Survey (NM-YRRS)

- 21) 5/21 – Benson Young, MS degree, Degradation of volatile organic compounds (VOCs) and volatile sulfur compounds (VSCs) in sampling containers
- 22) 5/21 – Katie Hagman, MS degree, Investigation of cleaning practices through simulated vomitus
- 23) 5/21 – Sharly Coombs, MS degree, Environmental and occupational health on the Navajo Nation: A scoping review
- 24) 5/21 – Travis Tamowski, MS degree, Evaluation of common inhalable aerosol samplers in a controlled wind tunnel
- 25) 5/21 – Gabriela Teniza, MS degree, Comparison of comparable aerosol samplers during simulated personal sampling
- 26) 5/21 – Marion Woodfield, MS degree, The influence of face shields on aerosol exposure reduction
- 27) 12/20 – Amy Loftis, MS degree, An alternative option to current particle samplers: An equivalence study
- 28) 12/20 – Alex Watts, MS degree, The 5G tower wave
- 29) 12/20 – Lindsay Scholl, MS degree, Incidence of workers' compensation claims in opioid-using truck drivers
- 30) 5/20 – Madison Ellis, MS degree (*Chair*), A comparison of heat stress conditions based on kitchen configurations in the full service restaurant industry
- 31) 5/20 – Jarom Kuhre, MS degree, A comparison of occupational blood lead level (BLL) prevalence and airborne lead concentration in Utah and nationally
- 32) 5/20 – Bruce Niebergall, MS degree, Plume analysis from laser hair removal: A pilot study
- 33) 5/20 – Keller Reeves, MS degree, A comparison of competencies between Hurricane, Utah's local emergency planning committee (LEPC) and Zion National Park (ZNP) first responders
- 34) 5/20 – Raquel Robello, MS degree (*Chair*), A comparison study to investigate heavy metal soil contamination at two different frontier tribal locations
- 35) 5/20 – Derek Sandberg, MS degree, Is the new coal dust standard protective for respirable quartz?



- 36) 5/20 – Logan Webb, MS degree (*Chair*), A comparison study of indoor air quality conditions between two different frontier tribal communities
- 37) 12/19 – Angela Ho, MS degree, An investigation of aerosol measurement degradation in low-cost particle sensors using laboratory calibration and field validation
- 38) 12/19 – Kaylin Lake, MS degree, A pilot study to investigate heavy metal soil contamination in a frontier tribal population
- 39) 5/20 – Andria Thatcher, Ph.D., Manual material handling and low back pain in occupational drivers: A prospective study
- 40) 12/19 – Onwuka Onkorie, Ph.D. degree, Role of a cardiovascular disease and related factors in the prevalence of truckers compensation claims
- 41) 5/19 – Lauren Haggerty, MS degree (*Chair*), The evaluation of Kenyan coolstoves ventilation
- 42) 5/19 – Hannah Phillips, MS degree (*Chair*), A novel exposure modeling technique for evaluating employee chemical exposures
- 43) 5/19 – Jared Stenberg, MS degree (*Chair*), A holistic approach to characterizing environmental stressor exposures for the indigenous communities of Utah
- 44) 5/19 – Tyler McCord, MS degree, Statistical method of evaluating work shift job satisfaction
- 45) 5/19 – Jacob Thomas, MS degree, A pilot study predicting core body temperatures of workers in hot work environments using infrared imagery
- 46) 12/19 – Joemy Ramsay, Ph.D. degree, Measurement of exposure to particulate matter in the nasal airway
- 47) 5/19 – Victor Alavez, (in progress), Ph.D., TBD
- 48) 8/19 – Naomi Riches, Ph.D. degree (*Chair*), The development of an exposure model for human populations to airborne heavy metal concentrations near the Great Salt Lake
- 49) 8/18 – McKenzie Barlow, MS degree, Comparative analysis of physiological measurements and environmental metrics on predicting heat stress related events (Cal Poly – Biomedical Engineering)
- 50) 5/18 – Danielle Mecate, MS degree (*Chair*), Temperature inversions and ultrafine particulate concentrations in the Salt Lake Valley

- 51) 5/18 – Jesse Zmoos, MS degree, Asthma IAQ pilot project
- 52) 5/18 – Ben Borsh, MS degree, Evaluation of a modified CFC
- 53) 5/18 – Charlotte Robison-Hanchett, MS degree, An evaluation of true slip-resistant footwear
- 54) 5/18 – Alex Cox, MS degree, Development of an empirical formula for describing human inhalability of airborne particles
- 55) 5/18 – Aaron Cox, MS degree, CO<sub>2</sub> and NO<sub>2</sub> exposures among ice rink employees
- 56) 5/17 – Marie Thorsen, MS degree (*Chair*), Characterization of heavy metals on Great Salt Lake new shoreline soils
- 57) 5/17 – Scott Clingenpeel, MS degree (*Chair*), A novel approach to beryllium removal efficiencies from surface wipes
- 58) 5/17 – Sarah Van Orman, MS degree, Heat stress characterization using trans-epidermal water loss and impedance measurements
- 59) 5/17 – Austin Simons, MS degree (*Chair*), A comparison between active and passive techniques for employee exposure assessment
- 60) 5/17 – Danielle McKenzie-Smith, MS degree, Development of calibrations curves for direct-reading particulate monitors
- 61) 5/17 – Robert Vercellino, MS degree, Field validation and refinement of an integrated System of low-cost, real-time, networked multi-sensors and software/applications for automated exposure assessment
- 62) 8/18 – Kryztopher Tung, Ph.D., A real-time method for evaluating and monitoring heat stress potential using wearable biosensors
- 63) 12/16 – Floyd Johnson, Graduate Certificate (*Chair*), The development of a predictive algorithm for individualistic heat stress characterization and assessment
- 64) 5/16 – Zachary Arnold, MS degree, Estimation of body core temperatures in metal casting areas using thermal imagery
- 65) 5/16 – Clint Holm, MS degree, Evaluation of physiological strain in a hot work areas using thermal imagery
- 66) 5/16 – Alex Shahan, MS degree, The use of a novel inhalable sampler for sampling metals at a smelter

- 67) 5/16 – Justin Stewart, MS degree, The use of a novel inhalable sampler at different flow rates in a wind tunnel
- 68) 5/15 – Babak Bahrani, MS degree, Effect of weathering on the performance of fire retardant coatings
- 69) 5/15 – Travis Anderson, MS degree (*Chair*) , Analysis of residual stress resulting from turning process of traditional facing compared to dithering
- 70) 5-15 – Bryan Dunn, MS degree, Fire protection and administration – course only option
- 71) 12/14 – Marla Corson, Ph.D. degree (*Co-Chair*), Energy conservation and intensity reduction: manager decisions and actions
- 72) 12/14 – Damian Owens, MS degree, Fire protection and administration – course only option
- 73) 5/14 – Kevin Gordon, MS degree (*Chair*), Fire protection and administration – course only option
- 74) 5/13 – Chunlin Liu, MS degree (*Chair*), Fire protection and administration - course only option
- 75) 5/12 – Jameson Nelson, MS degree (*Chair*), Acoustic emission detection of metals and alloys during machining operations
- 76) 5/12 – Kevin Rodgers, MS degree, Energy reduction using biofiltration in a highly efficient residential home
- 77) 5/12 – Dylan Schmitter, MS degree (*Co-Chair*), Environmentally responsible manufacturing in small Indiana businesses
- 78) 5/12 – Kurt Mink, MS degree, The effects of organizational structure on sustainability report compliance
- 79) 8/11 – Matt Tumey, MS degree, The effects of high intensity ultrasonic vibrations on montmorillinite/epoxy composites
- 80) 8/11 – Tony Huck, MS degree (*Chair*), A method for accurate crush stiffness coefficient estimation
- 81) 8/11 – Craig Zehrunge, MS degree, Design and development of a novel wind tunnel
- 82) 5/11 – Jim Martin, MS degree (*Chair*), Merging regulatory and corporate responses to climate change with cost savings and other benefits

- 83) 5/11 – Cory Allen, MS degree (*Chair*), Development of a sustainable manufacturing portal at Alcoa
- 84) 5/11 – Edward Lathery, MS degree, Analysis of turning AISI-1053 steel hub flange product
- 85) 12/10 – Hei Fe, MS degree, Metals processing (course only)
- 86) 8/10 – Monica Rodriguez, Ph.D. degree (*Co-Chair*), Relationships between wet bulb globe temperature and evaporative cooling responses under heat stress
- 87) 8/10 – Elmer Ray Spradlin, MS degree, Improvement of material usage using electrostatic bells with updated technology on robotic equipment
- 88) 5/10 – Sandun Kuruppu, MS degree, Implementation and performance evaluation of a regenerative braking system coupled to ultracapacitors for a brushless dc hub motor driven electric tricycle
- 89) 5/10 – Tamara Novakov, Ph.D. degree, Computational analysis of micromachining Ti6Al4V
- 90) 5/10 – Scott Wilson, MS degree, Integrating solar heating into an air handling unit to minimize energy consumption
- 91) 5/10 – Keith Spence, MS degree (*Co-Chair*), Examination of a CO2 monitoring system for the mechanical ventilation system of a gas exchange cuvette
- 92) 8/09 – John Burgess, MS degree, Wear of nanostructured tool coatings bonded to turning inserts dry turning a tantalum tungsten alloy
- 93) 8/09 – David Goodman, Ph.D. degree (*Co-Chair*), Effects of an informal energy exhibit on knowledge and attitudes of fourth- and fifth-grade students
- 94) 5/09 – Ashley Geddes, MS degree, Improving Cost Estimation at Rolls-Royce (*Chair*)
- 95) 5/09 – Kyle Duffin, MS degree, Nitinol Cannula Testing for Medical Devices (*Chair*)
- 96) 5/09 – Jui Liu, MS degree, Grain Refinement Method as to Cast Microstructure of AZ91E Using Ultrasonic Vibrations and Nanoparticles
- 97) 12/08 – Sandeep Poola, MS degree, Grain Refinement of Magnesium Alloys

- 98) 8/08 – Jason Kutch, MS degree, Combining U.S. and Swiss Low Energy Residential Construction Practices to Minimize Energy Consumption
- 99) 5/08 – Sean Odukomaiya, MS degree, Optimizing HVAC System Performance and Human Thermal Comfort
- 100) 5/08 – Patrick Senarith, MS degree, Diagnostic Tool for Evaluating Arterial Compliance
- 101) 12/07 – Grant Robinson, Ph.D. degree, Wear of Nanostructured Coated Cutting Tools During Mixed Scale Machining
- 102) 12/07- Vinay Gorrepati, MS degree, Development of a Computational Fluid Dynamic Model of a Pneumatic Projector
- 103) 5/07 – Miguel Gonzalez, MS degree, In-Process Slag Removal in a Rotary Kiln Incinerator (RKI) by Introduction of Chemical Additives (*Chair*)
- 104) 5/06 – Brian Bozell, MS degree, Design, Installation, and Commissioning a Web Enabled HVAC Test Facility

*Recent Committees and Internal University Service:*

- 1) 10/22-present, Environmental Epidemiological Tenure Faculty Search Committee (School)
- 2) 7/22-present, Industrial Hygiene Tenure Line Faculty Search Committee (Department)
- 3) 3/22-present, Health Equity Tenure Line Faculty Search Committee (Department)
- 4) 8/21-present, HSF Review Committee/Division Leadership Committee (Department)
- 5) 8/21-present, Biostatistics Tenure Line Faculty Search Committee (Department)
- 6) 7/21-present, Promotion and Tenure Committee (FARAC) (School)
- 7) 4/21-present, Honorary Degree Program Review (University – ad hoc)
- 8) 1/21-present, Promotion and Tenure Committee (FARAC) (Department)
- 9) 12/20, grant application reviewer, SOM Research Incentive Seed Grant (School)
- 10) 4/20, poster abstract reviewer, DFPM Student Poster Session (Department)
- 11) 10/19, poster reviewer, SOM Alumni Weekend Poster Session (Department)
- 12) 10/19-present, member, PA division, Pharmacology Faculty Search Committee (Division)
- 13) 1/19-11/19, Co-Chair, Public Health Division Chief Search Committee (Department)

- 14) 8/19-9/19, grant reviewer, GMaP Region 6 Pilot Grant Program (School)
- 15) 12/18, grant application reviewer, SOM Research Incentive Seed Grant (School)
- 16) 10/18-present, Central Leadership Committee (Department)
- 17) 10/18-present, Research & Innovation Mission Committee (Department)
- 18) 10/18-present, PA Tenure Line Faculty Search Committee (Department)
- 19) 9/18-present, FM Residency Director Search Committee (Department)
- 20) 6/17-present, Mentor, National Research Mentoring Network (NRMN)
- 21) 3/17-present, Departmental Executive Committee (Department)
- 22) 10/16-present, Education Mission Committee Chair (Department)
- 23) 1/16-present, Research Committee Working Group (Department)
- 24) 1/16-present, RMCOEH Center Executive Committee (Division)
- 25) 6/17-3/18, PA Division Chief Search Committee (Department)
- 26) 9/15-present, Department of Graduate Studies Committee (University)
- 27) 9/15-present, TFR & CFR Review Committee (Department)
- 28) 9/14-6/15, Graduate Committee Member
- 29) 8/13-5/14, Departmental Review Committee
- 30) 8/12-7/13, MFPA Graduate Chair
- 31) 8/10-6/12, COT Graduate Education Committee
- 32) 6/10-6/12, MET/MFET Graduate Education Committee, Chair
- 33) 6/10-6/12, COT ad hoc ECN/TCN merger committee
- 34) 8/05-8/10, COT Safety Committee (College)
- 35) 1/06, New Technology Building feasibility committee
- 36) 8/06-7/07, Materials Area Curriculum Subcommittee, Chair
- 37) 8/06-7/07, MET Curriculum Subcommittee
- 38) 8/06-8/07, MET/MFET Graduate Education Committee, Chair
- 39) 8/06-6/12, Graduate Education Committee (College)
- 40) 12/05-1/07, BS MET Only Straw Man Committee, Chair
- 41) 8/05-6/12, Health and Safety Committee, Chair
- 42) 8/05-6/12, Health and Safety Committee (College)
- 43) 8/96-7/04, served on 9 departmental committees (three as Chair) at WKU
- 44) 8/96-7/04, served on 4 University committees at WKU
- 45) 8/07-6/12, COT Graduate Education Committee, member
- 46) 8/06-6/12, COT Strategic Planning Committee (ad hoc), member
- 47) 8/05-6/12, COT Safety Committee, member
- 48) 1/06, New Technology Building feasibility committee (ad hoc), member
- 49) 8/96-7/04, served on five College committees at WKU
- 50) 8/06-6/12, Materials Area Curriculum Subcommittee, Chair (2006-2007)
- 51) 8/07-6/12, Manufacturing Area Curriculum Subcommittee, member
- 52) 8/06-8/07, MET Curriculum Subcommittee, member
- 53) 8/06-6/12, MET/MFET Graduate Education Committee, Chair (2007)
- 54) 2005-2007, BS MET Only Straw Man Committee, Chair
- 55) 8/05-7/12, Health and Safety Committee, Chair

*Internal Administrative Appointments:*

1. Interim Vice Chair of Education and Research, 10/18 – 7/19, University of Utah, Department of Family and Preventive Medicine
2. Chair, Education Mission Committee, 10/16 – 7/19, Department of Family and Preventive Medicine, University of Utah
3. Director, Industrial Hygiene, 3/16 – 7/19, Rocky Mountain Center of Occupational and Environmental Health, University of Utah
4. Director, NIOSH Targeted Research Training (TRT), 7/16 – 7/19, Rocky Mountain Center of Occupational and Environmental Health, University of Utah
5. Director, Occupational and Environmental Health Graduate Programs, 11/15 – 5/19, Division of Occupational and Environmental Health, Department of Family and Preventive Medicine, University of Utah
6. Associate Chair for Research Cultivation, 8/12 – 5/15, Department of Engineering Technology and Construction Management, University of North Carolina Charlotte
7. Director, Graduate Programs, 8/08 – 5/12, Department of Mechanical Engineering Technology, Purdue University
8. Director, Environmental, Health, and Safety Resource Center (EHSRC), 8/00 – 5/04, Department of Public Health, Western Kentucky University
9. Program Coordinator, Environmental Health and Safety Undergraduate and Graduate Programs, 8/00 – 5/04, Department of Public Health, Western Kentucky University

*Noteworthy Internal Service Activities (last 3 years):*

1. Occupational and Environmental Health Programs Graduate Council Review, 7/18 to 5/19, Division of Occupational and Environmental Health, Department of Family and Preventive Medicine, University of Utah
2. ABET Re-Accreditation Lead for MS in Occupational Health with an Emphasis in Industrial Hygiene, 1/16 – 7/17
3. Numerous reports and grant renewal activities for NIOSH OSHERC Training Grant, 7/15 – present, Rocky Mountain Center of Occupational and Environmental Health, Director of Industrial Hygiene and Director of TRT, grant renewed on 7/1/18 for \$8.43 million
4. Served on 3 staff member search committees and 6 faculty/leadership search committees, 7/15 – present, Department of Family and Preventive Medicine, University of Utah

*Noteworthy External Service Activities:*

1. President Utah Chapter of AIHA, 12/21 – present (International)
2. Member, AIHA ACTIONS Governmental Relations Committee, 6/18 – present, (International)
3. Member, ANSI/ASSE Z-92 Ventilation Standards Subcommittee, 7/17 – present, (International)
4. Conducted over fifty business and industry continuing education courses and workshops with over one thousand enrollees since 1994. It is estimated that approximately seventy-five different companies or governmental entities have

been represented. The majority of these courses have been related to OSHA and EPA certification (and recertification), and, in particular, the Hazardous Waste Operations and Emergency Response (HAZWOPER) standard. These entries are detailed in a previous section of the document.

Expert Witnessing and Consultation:

9/99-1/00, Willamette, Inc., expert witness  
3/00-1/01, Danks and Danks, expert witness  
5/01-12/01, Logan Aluminum, expert witness  
12/01-2/02, DESA International, consultant  
5/02-12/02, EEOC, expert witness  
6/02-3/03, Federal Mogul, consultant  
1/05-5/05, Law Offices of Marc S. Sedwick, expert witness  
12/07-Boam Law/Luvata, expert witness  
12/09 – State Farm Insurance, expert witness

External Program and Course Reviews:

1. 7/08, external on-line course review, University of Connecticut
2. 4/08, external on-line course review, Columbia Southern University
3. 5/05, external program review for accreditation, Middle Tennessee State University's Environmental Health and Safety program, external reviewer
4. 3/05, external program review for accreditation, Ohio University-Chillicothe's Environmental Engineering Technology program, external reviewer



EAST TENNESSEE STATE UNIVERSITY  
BOARD OF TRUSTEES

INFORMATION ITEM

DATE: September 15, 2023

ITEM: Academic Notification for Period of January 1, 2023 through July 21, 2023

COMMITTEE: Academic, Research, and Student Success

PRESENTED BY: Dr. Kimberly D. McCorkle  
Provost and Senior Vice President for Academic Affairs

This information item is presented to the ETSU Board of Trustees as an update regarding academic action items related to curriculum modifications that have occurred between January 1, 2023, through July 31, 2023. The report is divided into two sections: Part I represents Tennessee Higher Education Commission (THEC) notification items and Part II represents ETSU academic approval items that do not require THEC action.

**Part I: THEC Notification Items**

These curriculum items are fully vetted through the ETSU curriculum approval processes and are subsequently submitted to THEC as notification items. The following table outlines the types of academic action notifications for the period of January 1, 2023, through July 31, 2023:

<i>Type of Action – THEC Notification</i>	<i>Quantity</i>
Change of Student Credit Hours in Existing Program	6
Establish Certificate Program	6
Concentration Name Change	5
Establish New Concentration in Existing Program	4
Academic Program Name Change	1
Terminate Academic Program or Concentration	1

Items identified in the table above are represented by the following curriculum descriptions:

### ***Change of Student Credit Hours in an Existing Program:***

#### **Revise Curriculum Substantive - Applied Data Science (degree credit change)**

This curriculum revision was the result of a review of other similar programs and will reduce the total credits of the degree from 39 credits to 33 credits. The reduction in credits will allow students the possibility of program completion in 18 months as opposed to 24 months. This will bring the program in line with similar programs across the region and nation, as well as enhance future marketing efforts.

#### **Revise Curriculum Substantive - Masters of Accountancy all concentrations (degree credit change)**

Program faculty conducted an extensive review of other similar accountancy programs across the region and nation. Accountancy programs across the state and region are largely 30 credit programs. In an effort to continue to be competitive with other programs, this curriculum revision will result in the reduction of total program credits from 36 credits to 30 credits. This change will be positive for student program completion and future recruiting efforts.

#### **Revise Curriculum: Substantive – MEd School Librarianship (change in degree credit for Initial Licensure Option)**

Initial licensure requirements for this degree have been modified by the Tennessee Department of Education (TNDOE). The licensure requirement change is that students will now have a 15-week full-time student teaching library experience in a K12 placement. To meet this additional internship requirement, the total program credits will increase from 36 to 39. This range accommodates both the initial licensure program and the non-licensure option.

#### **Revise Curriculum Substantive - Nursing DNP ETSU-TTU Adult-Gerontology Acute Care Nurse Practitioner (degree credit change)**

The College of Nursing is restructuring the ETSU-TTU DNP Program curriculum to better meet the needs of students, improve our ability to compete with other programs, and meet the American Association of Colleges of Nursing 2021 Essentials program standards. The course content has been reviewed and revised to eliminate repetitive and non-essential content and new courses have been added. There is an associated program total credit change from 84 to 75. This program revision keeps the program aligned with standards as well as keeping it in line with other programs across the nation.

#### **Revise Curriculum Substantive - Nursing DNP ETSU-TTU Pediatric Nurse Practitioner – Primary Care (degree credit change)**

The College of Nursing, working collaboratively with TTU faculty, is restructuring the ETSU-TTU DNP Program curriculum to better meet the needs of students, improve our ability to compete with other programs, and meet the American Association of Colleges of Nursing 2021 Essentials program standards. The course content has been reviewed and revised to eliminate repetitive and non-essential content and new courses have been added. There is an associated program total credit change from 89-92 to 77. This concentration is a TTU concentration and has been approved through the curriculum process at both ETSU and TTU.

#### **Revise Curriculum Substantive - Nursing DNP ETSU-TTU Women’s Health Care Nurse Practitioner (degree credit change)**

The College of Nursing, working collaboratively with TTU faculty, is restructuring the ETSU-TTU DNP Program curriculum to better meet the needs of students, improve our ability to compete with

other programs, and meet the American Association of Colleges of Nursing 2021 Essentials. The course content has been reviewed and revised to eliminate repetitive and non-essential content and new courses have been added. There is an associated program total credit change from 84 to 79. This concentration is a TTU concentration and has been approved through the curriculum process at both ETSU and TTU.

***Establish Certificate Program:***

**Establish New Certificate – Healthcare Spanish**

Language barriers present significant obstacles for Spanish-only patients seeking healthcare in the United States. There is a demand for healthcare professionals with cultural and linguistic competency to work with this population. The graduate 12-13 credit certificate in Healthcare Spanish meets this societal need by enabling students seeking a graduate degree in health professions to acquire the language competency to treat Hispanic patients.

**Establish New Certificate – Child Advocacy Studies Training**

This 9-credit graduate certificate program will address treatment and advocacy related to child maltreatment from an interprofessional perspective. The Tennessee Department of Children's Services requested that social work programs in the state of Tennessee consider offering this course of study. There is a high demand for individuals with expertise in child welfare within the state of Tennessee.

**Establish New Certificate – Interprofessional Pediatric Feeding**

The proposed Interprofessional Pediatric Feeding 9-credit graduate certificate at ETSU will establish clinical expertise in teams from multiple disciplines to provide evaluation and intervention to an under-identified and underserved population: young children with disorders related to feeding.

**Establish New Certificate – Educator Job Embedded**

There is a national shortage of teachers, and this certificate will help address this shortage by providing an alternative pathway to licensure for some students. This graduate 12-credit certificate allows students to work in a Tennessee public school district while fulfilling Tennessee licensure requirements. The proposed certificate is unique in that it allows undergraduate students who have enough credit hours to graduate without licensure an option to complete licensure requirements while being actively employed in a school district. Currently, there is no pathway like this available to undergraduate students in Tennessee.

**Establish New Certificate – Student Affairs**

The Tennessee Board of Regents (TBR) has indicated a need for staff members working in student life areas to access additional professional education/training. Many of these employees do not have a background in student affairs work and this 12-credit certificate would provide an educational foundation beyond TBR-provided professional development training.

**Establish New Certificate – Child Advocacy Studies**

Child Advocacy Studies (CAST) is a nationally recognized curriculum of study to prepare individuals to work in child welfare or in a profession that engages with victims of child abuse. This 9-credit undergraduate certificate program will address treatment and advocacy related to child maltreatment from an interprofessional perspective.

***Concentration Name Change:***

**Concentration Name Change - Interdisciplinary Studies Major BS Liberal Studies to Integrative Studies**

The purpose of this name change is to describe to prospective students the focus and purpose of the concentration more precisely. The Integrative Studies concentration provides broad preparation across the arts, humanities, social sciences, natural sciences, and technology as well as offering an opportunity for students to choose one of five focus areas for elective course work. It is expected that this renaming will increase student interest in and completion of the degree.

**Concentration Name Change - Audio Production for Musicians to Audio Production**

The National Association of Schools of Music (NASM) issued an action report to certify that ETSU's BA in Bluegrass, Old-Time, and Country Music Studies is an Appalachian Studies major and not a program accredited by NASM. As part of that action, ETSU had agreed to rename the Bluegrass BA to reflect nomenclature not so closely associated with NASM-accredited names. The degree renaming was completed, and this recommended concentration name change is to bring the concentration into greater alignment with the degree program. The concentration will be renamed to Audio Production.

Each of the following three (3) concentration name changes are associated with the same effort to meet the request of NASM to use nomenclature not associated with NASM-accredited music programs:

**Concentration Name Change - Bluegrass Music Profession to Bluegrass Profession**

**Concentration Name Change - Old-Time Music to Old-Time Music Studies**

**Concentration Name Change - Scottish and Irish Traditional Music to Scottish and Irish Traditional Music Studies**

***Establish New Concentration in an Existing Program:***

**Establish New Concentration in an Existing Program - BBA Management Hospitality and Tourism Concentration**

Hospitality and tourism have become increasingly important and have significantly impacted the growth of local and regional economies. Some of the main benefits of hospitality tourism are regional reputation, income creation, development of job opportunities, and overall economic growth. Offering the concentration will benefit the region, the University, and students. Interviews with local professionals in the hospitality and tourism industry helped to drive the concentration's development, as well as expressed student interest in this cross-disciplinary opportunity.

**Establish New Concentration in an Existing Program - MS Engineering Technology Robotics, Automation and Instrumentation Systems Concentration**

The Engineering Technology MS has been a stand-alone degree with no concentrations. With increasing employment opportunities in specific areas of engineering technology, new concentrations for this degree are being proposed. The degree will now have a core and an option for students in two areas. The existing degree had courses already specific to robotics, automation, and instrumentation systems. Therefore, the MS Engineering Technology degree with a concentration in Robotics, Automation and Instrumentation Systems will be represented by a program of study that is very similar to the prior degree without concentrations. This new concentration name is consistent with course content in the degree program.

### **Establish New Concentration in an Existing Program - MS Engineering Technology Construction and Data Analytics Concentration**

The second concentration to be added to the Engineering Technology MS is in response to tremendous growth in the use of modern digital tools and technology in the construction industry. Responding to the need for higher levels of training in this area, a concentration in Construction and Data Analytics is being added to this program. To complete this concentration, three new courses: Digital Construction and Project Delivery; Building Information Modeling; Construction Data Analytics were developed for this concentration.

### **Establish New Concentration in an Existing Program – Child Life BS Human Services**

The Child Life Concentration was proposed to facilitate student opportunities to pursue certification in child life. The department has the support, faculty, and coursework to create a concentration that leads to certification. Collaboration with both Niswonger Children's Hospital in Johnson City and East Tennessee Children's Hospital in Knoxville will facilitate student professional preparation for this field. This concentration will allow students to complete the required course competencies for the Association of Child Life Professionals certification.

### ***Academic Program Name Change:***

#### **Change Name/Title of Academic Program - Master of Arts Liberal Studies to MALS Interdisciplinary Studies**

This name change is part of a broader effort to refresh the perceptions of this degree. The updated title is more contemporary and connected to student inquiries regarding interdisciplinary degree opportunities. It is expected that changing the program name will enable a more accurate representation of the diverse range of study options associated with academic integration and interdisciplinary studies.

### ***Terminate Academic Program or Concentration:***

#### **Terminate Academic Concentration – Counselor Leadership**

Following discussions with the faculty in Counseling and Educational Leadership, it was decided that the concentration was not sustainable. Interest in the program has been in steady decline over the last few years, which has led to difficulties in both offering very low enrollment courses and in finding faculty to teach in the concentration. This program did not lead to licensure in counseling and was less desirable to students interested in School Counseling as a profession. A teach-out plan has been established for the few students currently enrolled.

**Part II: ETSU Approval items**

These curriculum items are fully vetted through ETSU curriculum approval processes and are fully approved at the university level. The following table outlines the ETSU academic action items for the period of January 1, 2023, through July 31, 2023:

<i>Type of Action – University-Level Approval</i>	<i>Quantity</i>
Revise Program Policy: Admission	7
Revise Program Policy: Progression	5
Revise Program Policy: Graduation	1
Revise Curriculum Substantive	4
Establish Minor	2
Minor Name Change	2
Establish Articulation Agreement	1
Revise Articulation Agreement	1

Items identified in the table above are represented by the following curriculum descriptions:

***Revise Program Policy - Admission:***

**[Revise Program Policy \(Admission\) - Educational Leadership EdD Higher Education Concentration](#)**

As part of the existing admissions process, applicants were required to submit letters of recommendation. It is not uncommon for applications to be delayed because of missing letters of recommendation. The applicant usually has little to no control over when or whether someone will submit the recommendation. Additionally, letters of recommendation have become a lesser value element in the admission rubric and other factors weigh more heavily. By removing this admission requirement, program admission will be more efficient and timelier. Students will now be required to submit three references with contact information, so references can be contacted in cases where there is a need for additional verification of student qualifications.

The same justification was used in the following four program policy proposals:

**[Revise Program Policy \(Admission\) - Educational Leadership EdD School Leadership Concentration](#)**

**[Revise Program Policy \(Admission\) - Educational Leadership EdS School System Leadership Concentration](#)**

**[Revise Program Policy \(Admission\) - Higher Education Teaching Certificate](#)**

**[Revise Program Policy \(Admission\) - Community College Leadership Certificate](#)**

**Revise Program Policy (Admission) - BA Music Concentrations Composition, Music History, Performance, Contemporary Music Performance**

This policy revision is to ensure that students are not able to audition for admission to the department more than three times. This standard has been in place, but the policy language was not clear, and this revision makes audition limits clear across all concentrations – Composition, Music History, Performance, Contemporary Music Performance.

**Revise Program Policy (Admission) – BM Music Concentrations Performance, Music Education**

This revision is to ensure that students are not able to audition for admission to the department more than three times. This standard has been in place, but the policy language was not clear and this revision makes audition limits clear across all concentrations – Performance, Music Education.

***Revise Program Policy – Progression:***

**Revise Program Policy (Progression) – Dental Hygiene Traditional and Online Completion**

This policy revision will allow students in Dental Hygiene to progress in the program with a minimum grade of C- in Anatomy and Physiology, Microbiology, and Chemistry. This will make this program more aligned with similar programs and with other programs in the Department of Allied Health Sciences.

**Establish Program Policy (Progression) – Nursing Post-DNP Adult/Gerontological Nurse Practitioner**

The College of Nursing currently has a progression policy for nursing graduate students in nursing degree programs. This proposal is to add the same progression policy to graduate nursing certificates. This will provide consistency across programming for all graduate nursing students.

The same proposal rationale and progression policy was applied to each of the following nursing graduate certificates:

**Establish Program Policy (Progression)– Nursing Post-Graduate Family Nurse Practitioner**

**Establish Program Policy (Progression) – Nursing Post-Graduate Administration**

**Establish Program Policy (Progression) – Nursing Post-Graduate Psychiatric Mental Health Nurse Practitioner**

***Revise Program Policy – Graduation:***

**Revise Program Policy (Graduation) - MS Allied Health**

This policy revision will establish a non-thesis path for program completion. Students selecting the non-thesis path will have a 6-credit Advanced Practice Seminar.

***Revise Curriculum Substantive:***

**Revise Curriculum: Substantive - Digital Game Design Concentration**

This curriculum revision addresses the need for students to focus on specific industry skill sets associated with game design. Within the concentration, there will now be two pathways for students. One will include a content focus on game designing, creating video game assets, and designing video game elements. A second content focus area is associated with game development, incorporating coding, sound effects, game testing and engineering.

### **Revise Curriculum: Substantive - Digital Media Major BS Digital Animation Concentration**

This curriculum revision will make it easier for students who are interested in 2D animation production to focus on a 2D animation curriculum with options for additional electives in this area. This change is based on feedback from program alumni and student interest in 2D animation as a focus area.

### **Revise Curriculum: Substantive - Digital Media Major BS Digital Visual Effects Concentration**

This curricular revision includes two new courses in Motion Graphics and Modeling and Effects Simulation. The revision to this concentration will allow students to enhance their skills in this highly marketable area. There is no change in total program credits.

### **Revise Curriculum: Substantive - Digital Media Major BS Digital Visualization Concentration**

Increasing student interest in the field of Entertainment Art such as production artwork used in games, movies, animations, TV shows, and similar forms of visual entertainment has resulted in a proposed curriculum revision to this concentration that will allow students to focus on content in this area. This revision will include new courses in the area(s) of Concept Art, Storyboarding, and Visualization Projects. This revision will not result in a change in program credits.

### ***Establish Minor:***

#### **Establish Minor - Synthetic Biology**

This new academic minor will provide students with opportunities to engage with synthetic biology content. This is an initial step to develop a board portfolio of synthetic biology and bioengineering programs at ETSU. This interdisciplinary minor is designed to provide added credentials, knowledge, and skills to make students competitive for jobs and graduate programs in synthetic biology.

#### **Establish Minor – Forensic Science**

Forensic science has become largely popular as an academic discipline over the past several years. Students interested in this field are generally attracted to those colleges that offer a program in forensic science. Many of ETSU's peer institutions offer forensic science major and minor programs of study. This 18-credit minor will be a positive addition to ETSU offerings and keep ETSU competitive in forensic science offerings.

### ***Minor Name Change:***

#### **Minor Name Change - Old-Time Music Minor to Old-Time Music Studies Minor**

The National Association of Schools of Music (NASM) issued an action report to certify that ETSU's BA in Bluegrass, Old-Time, and Country Music Studies is an Appalachian Studies major and not a program accredited by NASM. As part of that action, ETSU had agreed to rename the Bluegrass BA to reflect nomenclature not so closely associated with NASM-accredited names. The degree renaming was completed, and this recommended minor name change is to bring the concentration in greater alignment with the degree program. The concentration will be renamed Old-Time Music Studies Minor.



***Establish Articulation Agreement:***

**Establish Articulation Policy – Masters of Public Health in Public Health Leadership and Policy with articulation to Health Care Management Certificate and Health Data Analytics Certificate**

This articulation agreement allows students enrolled in the Master of Public Health in Public Health Leadership and Policy the option to transfer credits from three different certificates including the Health Care Management Certificate, Public Health Certificate, and Health Data Analytics Certificate to the Master of Public Health in Public Health Leadership and Policy.

***Revise Articulation Agreement:***

**Revise Articulation Agreement – MD/MPH**

This articulation revision is to add the new concentration in Public Health Leadership and Policy to the already existing MD/MPH articulation agreement. With this revision, all the MPH concentrations offered online will be included in the MD/MPH articulation agreement.

EAST TENNESSEE STATE UNIVERSITY  
BOARD OF TRUSTEES

INFORMATION ITEM

DATE: September 15, 2023

ITEM: Provost's Update

COMMITTEE: Academic, Research, and Student Success

PRESENTED BY: Dr. Kimberly D. McCorkle  
Provost and Senior Vice President for Academic Affairs

Provost McCorkle will provide an update to the Board on initiatives underway across the Division of Academic Affairs for the upcoming academic year. After finalizing the updates to the ETSU strategic planning process and identifying the priority areas of focus, the division is leading collaborative initiatives related to reviewing academic college structure, redesigning the general education curriculum, expanding community-engaged learning opportunities, increasing the research focus, growing regional partnerships, and targeting curriculum development in areas related to workforce demand.



EAST TENNESSEE STATE  
UNIVERSITY

**Provost Update  
ETSU Board of Trustees  
Academic, Research, and Student Success Committee**

Dr. Kimberly D. McCorkle  
September 15, 2023

# Agenda

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- Academic Administration
- Academic Programs & Curriculum
- Research & Scholarship
- Faculty Affairs
- Going Beyond



# Academic Administration



# Ensuring a High-Quality Education

- **Academic Structure Task Force**
  - Designing an academic structure that more efficiently serves the students, faculty, staff, community, and mission of ETSU.
  - Through a review of data and with input from students, staff, faculty, and leadership developed potential models that will be evaluated this semester
- **Academic Policy Review**
  - This year ETSU will complete the review of 79 Academic Policies
- **Accreditation 2023-24**
  - Music - National Association of Schools of Music (NASM)
  - Physical Therapy – Commission on Accreditation in Physical Therapy Education (CAPTE)
  - Nursing – Commission on Collegiate Nursing Education (CCNE)



# Academic Programs and Curriculum



# Expanding Minds and Opportunity

- **New Academic Programs**
  - Synthetic Biology
    - Appointment of Dr. Aruna Kilaru as the Faculty Fellow for Interdisciplinary Innovation and Synthetic Biology Workgroup Lead
  - Bio-Engineering
    - In development
  - Mechatronics
    - At the Tennessee Higher Education Commission for approval
- **New Program Pathways**
  - Academic Partnerships
    - Partnership to expand access to the Master's of Business Administration
- **General Education Redesign Task Force**
  - Six competencies and associated learning outcomes identified
  - Fall 2023– work with faculty to design the curriculum
  - Spring 2024 – Begin Implementation





# Research & Scholarship



## Advancing Research and Scholarship

- Events to promote research participation and foster interdisciplinary collaboration:
  - ETSU Trailblazer Series
  - New Faculty 3-Minute Mixer
- Launching the first cohort of the Trail Guide Research Mentorship Program
  - 22 participants from seven colleges
- Chief Research Officer, Dr. Nick Hagemeyer, selected as an Association of Public & Land Grant Universities (APLU) Research Leader Fellow



**\$70 million**

In Sponsored Projects Awarded for FY22



**\$22.1 million**

Federal Awards in FY22



**\$23.3 million**

In Research and Development Expenditures  
in FY22



# Faculty Affairs



# Faculty Excellence

- Distinguished Faculty Awards 2023
  - Research Award Winner: Dr. Dawn Rowe the *James H. Quillen Chair of Excellence in Teaching and Learning, Clemmer College of Education and Human Development*
  - Teaching Award Winner: Dr. Jessica Burchette an Associate Professor, *Department of Pharmacy Practice, Gatton College of Pharmacy*
  - Service Award Winner: Dr. Dorothy Saxon Greene an Associate Professor, *Department of Social Work, College of Clinical and Rehabilitative Health Sciences*
- This fall ETSU welcomed 121 new faculty, who were provided a the first of four challenge coins they earn throughout their career at ETSU



# Going Beyond



# Going Beyond

- 2023 Campus Read
  - The campus has selected:
    - *The War For Kindness: Building Empathy In a Fractured World* by: Jamil Zaki
  - *Going Beyond The Classroom: Community Engaged Learning (QEP)*
    - The Office of Community Engagement announced a new Community-Engaged Learning (CEL) designation for courses that provide students with community-engaged learning experiences
- 414 Students Participated in Study Abroad
  - 30 Countries visited from Barbados to Zambia
  - 14 fields of study
    - Biology, Digital Media, English, Geosciences, Global Sport Leadership, Health Sciences, Interior Architecture, Media & Communications, Microbiology, Nursing, Political Science, Psychology, Public Health, Quillen College of Medicine
  - 83% of students participated in a faculty led program



# Questions

**Dr. Kimberly D. McCorkle**  
East Tennessee State University  
*Provost & Senior Vice President  
for Academic Affairs*



EAST TENNESSEE STATE UNIVERSITY  
BOARD OF TRUSTEES

INFORMATION ITEM

DATE: September 15, 2023

ITEM: Tennessee Climate Office Presentation

COMMITTEE: Academic, Research, and Student Success

PRESENTED BY: Dr. Andrew Joyner  
Associate Professor, Geosciences  
Tennessee State Climatologist

Wil Tollefson  
Lecturer, Geosciences  
Tennessee State Climatologist

The Tennessee Climate Office (TCO), which is part of the ETSU Department of Geosciences, serves as the official climate office for the state of Tennessee. Dr. Joyner and Mr. Tollefson will provide an overview of the initiatives underway in the TCO. They will discuss the services that the state office provides including sharing data, event histories, archival information, and coordination support on extreme events and hazard mitigation. The impactful work of the TCO is supported by substantial grant funding by the Federal Emergency Management Association (FEMA), the Tennessee Emergency Management Association (TEMA), and the Tennessee Department of Transportation.



# The Tennessee Climate Office

**Andrew Joyner, PhD**  
Associate Professor, Geosciences  
TN State Climatologist

**Wil Tollefson**  
Lecturer, Geosciences  
TN Assistant State Climatologist



DEPARTMENT *of*  
GEOSCIENCES  
College of Arts & Sciences  
EAST TENNESSEE STATE UNIVERSITY



Website: [www.etsu.edu/tn-climate](http://www.etsu.edu/tn-climate)

Email: [tnclimate@etsu.edu](mailto:tnclimate@etsu.edu)

**Registration for the AASC Annual Meeting is Open!**

Registration for our 2023 Annual Meeting, the 10th annual meeting of the American Association of State Climatologists (AASC), is now open. The meeting will be held in person at the Sheraton Nashville Hotel in Nashville, Tennessee, on October 4, 5, 6, and 7, 2023. The meeting will take place on October 4, 5, 6, and 7, 2023. The meeting will take place on October 4, 5, 6, and 7, 2023.

**The Tennessee State Climate Office Gains Official Recognition**

Congresswoman Holly Mitchell (D-TN) and Tennessee State Climatologist and Mr. Bill Robinson, Tennessee Mesonet State Climatologist, were honored with the official recognition of the Tennessee Climate Office (TCO) as the official state climate office for the State of Tennessee. AASCC will be honored to have the TCO as a member of the AASC community and active members as they have worked to build their program.

**AASC Mesonet Committee Members Published in AMS Journal**

Three members of the AASC Mesonet Committee, Dr. Frank S. Foster, Professor and Director of the Center for Earth and Environmental Science, and Dr. James C. Mullen, Professor and Director of the Center for Earth and Environmental Science, have published their research in the *Journal of Atmospheric and Terrestrial Physics*.

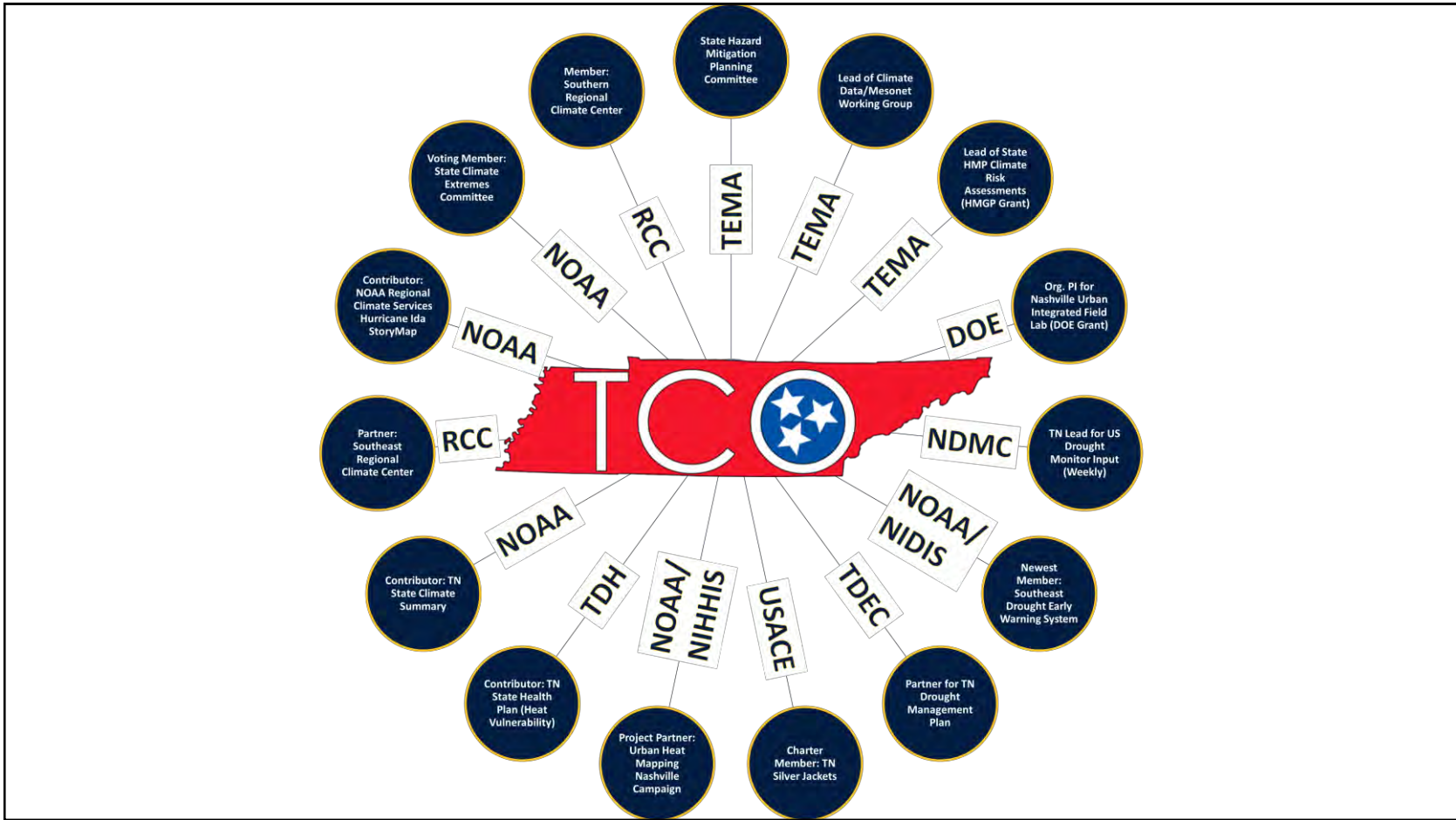
The paper, published in the *Journal of Atmospheric and Terrestrial Physics*, is a scientific journal that focuses on the study of the atmosphere and the interactions between the atmosphere and the Earth's surface. The paper describes the development of a new mesonet system for the State of Tennessee, which will provide high-quality, real-time data on temperature, humidity, and other atmospheric variables. The paper also discusses the importance of mesonet data for a variety of applications, including weather forecasting, climate research, and public health.

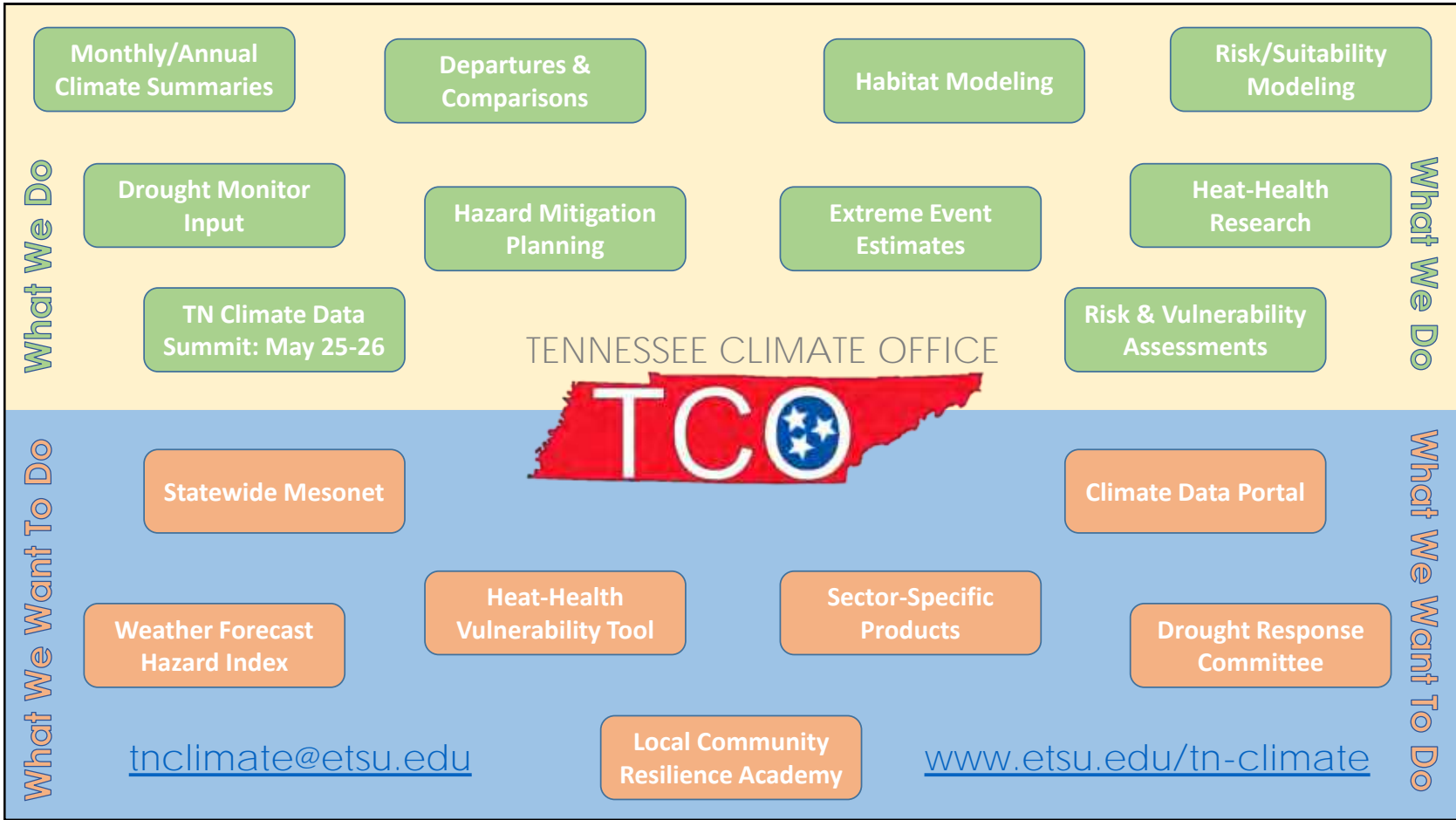
The long-term mission of the TCO is to provide climate data services to state, local, and federal agencies, businesses, and the citizens of Tennessee. The TCO is currently focused on the State of Tennessee, but we are open to the possibility of expanding our services to other states in the future. We are currently seeking funding from state, federal, and private sources to support our operations. We are also seeking qualified individuals to join our staff and help us achieve our mission. The TCO will be actively involved in research and the development of new technologies to improve public safety, health, and the environment. For more information, please contact us at [info@tennesseestateclimateoffice.com](mailto:info@tennesseestateclimateoffice.com) or visit our website at [www.tennesseeclimateoffice.com](http://www.tennesseeclimateoffice.com).

**LEGEND**

- Member State Climate Office (with AASC Designation)
- Member State Climate Office
- No Current
- State Climate Office

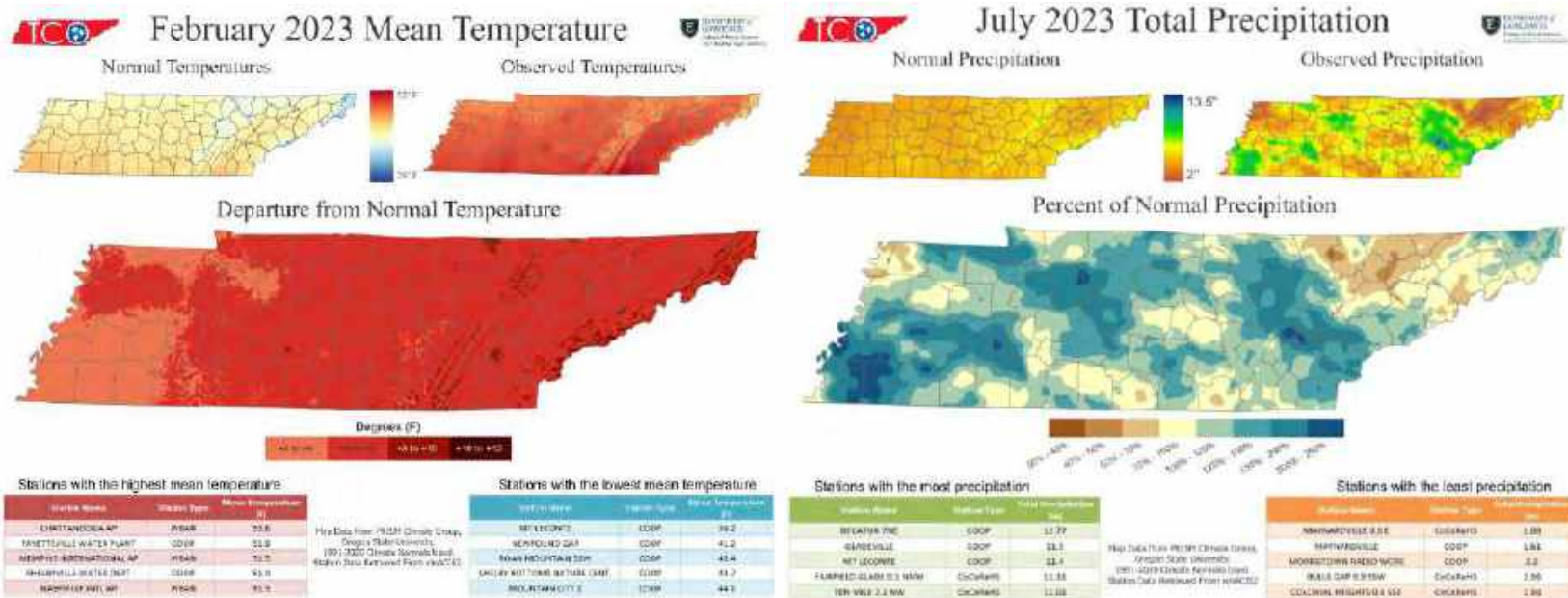






# Monthly/Annual Climate Summary Reports

Include departures from average, storm reports, crop reports, soil moisture, drought status/degradation, streamflow, fire potential, event summaries, & next month outlook



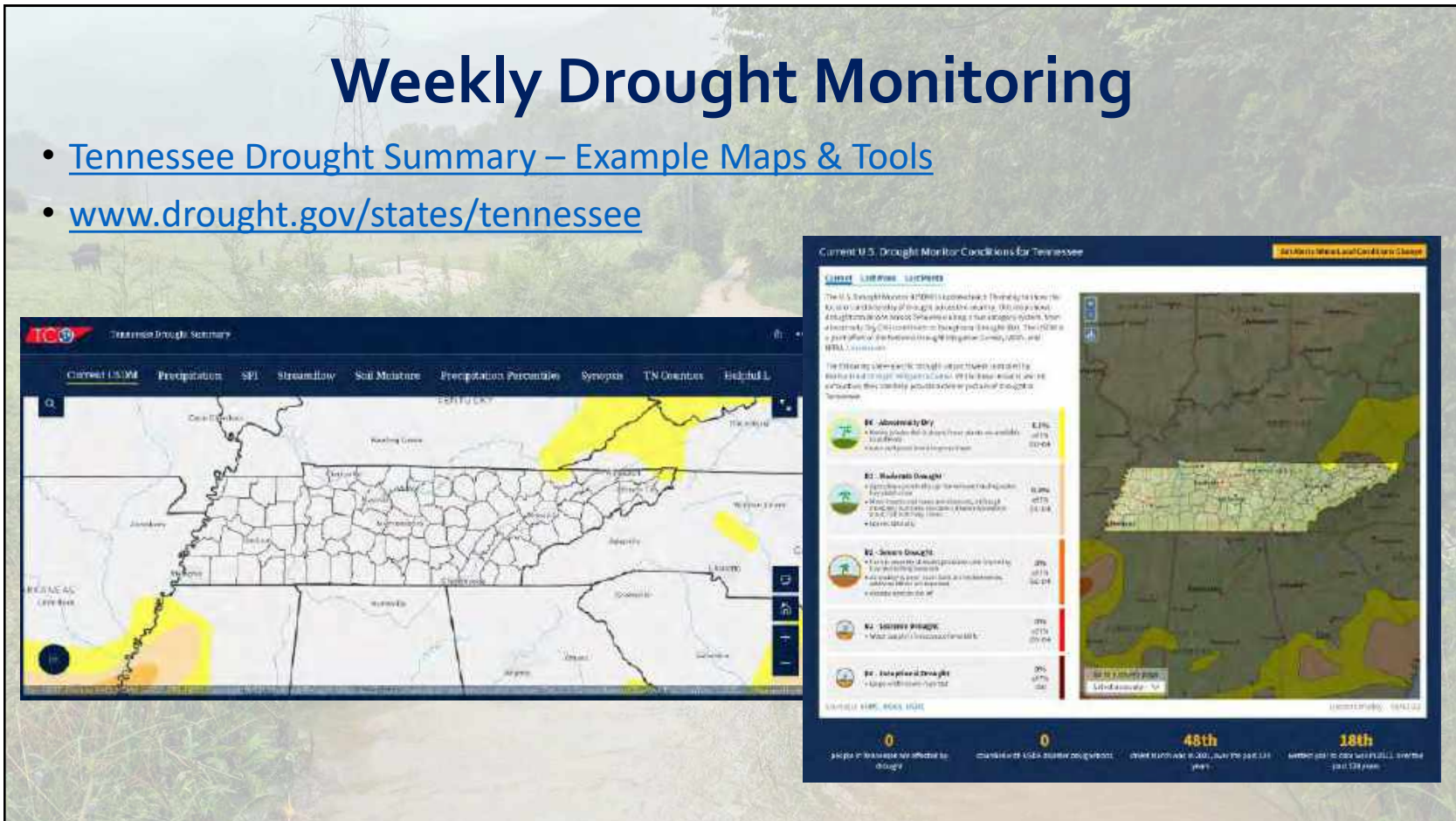
Distributed to state agencies, emergency managers, farmers, & researchers, submitted to Southern Regional Climate Center & NOAA NCEI

Website: [www.etsu.edu/tn-climate](http://www.etsu.edu/tn-climate)



# Weekly Drought Monitoring

- [Tennessee Drought Summary – Example Maps & Tools](#)
- [www.drought.gov/states/tennessee](http://www.drought.gov/states/tennessee)





# Summer 2022

->

# Fall 2022

**DROUGHT EARLY WARNING SYSTEM**

### Southeast

The Southeast region generally receives substantial precipitation and is often considered water rich. However, the region is increasingly experiencing record-breaking droughts, highlighting competing water demands. Drought conditions can develop rapidly in the Southeast, especially when the lack of rain and high temperatures combine to increase evapotranspiration of water in the soils. Recurring droughts in 2009 led NIDIS to establish the **Apalachicola-Chattahoochee-Flint (ACF) River Basin Drought Early Warning System (DEWS)** because of the breadth and complexity of the Basin's ongoing water management challenges. The **Coastal Carolinas DEWS** was established in 2012 following a series of droughts that exposed existing and emerging drought vulnerabilities that are particular to coastal regions.

Recognizing a need to improve drought early warning across the full geographic footprint of the Southeast, and in response to requests from regional stakeholders, NIDIS launched a newly expanded Southeast DEWS in 2020. This Southeast DEWS will build on the partnerships and successes from the ACF River Basin and Coastal Carolinas DEWS, while replacing these two DEWS with a larger geographic footprint that allows for enhanced information sharing across this unique region. The Southeast DEWS is a collaborative federal, regional, state, and local interagency effort to improve drought early warning capacity and build long-term drought resilience throughout the region.

**Primary contact:** [Meredith Hurth](#), Regional Drought Information Coordinator

[View Latest Drought Status Update](#)

Drought indicators show drought may be present or developing in this region. [View national current conditions >](#)

**DROUGHT EARLY WARNING SYSTEM**

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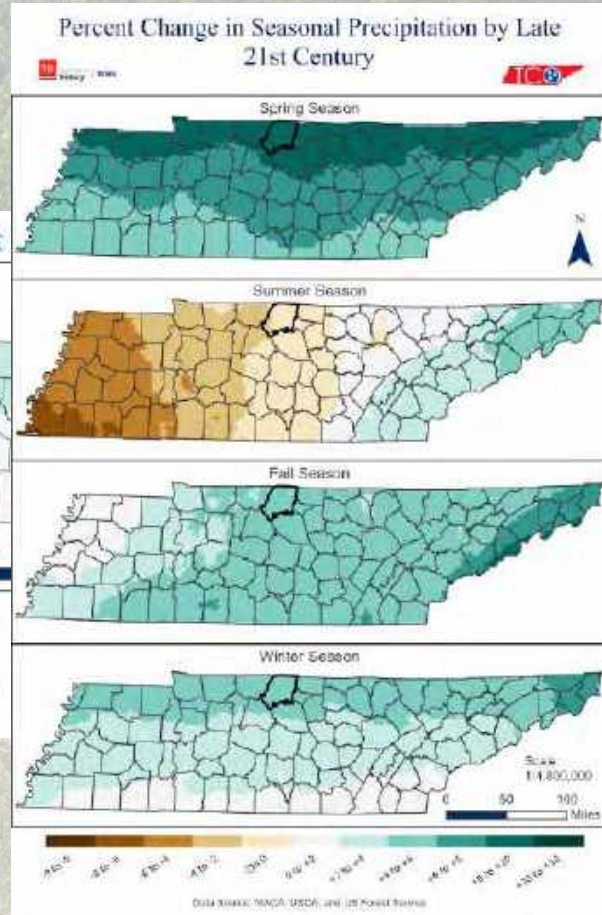
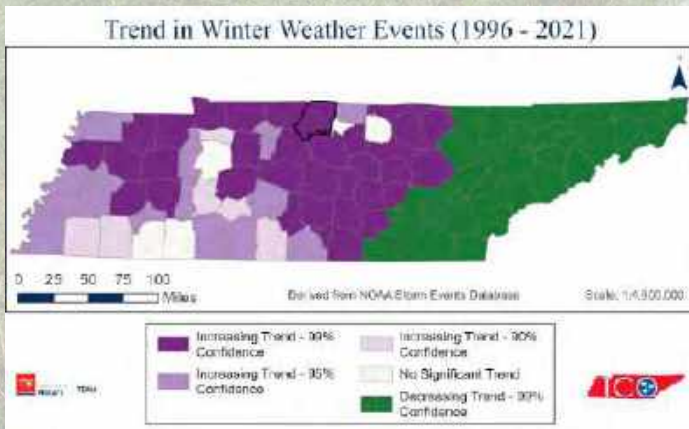
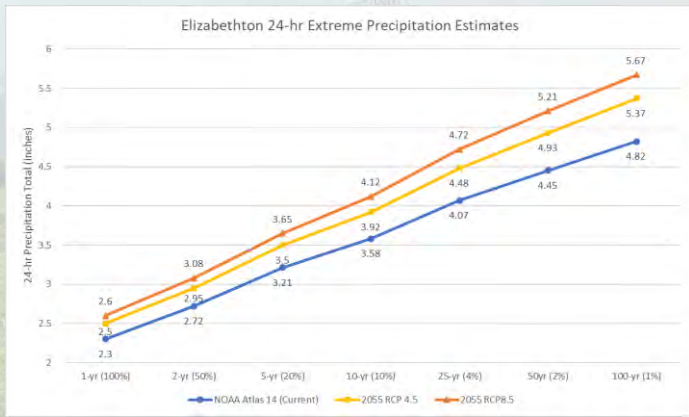
[Drought Planning in the Southeast United States](#)

[Recap: Southeast Climate Monthly Webinars](#)

Drought indicators show drought may be present or developing in this region. [View national current conditions >](#)

# State Hazard Mitigation Plan





**NASHVILLE**

**ANNUAL MEETING**

**AASC**  
AMERICAN ASSOCIATION OF STATE CLIMATOLOGISTS

**20-23 JUNE 2023**

**THE WOND'RY @ VANDERBILT**

[www.stateclimate.org](http://www.stateclimate.org)

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**MEETING HOSTS**

**20-23 June 2023**

**TCO**

Tennessee Climate Office @ East Tennessee State University  
Andrew Joyner & Wil Tollefson  
([www.etsu.edu/tn-climate](http://www.etsu.edu/tn-climate))

**DEPARTMENT of GEOSCIENCES**  
College of Arts & Sciences  
EAST TENNESSEE STATE UNIVERSITY

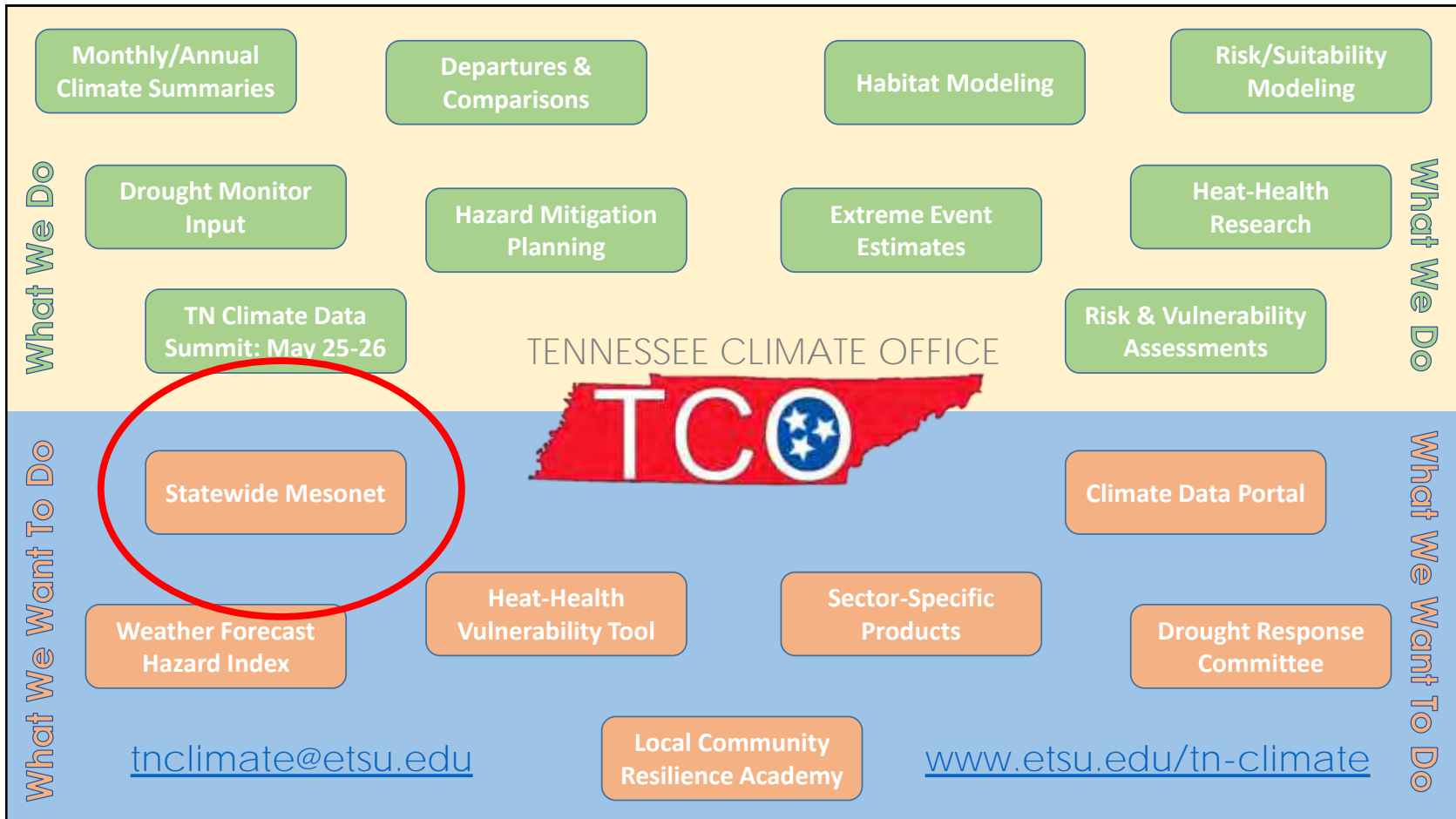
**TN** Department of Military | **TEMA**

Tennessee Emergency Management Agency  
Megan Schargorodski  
([www.tn.gov/tema](http://www.tn.gov/tema))

**KENTUCKY CLIMATE CENTER**

Kentucky Climate Center  
Jerry Brotzge  
([www.kyclimate.org](http://www.kyclimate.org))

[www.stateclimate.org](http://www.stateclimate.org)





## Build a Mesonet

Mesonets serve many purposes and can provide data to a variety of stakeholders who use the data for a myriad of purposes. The data can be used to make decisions in many areas, including the following:

- Agriculture
- Education
- Emergency management
- Energy industry
- Environmental research
- Management of prescribed burns and wildfires
- Transportation
- Weather forecasting

# Kentucky Mesonet Instrumentation Suite

## Instrumentation Measures

Standard

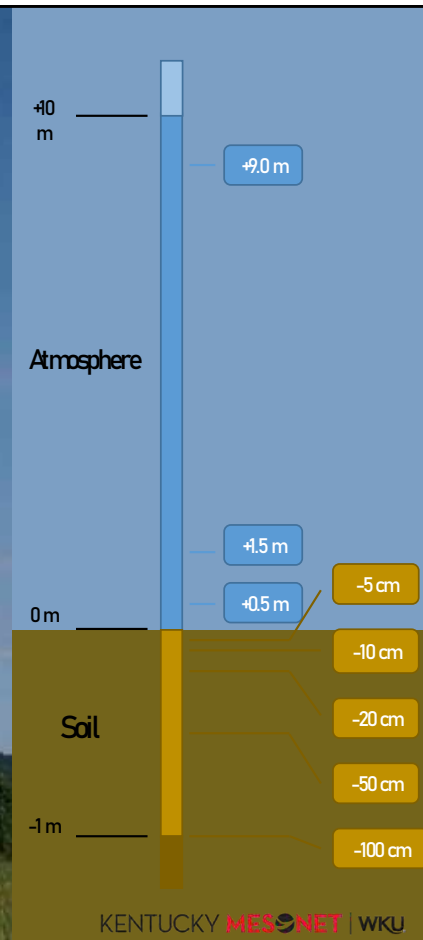
- Air temperature
- Precipitation
- Solar radiation
- Relative humidity
- Wind speed & direction
- Barometric pressure

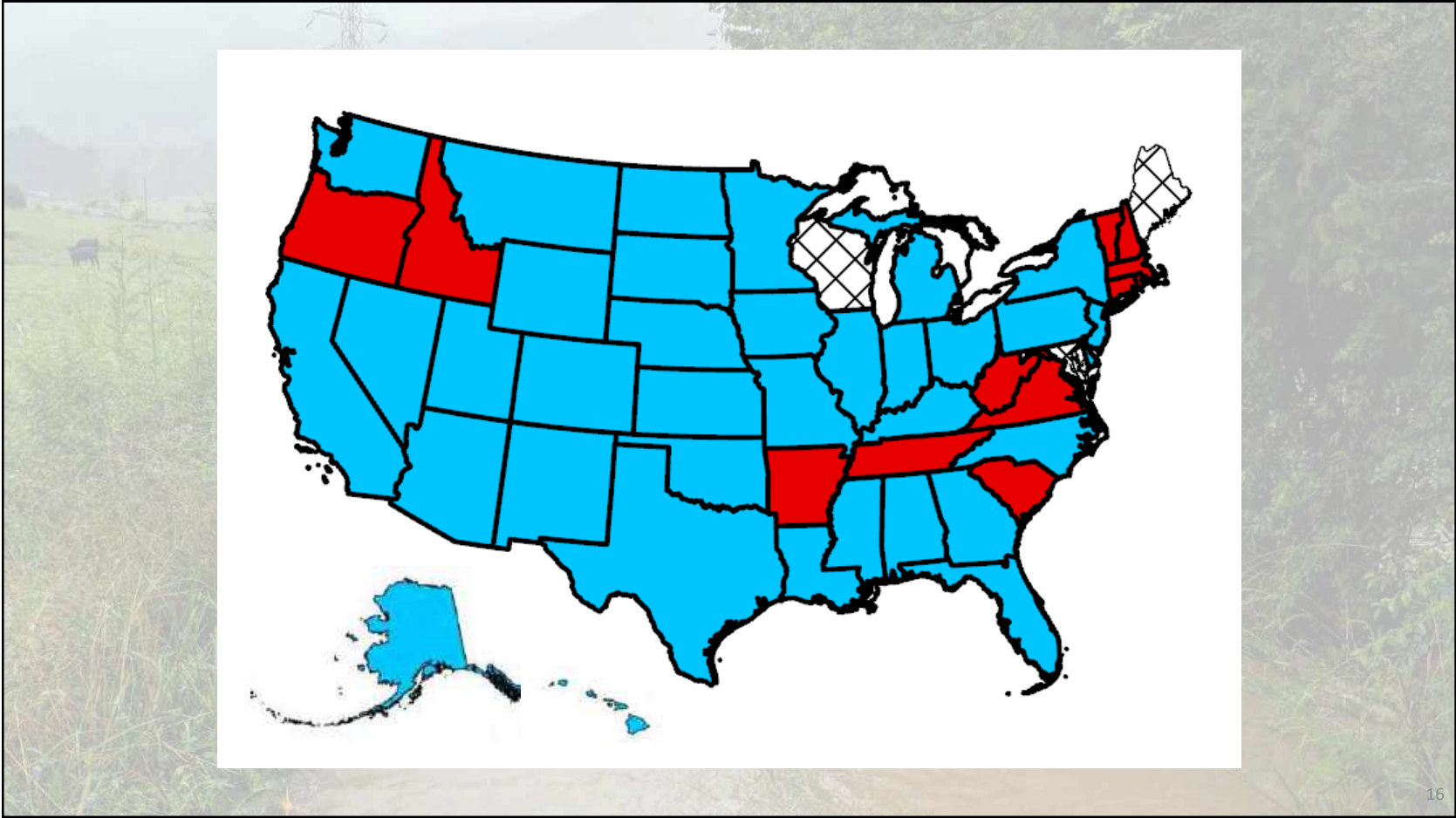
Enhanced

- Soil moisture & temperature
- Multi-level temperature
- Landscape/weather camera imagery

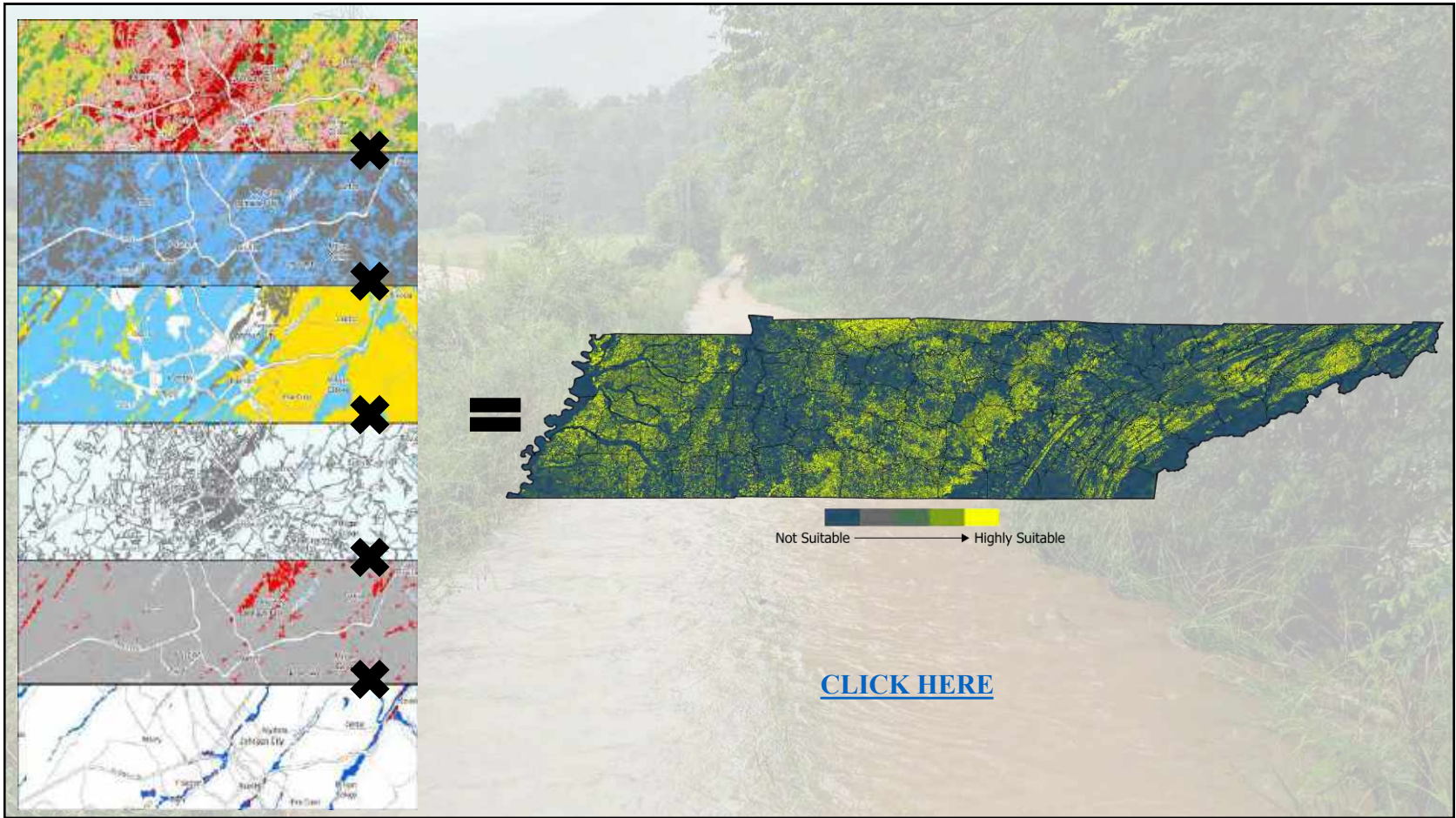
## Base Infrastructure

- Datalogger controls station operations
- Cellular modem enables 2-way communication via AT&T
- Batteries are trickle-charged via solar or AC power

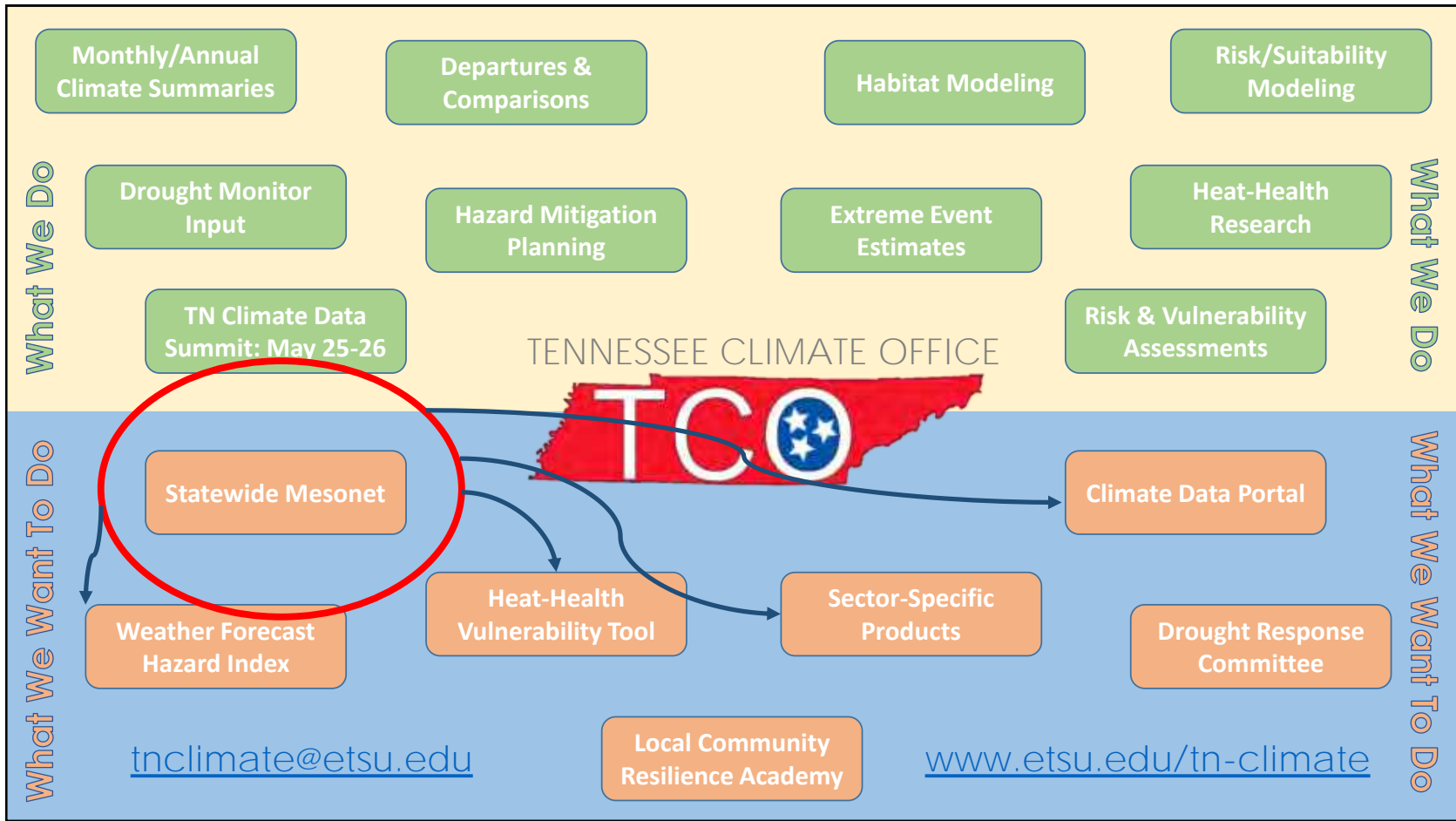








[CLICK HERE](#)



Bill History
Amendments
Video
Summary
Fiscal Note
✓ Votes

## HB 0599

by \*Powell

● Show Co-Prime Sponsors

### (SB 0713)

by \*Oliver

● Show Co-Prime Sponsors

● Show Caption Text

Environment and Conservation, Department of - As introduced, requires the department to collect and publish data concerning landslides and floods; requires the department to establish a network of weather stations across the state. - Amends TCA Title 4, Chapter 3, Part 5, Title 58, Title 64, Chapter 3, Title 68 and Title 69.

HB0599 ACTIONS	DATE
Taken off notice for call in s/c Finance, Ways, and Means Subcommittee of Finance, Ways, and Means Committee	04/18/2023
Placed on s/c cal Finance, Ways, and Means Subcommittee for 4/18/2023	04/12/2023
Placed behind the budget	04/12/2023
Sponsor(s) Added.	04/11/2023
Placed on s/c cal Finance, Ways, and Means Subcommittee for 4/12/2023	04/05/2023
Assigned to s/c Finance, Ways, and Means Subcommittee	04/05/2023
Rec. for pass. if am., ref. to Finance, Ways, and Means Committee	03/29/2023
Placed on cal. Agriculture & Natural Resources Committee for 3/29/2023	03/22/2023
Rec. for pass if am by s/c ref. to Agriculture & Natural Resources Committee	02/21/2023
Placed on s/c cal Agriculture & Natural Resources Subcommittee for 2/21/2023	02/15/2023
Action Def. in s/c Agriculture & Natural Resources Subcommittee to 2/21/2023	02/14/2023
Placed on s/c cal Agriculture & Natural Resources Subcommittee for 2/14/2023	02/08/2023
Assigned to s/c Agriculture & Natural Resources Subcommittee	02/01/2023
P2C, ref. to Agriculture & Natural Resources Committee	02/01/2023
Intro., P1C	01/30/2023
Filed for introduction.	01/26/2023

SB0713 ACTIONS	DATE
Placed on Senate Finance, Ways, and Means Committee calendar for 4/20/2023	04/13/2023
Recommended for passage with amendment/s, refer to Senate Finance, Ways, and Means Committee Ayes 9, Nays 0 PNV 0	03/09/2023
Placed on Senate Energy, Ag., and Nat. Resources Committee calendar for 3/9/2023	03/01/2023
Sponsor(s) Added	02/15/2023
Passed on Second Consideration, refer to Senate Energy, Ag., and Nat. Resources Committee	02/02/2023
Introduced, Passed on First Consideration	01/30/2023
Filed for introduction	01/26/2023

# GRANTS/PROPOSALS (2022-present)



# The Tennessee Climate Office

**Andrew Joyner, PhD**  
Associate Professor, Geosciences  
TN State Climatologist

**Wil Tollefson**  
Lecturer, Geosciences  
TN Assistant State Climatologist



DEPARTMENT *of*  
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EAST TENNESSEE STATE UNIVERSITY



Website: [www.etsu.edu/tn-climate](http://www.etsu.edu/tn-climate)

Email: [tnclimate@etsu.edu](mailto:tnclimate@etsu.edu)

EAST TENNESSEE STATE UNIVERSITY  
BOARD OF TRUSTEES

INFORMATION ITEM

DATE: September 15, 2023

ITEM: Annual ETSU Research Corporation Update

COMMITTEE: Academic, Research, and Student Success

PRESENTED BY: David Golden  
CEO ETSU Research Corporation






David Golden, CEO of the ETSU Research Corporation, will present updates to the Board on recent accomplishments related to building connections between the University and industry partners in order to advance regional prosperity and entrepreneurialism. The presentation will describe the current initiatives including the RC Content Studio, StoryCollab, the Center for Bioindustrial Manufacturing, the Innovation Lab, the Center for Innovation, K-12 initiatives and partnerships, and the Regional Higher ED<sup>2</sup> Council Initiative. The presentation will demonstrate the ways that the ETSU Research Corporation is working to achieve its mission to research, innovate, and active as it helps to expand ETSU's impact in research and innovation across disciplines.



ETSU Board of Trustees  
Academic, Research, and Student Success Committee  
September 15, 2023  
David A. Golden, JD  
CEO, ETSU Research Corporation  
Allen & Ruth Harris Chair of Excellence in Business

# Our Team



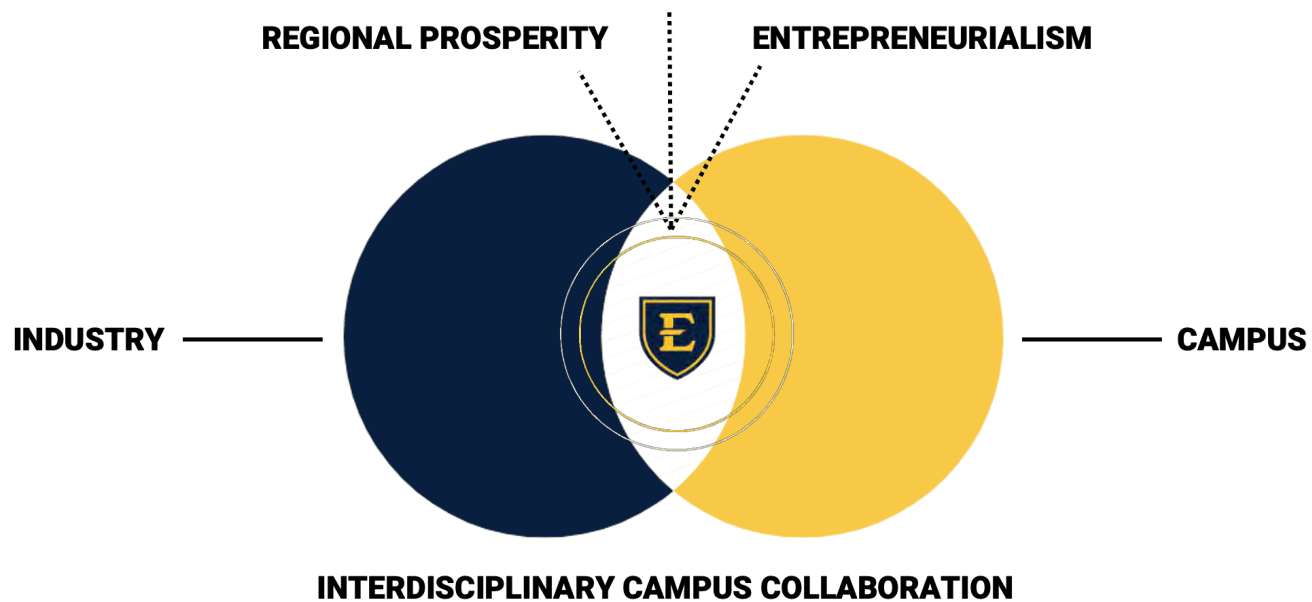
 <p><b>David A. Golden</b> CHIEF EXECUTIVE OFFICER</p> 	 <p><b>Dave Clark</b> VP FOR ENTREPRENEURIAL ECOSYSTEM DEVELOPMENT</p> 	 <p><b>Eric Jorgenson</b> VP OF BIOMANUFACTURING DEVELOPMENT</p> 	 <p><b>Audrey Depetteau</b> ETSU INNOVATION LAB DIRECTOR</p> 	 <p><b>Bill Heise</b> RESEARCH CORPORATION FELLOW</p> 	 <p><b>Betsy Cunningham</b> DIRECTOR OF OPERATIONS</p> 
 <p><b>Allison Myers</b> DIRECTOR OF STORYCOLLAB</p> 	 <p><b>Stephen Marshall</b> CMO &amp; DIRECTOR OF THE RC CONTENT STUDIO</p> 	 <p><b>Mark Bays</b> DIRECTOR FOR THE SMALL BUSINESS DEVELOPMENT CENTER AND STRIVE</p> 	 <p><b>Emily Colvin</b> ETSU INNOVATION LAB ASSISTANT DIRECTOR</p> 	 <p><b>Maame Abo Afful</b> BRAND STRATEGY GRADUATE ASSISTANT</p> 	

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## World-Class in a Rural Setting



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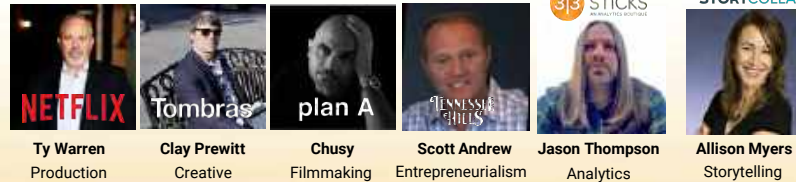
## RC Content Studio

## Media and Marketing Experiential Learning

A collaborative student/professional content engine highlighting regional stories around research, innovation, and life in the Appalachian Highlands.



### Industry Advisors



The mission of the *RC Content Studio* is to provide elite students the opportunity to apply theory and build skills to get them hired.

Self-funded business model.

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## Media and Marketing Experiential Learning

### CURRENT INITIATIVES

**RC Campaigns:** Support of the RC with UMC collaboration on marketing initiatives.

**Local View Appalachian Highlands:** Focused on brand storytelling with partners to drive regional collective brand identity focused on economic prosperity.

**Strong Brain Institute:** focused on producing education content and marketing activation for Trauma Informed Workplaces for the State of Tennessee.

**Woods Hole Oceanographic Institution:** A climate film focused on hope.

**Music Communities:** Community pilot for a statewide initiative.

**StoryCollab:** Supporting media needs for StoryCollab storytelling initiatives.



PARTNERS:



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# IMPACT THROUGH STORY

## OVERVIEW



StoryCollab is an RC start-up harnessing the potential of personal narratives and brand storytelling to generate meaningful impact.

Allison Myers brings a wealth of experience spanning two decades across a robust network. Her extensive body of work encompasses engagements with over 120 prominent, global entities along a spectrum of domains, including academia, governmental bodies, nonprofit organizations, social justice initiatives, publicly traded corporations, and public health agencies.

Partnership with the RC provides marketing and media support as well as enhanced student learning experiences.

A platform for public and tailored workshops providing organizations research, creative, and community-building value.

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## Allison Myers

StoryCollab



Allison Myers, former Senior Program Director and Principal Facilitator at StoryCenter since 2008, (*founders of the Digital Storytelling movement and methodology*) joined the Research Corporation on August 1st. Allison brings a wealth of experience and a passion for amplifying individual and community voices through innovative media creation. Allison's facilitation style centers around community-based, **participatory** methodologies, leveraging various media forms such as digital storytelling, podcasts, story mapping, and short-form documentaries.

Through her guidance, participants not only create compelling narratives but also learn to navigate the digital landscape to advocate for change and connect with diverse audiences. Her approach promotes empathy, self-reflection, collective growth and capacity-building in 21st century digital literacy skills. Her expertise has been applied across diverse sectors, including higher education, international education, leadership development, and community and public health, both within the United States and on the global stage.

A graduate of Vanderbilt University (BA) and the University of Colorado (MA), Allison's expertise has garnered recognition on a global scale. Her work has been featured on NPR and supported by partners including the U.S. Department of State, numerous leading universities, and the National Health Services of the UK. Her extensive experience working with diverse communities, including refugees, indigenous leaders, and survivors of various challenges, showcases her adaptability and commitment to inclusive storytelling.

Allison has traveled and worked in over 45 countries, and speaks Spanish and Portuguese

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## Center for Bioindustrial Manufacturing



## Growing The Future:

### Symposium on Innovation and Education for the Bioeconomy

- Speakers, panel, and 270+ attendees
- **Dr. Linda Latimer**
  - Chair | ETSU Board of Trustees
- **Dr. Brian Noland**
  - President | ETSU
- **Dr. Bryan Greenhagen**
  - Program Lead | Gingko Bioworks
- **Dr. Kate Sixt**
  - Principle Director for Biotechnology | DoD
- **Scott Niswonger**
  - Founder | Niswonger Foundation



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## Center for Bioindustrial Manufacturing

- **Synthetic Biology is a disruptive technology**
- **Appalachian Highlands can be part of the global growth**
  - **Estimated \$Trillions globally over next few decades**
- **Scale-up bottleneck is now a national security issue**
- **RC has the skillset and facility to meet the challenge**
- **Pursuing funding for equipment, staff, and projects**



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## Eric Jorgenson

VP of Biomanufacturing Development

- 14 years in Industrial Fermentation
  - Operations
  - Microbiology
  - Quality Control
  - Department-building
  - Scale-up
- Directly managed all engineering and commissioning for:
  - \$8m+ capex
  - Bioindustrial manufacturing facility
  - Sensors, process control, and automation integration
  - Two fermentation science / QC labs
  - Scale-up lab, clean room, and pilot operations
- Three areas of core expertise:
  - Microbiology
  - Industrial process and engineering
  - Team leadership and department-building



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## Progress Update

- EIR STEM LD – BioBuilder synbio curriculum throughout TN-01 Highschools
- BioMADE 2.0 – BioBuilder materials, peer review, publication, and effectiveness study
- Schmidt Futures – study and model unique success of BioBuilder in TN-01
- BioMADE 3.0 – Biomanufacturing Workforce Certificates
- BioMADE Letter of Interest – Network of Scale-Up Facilities
- Tennessee ECD and LaunchTN formal support for EDA grant applications
- 2x early-stage synbio commercialization projects in progress concurrently

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## i-Lab Occupancy is at 97%

13,872 Square Feet

22 Companies

Current Verticals

- Cleantech
- Software Development
- Cyber Security
- Artificial Intelligence
- Aerospace
- Automotive
- Robotics
- Logistics
- Medical Technology/Devices
- Recreational Technology
- Farm Tech
- Streaming
- Microbiome Technology
- Synthetic Bio
- Polymer/Plastics Chemistry
- Environmental
- Metal Technology
- Entertainment

### Soft Landings Directory

#### U.S. Designees



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## Soft Landings Companies at the i-Lab.



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## Dr. Depelteau's Recognition

JOHNSON CITY – Dr. Audrey Depelteau, director of East Tennessee State University's **Innovation Lab**, will become the first Tennessean invited to speak at the SelectUSA Investment Summit hosted by United States Secretary of Commerce Gina Raimondo.

The event, May 1-4 in Washington, D.C., connects investors, companies, industry experts and various organizations with the goal of promoting investment deals in the U.S.

"The ETSU Innovation Lab is an International Soft Landings designation certified by the International Business Innovation Association. The scope of the Soft Landings program, however, extends far beyond our walls. The strength of this program is a function of the collaborations and partnerships between The Northeast Tennessee Valley Regional Industrial Association (NETVRIDA), ETSU, the ETSU Research Corporation, local and regional economic development agencies and various other stakeholders," said Depelteau. "It is an honor to represent ETSU, our region and the State of Tennessee, and I'm happy to say that my calendar is already filling up with invitations from individuals/companies wanting private consultations with me."

The U.S. Department of Commerce has honored Depelteau in other critical ways, too. She is certified to mentor international women in tech, and she will attend two invitation-only receptions with the Secretary of Commerce. As part of the Select Global Women in Tech Program (SGWIT), she works with international female founders, entrepreneurs and executives in the tech sector.

"The SGWIT Mentorship Network introduces international female tech entrepreneurs to the U.S. market with the support of SelectUSA's traditional data and counseling services, as well as community, learning and networking opportunities," she said. "I am honored to be mentoring international women in tech with pitch training, strategic planning, funding, investment basics, leadership training, time management, problem solving, negotiating, goal setting, becoming a high performer and more. I look forward to using these skills in assisting woman-owned businesses locally as well."



"It is an honor to represent ETSU, our region and the State of Tennessee" – Dr. Audrey Depelteau







## Center for Innovation



# “Center for Innovation” Organization

**Background:**

- The ETSU Research Corporation established program to build the Entrepreneurial Ecosystem and Mentorship Network within the University and the Appalachian Highlands Region
- Ballad Health committed \$1 million to the Research Corporation to promote Innovation—including operational support.

**Operations:**

- Fulfill identified Mission, Vision and Strategy
- Support Regional and Research Corporation Innovation, Workforce Development and Economic Development initiatives
- Create vehicles to Recruit external early-stage companies

**Status:**

- Center has established its administrative, financial and working organization (dba of the Research Corporation)
- Programs have been planned and in process of being established

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# Center for Innovation

**VISION**

Appalachian Highlands Region is a Recognized Leader of World Class Innovation and Entrepreneurship in a Rural Setting.

**MISSION STATEMENT**

Create a Recognized Center for Innovation in the Appalachian Highlands that integrates Research, Business Development, and Investment in Early-stage and Small Scalable Companies. Create a Robust Sustainable Environment able to Seed, Nurture, Fund and Grow Entrepreneurial Activity in a Rural Setting.

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# Strategy

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**DESIRED ENDSTATE (What does “success” look like?)**

Appalachian Highlands is a Prosperous Region with a robust sustainable environment that seeds, cultivates and grows Research, Business Development, and Investment and a Recognized Leader in Rural Innovation. Within this Ecosystem, the "Center" is the Catalyst for Innovation and Entrepreneurship by promoting, coordinating, and supporting existing organizations/operations and building new programs in the Appalachian Highlands Region.

**STRATEGIC OBJECTIVES (Conditions that define the “Desired Endstate”)**

- Access to Capital for early-stage startup (including substantive regional capability)
- Presence of a robust and integrated Research capability across academic, private sector and public sector.
- Access to World Class regional tech-based research and manufacturing Facilities (real assets)
- Presence of an active IP/Tech Transfer capabilities based on regional expertise
- Create Robust Entrepreneurial Ecosystem and Mentorship network
- Create strong and sustainable Public and Private Partnerships that actively support change and innovation

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# Current Programs

**“CENTER FOR INNOVATION” ORGANIZATION**

Create the MVP for the “Center.” Formulate and Create the Organizational, Administrative, and Operational capabilities .

**VALLEYBROOK SYNBIO INDUSTRIAL MANUFACTURING FACILITY AND PROGRAMS**

Provide support to renovate facility and assist in development of research/manufacturing programs.

**β-TECH ACCELERATOR**

Identify, Recruit, Nurture and Promote promising Early-stage and Small Scalable Companies to support Regional Economic Development and Academic Programs. Organize accelerator cohorts around sponsored programs and capabilities.

**ENTREPRENEURIAL/ACADEMIC SOFTWARE (startupetsu.com)**

Develop StartupETSU software to support Academic Programs and help grow companies enrolled in β-Tech Accelerator.

**MICRO VENTURE FUND**

Provide early-stage access to capital

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## Valleybrook Synbio Manufacturing

### Background:

- Eastman donated the Valleybrook Research Facility to ETSU in 2010.
- Over 100,000 sf with 32 wet labs numerous offices and convening spaces and warehousing.
- Has been used for several academic programs and classes, but fundamentally remained underutilized for its intended purpose
- The Research Corporation is leasing the space from the university (pending) and is in the process of renovating the facility (in phases).
- Eric Jorgenson has joined the Research Corporation--strong background in fermentation and setup and operation of SynBio Scaling Operations

### Potential Applications:

- Synbio Research Facility
- Synbio Industrial Manufacturing and Scaling Facility (pilot to small-scale production)
- Incubator Space for startup companies (particularly Center Accelerator Cohorts)

### Status:

- Lease with ETSU pending
- Estimates and planning for physical renovations underway
- Scope of work for the Manufacturing/Scaling Operations being developed
- Numerous grant applications underway
- Ongoing Projects under NDAs

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# β-TECH ACCELERATOR

**Background:**

- Recognized need to create a “higher-level” accelerator program to Identify, Recruit, Nurture and Promote promising Early-stage and Small Scalable Companies to support Regional Economic Development and Academic Programs
- Ballad Health committed \$1mil to Research Corporation to promote Innovation, some of which will be utilized in operation of the accelerator program

**Potential Application:**

- Provide avenue for early-stage Companies to move beyond currently available regional capabilities
- Create structured Accelerator Cohorts to support other programs (e.g., utilized the SynBio program as “hook” to attract companies to the region)
- Support ETSU and Ballad Health IP/Tech Transfer and company development

**Status:**

- Accelerator process and programs have been created
- Currently have one company in the accelerator
- Working with SyncSpace to incorporate LaunchTN programs and gain additional funding

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# “StartupETSU” Software Package

**Background:**

- This is a web application that was designed to be a fee for service (SaaS) platform that helped potential startups get funding.
- It is being donated to the Research Corp
- There are two components to the package:
  - [LaunchopediaXL](#) (now StartupETSU.com)) This is a resource/informational site/blog
  - [TurboFunder\(now Funding.StartupETSU.com\)](#) This is a program that structures resources to assist companies build comprehensive Due Diligence package

**Potential Application:**

- *β-Tech Accelerator*
  - Provide structured program to guide start-up companies grow companies
  - Provide structure for Accelerator Programs/Curriculum
- *Academic Platform*
  - Experiential Learning as a resource/knowledge-base for economic - entrepreneurial class with opportunity for students to add blogs and other useful resources
  - Curriculum Assistance - Web Application can be utilized to assist students in projects (e.g. setting up a company) and can be helpful to Instructors to evaluate student-created projects

**Status:**

- Donation recently finalized.
- Through the Research Corp we are rebranding the platform as “**startupETSU.com**”

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# Micro-Venture Fund (very preliminary)

### Background:

- Recognized need to provide limited venture investment to promising Regional Early-stage and Small Scalable Companies
- Ballad Health committed \$1mil to Research Corporation to promote Innovation, some of which will be utilized as initial seed funding to the program

### Operational Focus

- Investment Thesis (preliminary): To promote regional prosperity, job creation, and economic development, we focus on investments that leverage the unique capabilities and comparative advantages of the region. Our investment criteria:
  - Innovation
  - Scalability
  - Return on Investment
  - Sustainable Economic Impact
- Target Fund Size: \$500,000 fund supported by multiple network investors. Anticipated investment is in the range of \$15,000 to \$100,000. Focus on Pre-seed and Angel Investment stage companies

### Core Areas of Interest:

- SynBio Research and Manufacturing
- Rural Health Care
- Targets of Opportunity within the Region

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## Partnership Development

### Background:

- Recognized need for strong and sustainable Public and Private Partnerships that actively support Change and Innovation
- Recognized need to develop directed Academic, Business, and Governmental Partnerships including support for building a “Consortium” of partners required in Grant applications

### Potential Application:

- Southwest VA Engagement Program
- Broaden scope to include other areas based on regional “Comparative Advantages”

### Status:

- We have created de facto partnership relationships with numerous regional players
- We have solicited support in building the regional “Consortium” of partnership support
- We are directly working with some partners in on-going projects

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# Other Supported Programs

**PROJECT GEMINI**

Assist in the development of a regional digital twin for Population Health and Prosperity collaborative research.

**IP/TECH DEVELOPMENT**

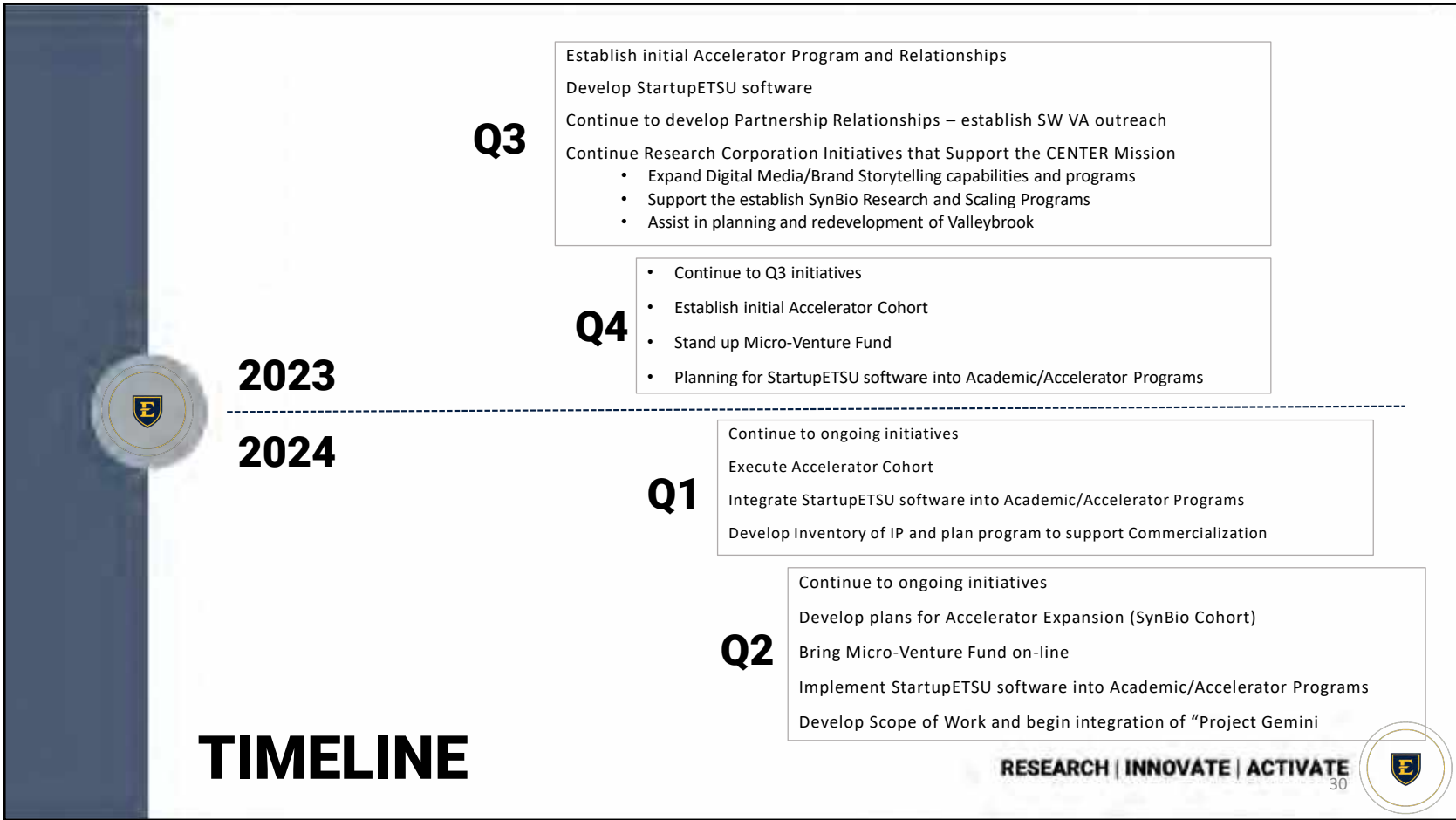
Develop process to inventory and catalogue current IP. Support ETSU and Ballad Health IP/Tech Transfer and company development.

**WORKFORCE DEVELOPMENT**

Develop World Class Workforce with the ability to attract and retain talent in the Region. Assist in developing process to inventory and catalogue current workforce training programs. Create mechanism to develop future collaborative workforce training programs focused on Research Corporation initiatives.

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## K-12 Initiatives

## RC Supports and Drives K-12 Education Initiatives in the Appalachian Highlands.

- STREAMWORKS
  - Robot Drone League (RDL)
  - Regional MATE Underwater Robotics Development
  - MATE Super Regional
  - Summer Camps
  - Student Experiential Learning
- BioBuilder
- ETSU Buccaneers Underwater ROV Team (13<sup>th</sup> place finish in World Championship)
- 2024 World Championship MATE ROV Competition Will be Held in our Region
- Music for All Regional Championship on the ETSU Campus
  - 4,300+ students
  - 8 states (including Missouri and Arkansas)
- Feeder Program for the University
- Working with Dr. Lang and the ETSU Center of Excellence in STEM Education

WORLD CHAMPIONSHIP  
MATE ROV COMPETITION

BioBuilder

Music for All

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## Regional Higher ED<sup>2</sup> Council Initiative

## Regional Higher ED<sup>2</sup> Council Initiative

**Higher Ed + Economic Development (ED)--Convened by the ETSU Research Corporation.**

**Connecting Regional Economic Development Officers (“EDO”) and the Innovation/Economic Development Offices of ETSU and other Regional Higher Education Entities.**

**Serve as an Innovation Partner in helping EDOs Recruit and Retain Industry.**

**Serve as a forum for EDOs to share strategies and “pain points” and convene/drive education/innovation-related ideation.**

**Provide EDOs line-of-sight into the Higher Education-related innovation pipeline.**

**Generate Media and Marketing Content for EDOs to use in Industrial Recruitment (e.g., “Who Knew?” series).**

**Serve as “Single Source” resource for EDOs of region-wide data relevant to economic development.**

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## Regional Higher ED<sup>2</sup> Council

### Other Examples where Higher Ed accelerates Economic Development

University of California, San Diego (UCSD) - UCSD Innovation Hub  
Georgia Tech - Atlanta Regional Collaborative for Health Improvement  
University of Michigan - Michigan Economic Development Corporation (MEDC)  
Stanford University - Stanford Research Park  
MIT - MIT Industrial Liaison Program (ILP)  
Carnegie Mellon University - Metro21: Smart Cities Institute  
University of Colorado Boulder - Boulder Innovation Center  
Harvard University - Harvard Innovation Labs  
Purdue University - Foundry  
University of Florida - Innovation Hub  
Research Triangle Park

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**DISCUSSION**



**ETSU**  
**Research**  
CORPORATION

**Enriching the Region,  
Impacting the World.**

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