MPH Final Presentation:

Advancing Safety through Collaboration:
Developing Public Health Education in Research and Laboratory Safety for Campus, Government, and Industry

Rachael M. Weiderman
MS, MHA, MLS(ASCP), RBP(ABSA)
MPH Candidate

Professional Experience:

Research and Laboratory Safety Manager, Chemical Hygiene Officer, Biosafety Officer
Kansas State University

Assistant Biosafety Officer, Senior Specialist for Laboratory Safety
University of Nebraska-Lincoln

Occupational Health and Safety Specialist, Select Agent Specialist
National Bio and Agro-Defense Facility (NBAF)

Medical Laboratory Scientist, Medical Microbiologist
Ascension Via Christi Health

Education:

B.S. Medical Laboratory Sciences
M.H.A. Master of Healthcare Administration
M.S. Biotechnology
M.P.H. Infectious Diseases and Zoonoses (Spring 2025) – Kansas State University
Ph.D. Pathobiology – Veterinary Virology (2029) – Kansas State University

RBP (ABSA), MLS(ASCP), Six Sigma Black Belt, BSL-3 Laboratory Research (UCI), OSHA-10, Bioinformatics

Outline

APE Site Overview

APE Objectives

APE Activities

Topic Background

APE Projects

MPH Foundational Competencies

Emphasis Area Competencies

Conclusions

Acknowledgements

APPLIED PRACTICE EXPERIENCE (APE)

Applied Practice Experience (APE) Site

- K-State Department of Environmental Health and Safety
- Dates: January 2024 – March 2025
- Site Preceptor: Executive Director, Dr. Joseph Whitlock
- Units:
  - Environmental Protection
  - Occupational Health
  - Construction/Trades Safety
  - Fire Safety
  - **Research and Lab Safety**
  - Radiation Safety
  - Training

APE Site Mission

*"Whatever you do and wherever you go, be safe out there. As **the** land-grant institution of the future, EHS is responsible for ensuring all Wildcats are safe. EHS supports learning in a safe and healthy environment and uninterrupted research by ensuring compliance with federal, state and local regulations. EHS represents K-State in interactions with regulatory agencies and the communities we serve."*

- KSU EHS

APE Learning Objectives

1. Advance institutional safety culture through targeted education
2. Integrate safety best practices into academic and research settings
3. Promote collaboration among faculty, staff, students, and industry
4. Expand access with hybrid safety training models
5. Adapt programs to emerging risks and technologies
6. Enhance accountability with certification and ongoing education

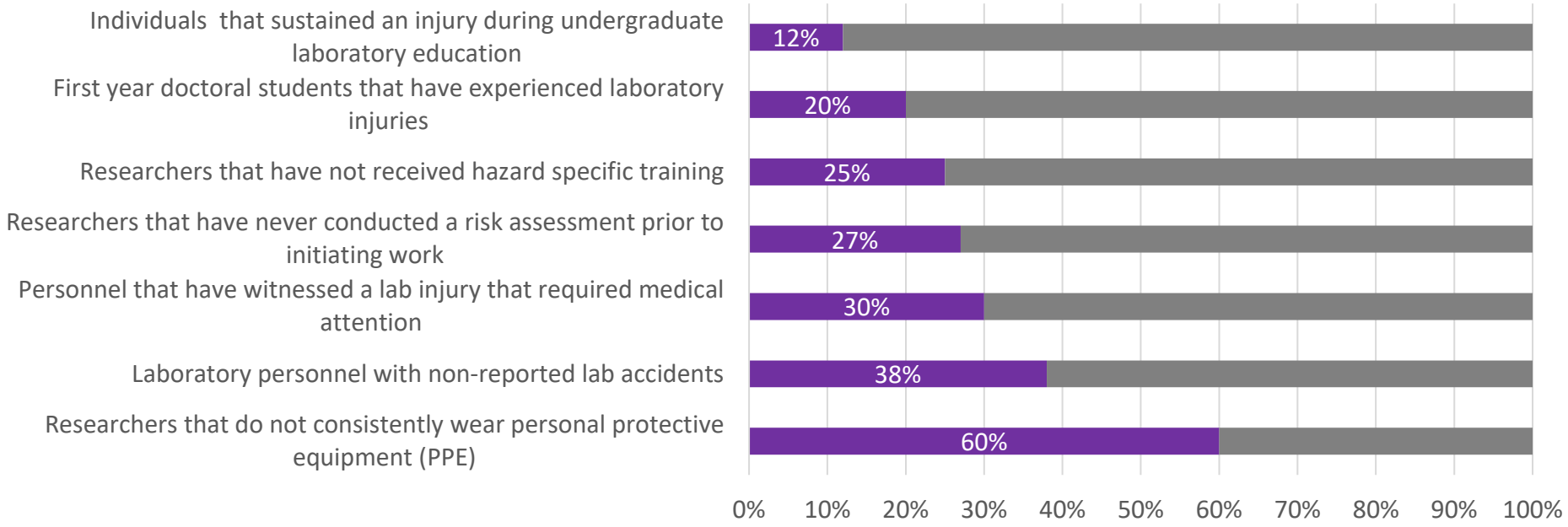
APE Activities and Responsibilities

1. Incident Analysis Report
2. Development of Biannual Events
3. Creation of Post-Event Surveys
4. Curriculum Proposal
5. Funding Applications

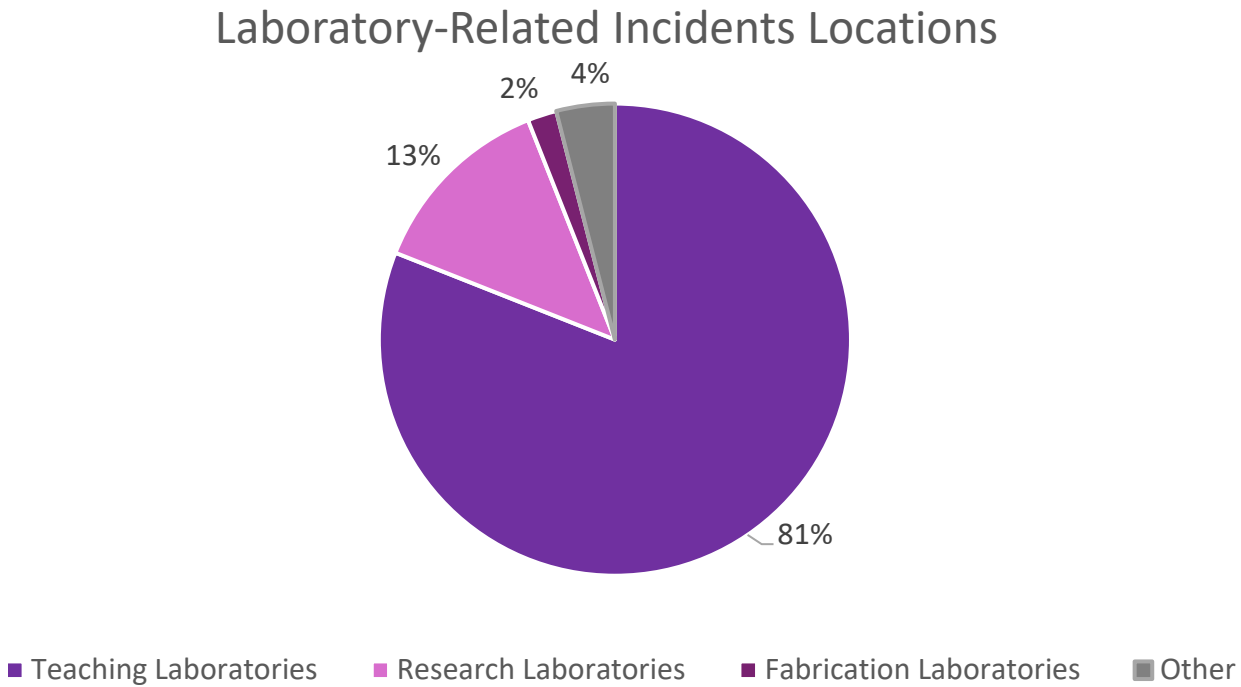
BACKGROUND: RESEARCH AND LAB SAFETY IN ACADEMIA

INCIDENTS

Laboratory-Related Findings at Universities (In Percentages)



(Feng et. al, 2023; Menard & Trant, 2020; Prpich & Unnerstall, 2022; Zhao et. al, 2024)



(Menard & Trant, 2020)

Laboratory-Related Deaths at Universities

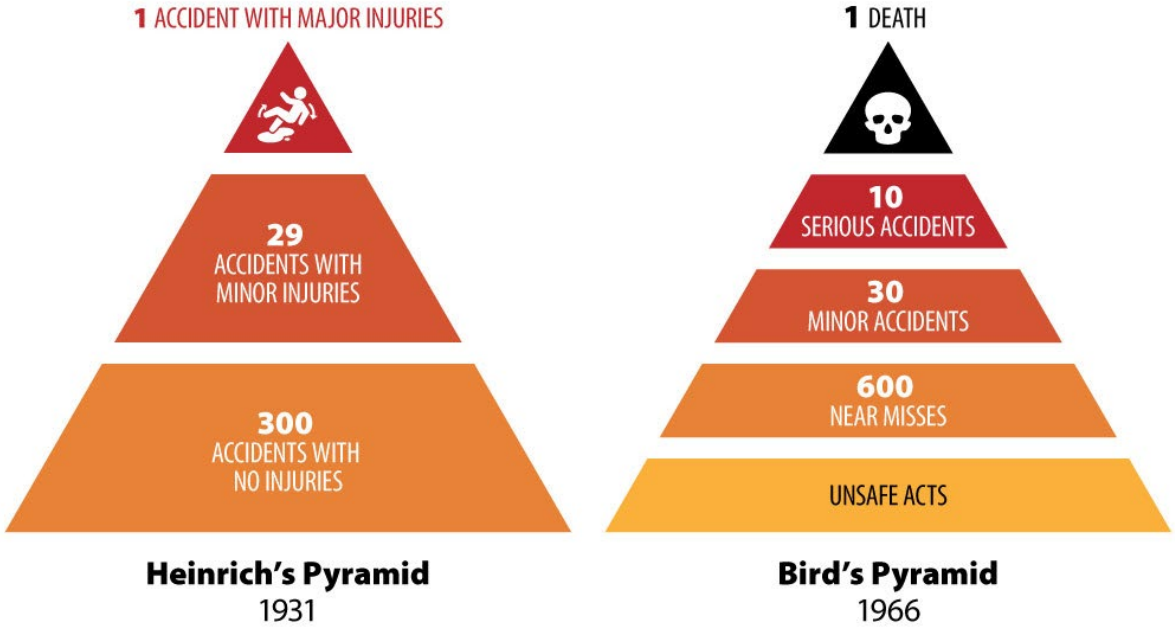
2005 – 2025

(28% university setting)

- Chemical burns
- Bacteria exposure
- Chemical inhalation
- Lathe machinery
- Explosion
- Lab fire
- B virus exposure
- Needlestick exposure, tissue exposure Mad Cow Disease
- Diving incident
- Radioactive isotope exposure
- Electrocution
- Animal attack – fieldwork

(Lab Safety Institute, 2025)

Accident Pyramids



(MEMIC, 2019)

Unique Challenges in Lab Safety in Academia

- Small scale work ↓ risk perception and management
- Work occurs intermittently with fewer people
- Transient workforce
- Work is conducted independently
- Rapid technological advancements introduce new risks
- Safety training is inconsistent, inadequate, non-specific, and not integrated into curriculum

Academic Safety Culture

Reactive

- Safety not as important as experimentation
- Prioritization of speed, efficiency vs. safety
- Laboratory accidents are inevitable
- Bureaucratic hurdle vs. essential
- Lack of institutional incentives (lack of ties to funding, tenure, promotions, performance reviews)
- Lack of safety information in journal publications

SAFETY EDUCATION AND TRAINING IN ACADEMIA

Gaps in Safety Education and Training

- Relevance not realized if not physically in lab
- Lack of standardization across institutions
- Inconsistent, inadequate, and lack of hazard-specific training
- Lack of "modern" and timely education topics
- Absence of upskilling

Best Practices in Safety Education and Training

- Flexible
- Active training: gamification, simulation, role play, VR/AR
- Interactive learning: videos, simulations, quizzes, discussions
- Interdisciplinary
- Hands on
- Integrate into curriculum with dedicated courses and mentoring

Future of Safety Education and Training in Academia

- Academia, government, and industry partnerships
- Collaborative curriculum design with industry and government feedback
- Educational centers for hands-on training
- Credential-bearing training (CE, microcredentials, academic credit)
- Focus on upskilling and workforce preparedness
- Integrated into curriculum and separate curriculum
- Throughout student and professional career

APE PROJECTS

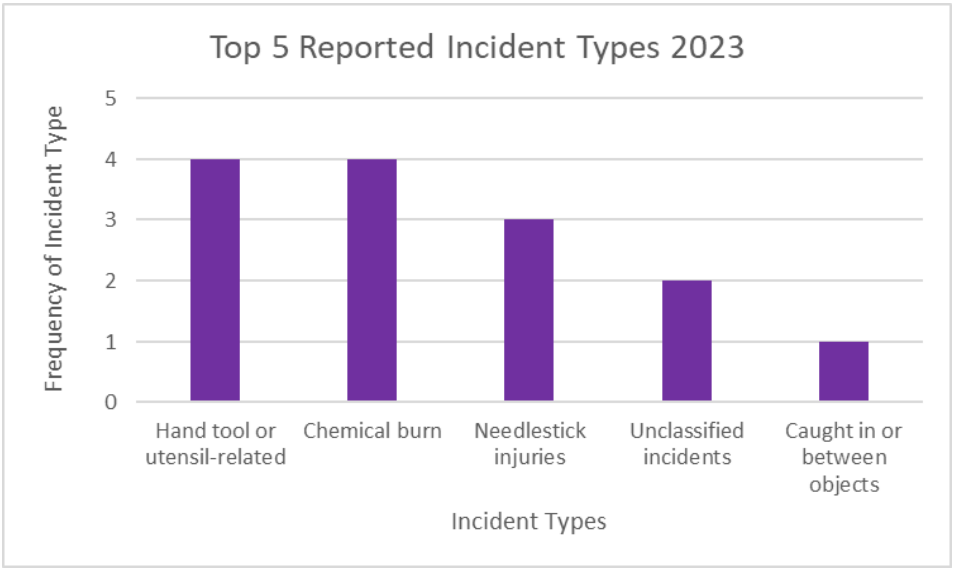
APE Projects

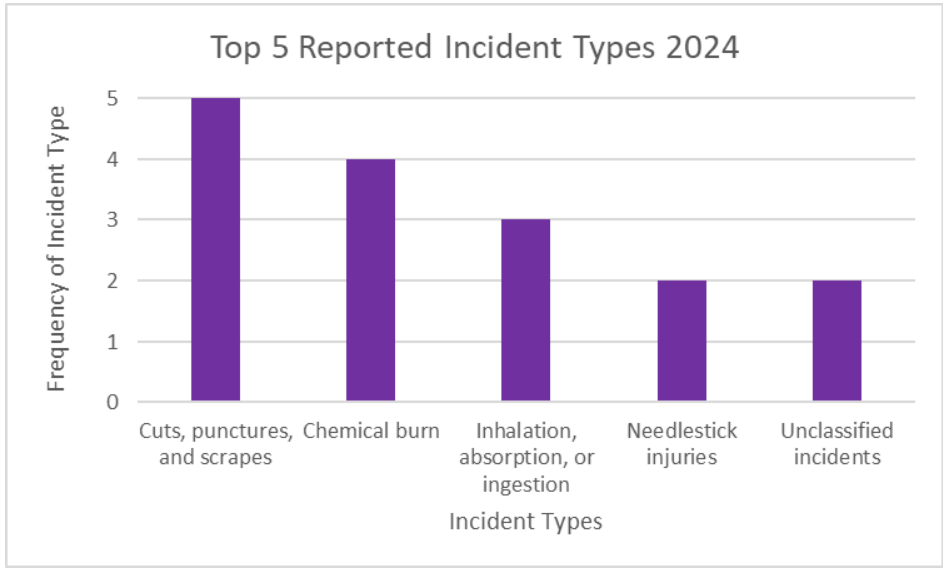
1. Incident Analysis Report
2. Development of Biannual Events
3. Creation of Post-Event Surveys
4. Curriculum Proposal
5. Funding Applications

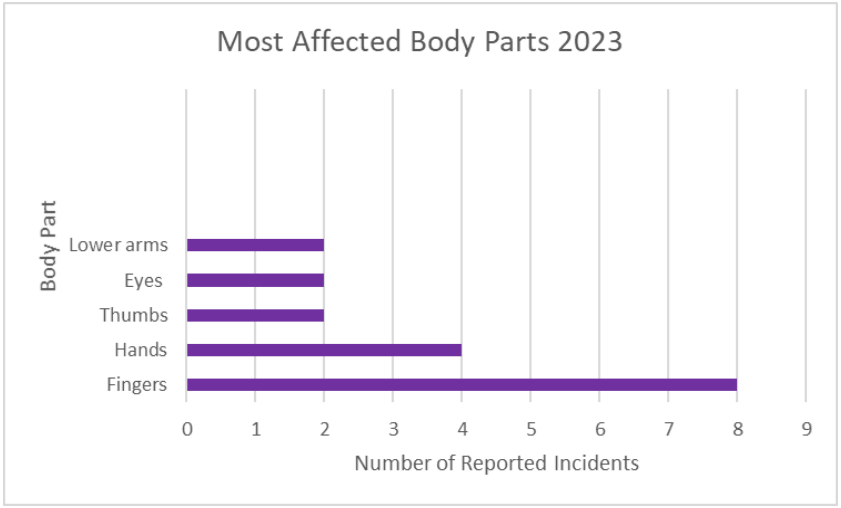
LAB-RELATED INCIDENT ANALYSIS

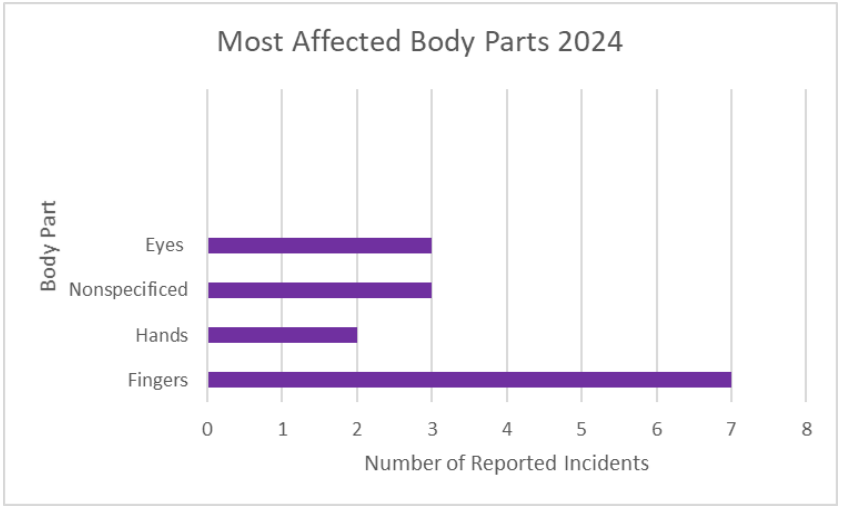
Introduction

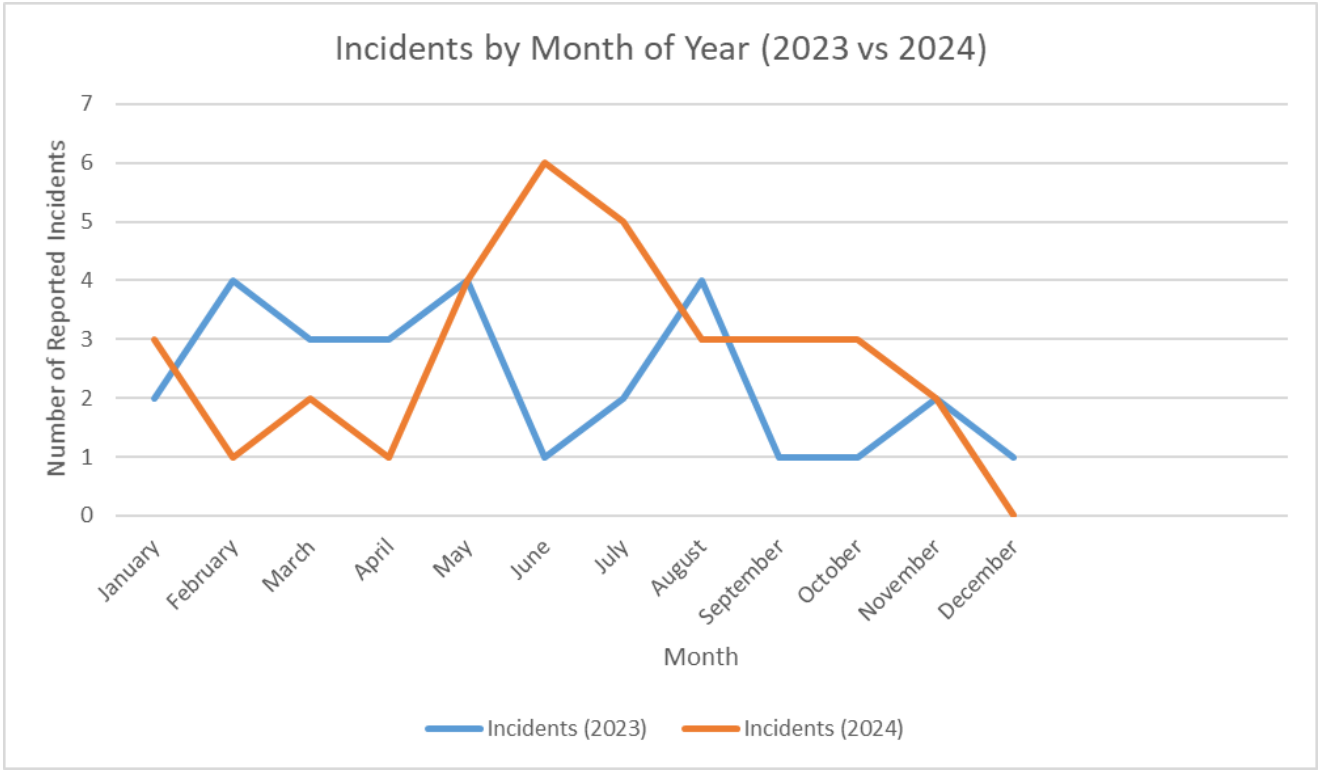
- Analyzed laboratory-related incidents in 2023 and 2024 to identify trends in reported incidents
  - Identified patterns, areas of concern, opportunities for risk reduction, and recommended focus areas for safety education and training programs on campus
  - Guides safety education and training interventions with data-driven insights

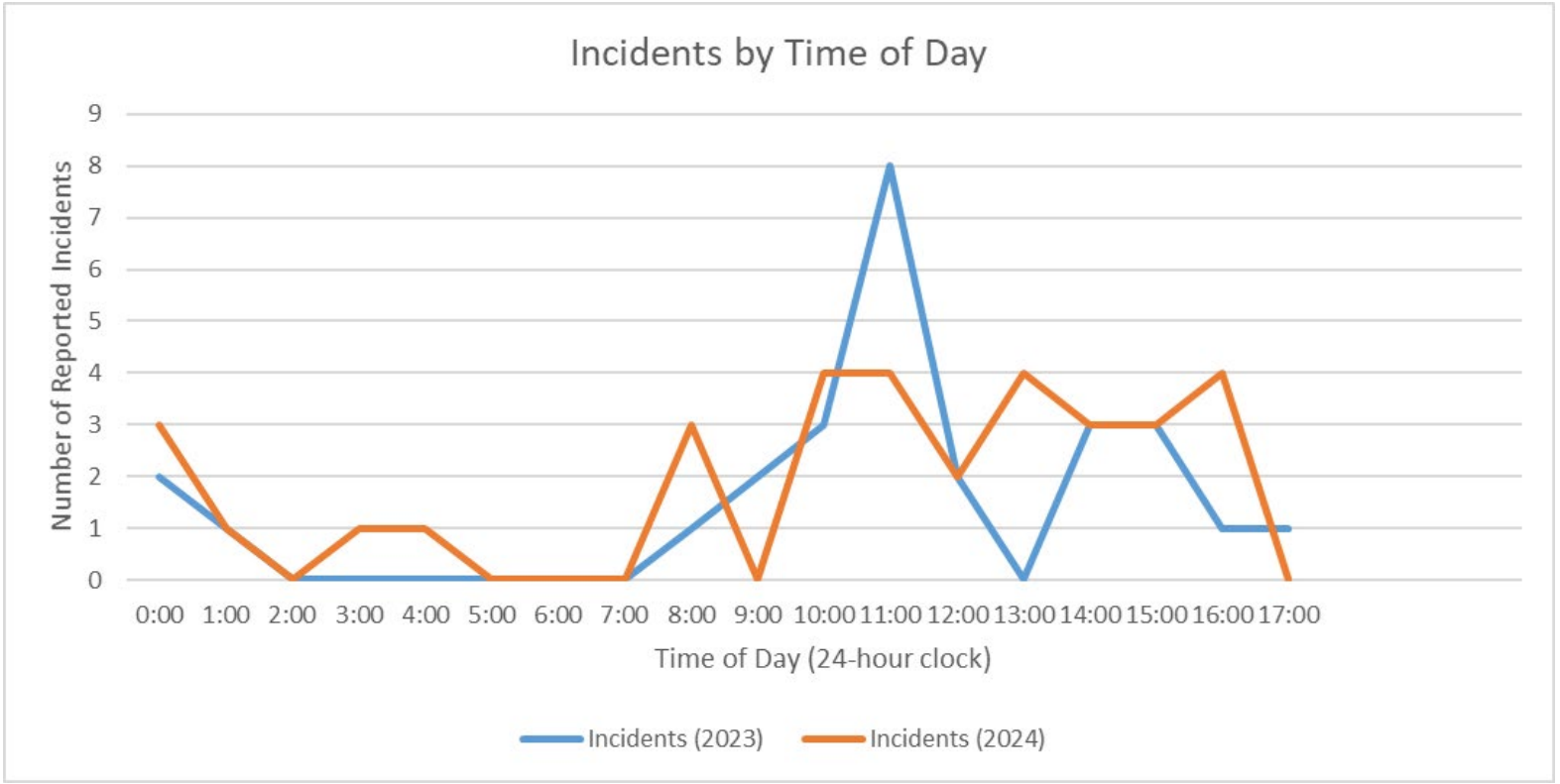

Top 5 Reported Incident Types 2023
Frequency of Incident Type
5
4
3
2
1
0
Hand tool or utensil-related
Chemical burn
Needlestick injuries
Unclassified incidents
Caught in or between objects
Incident Types

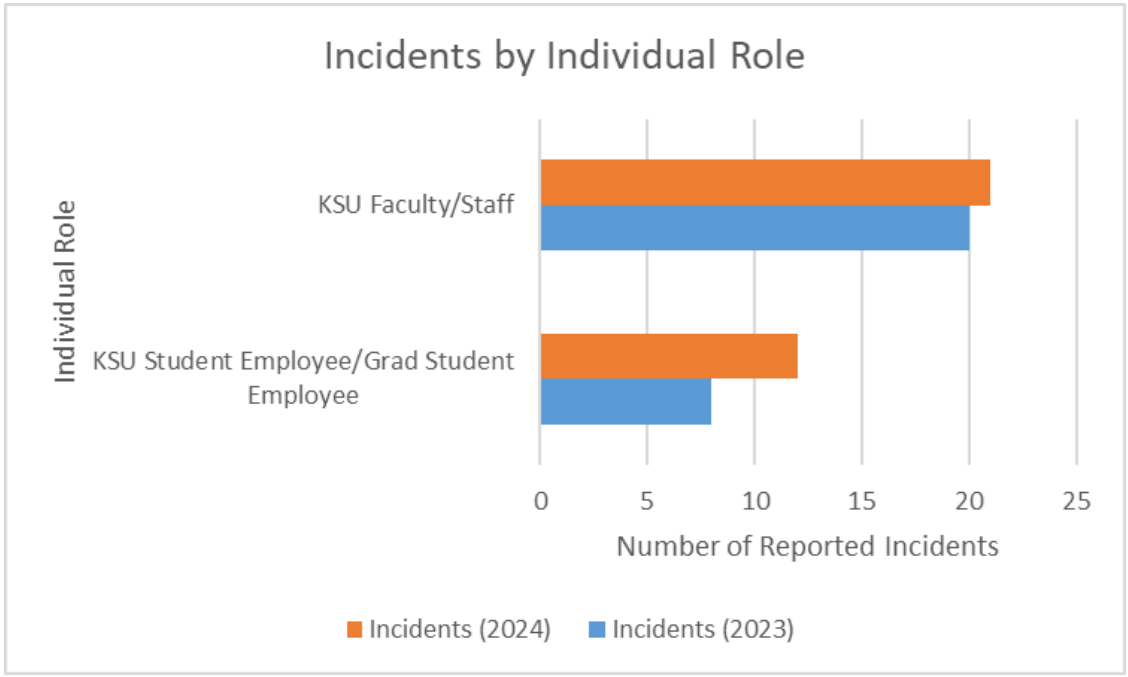

Top 5 Reported Incident Types 2024
Frequency of Incident Type
5
4
3
2
1
0
Cuts, punctures, and scrapes
Chemical burn
Inhalation, absorption, or ingestion
Needlestick injuries
Unclassified incidents
Incident Types

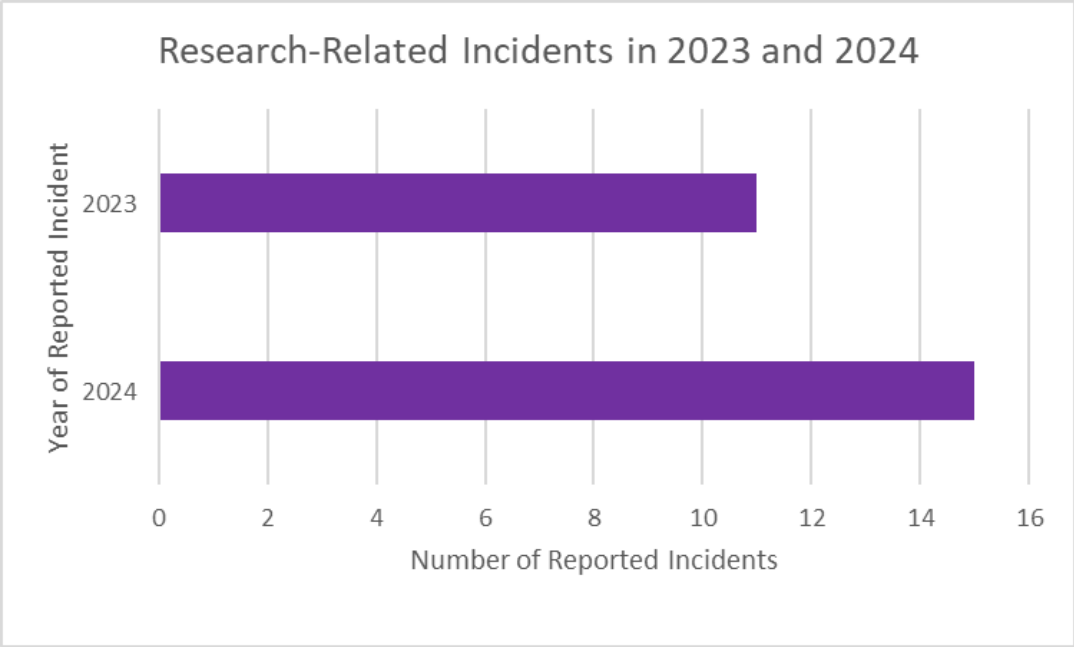

Most Affected Body Parts 2023
Body Part
Lower arms
Eyes
Thumbs
Hands
Fingers
0
1
2
3
4
5
6
7
8
9
Number of Reported Incidents

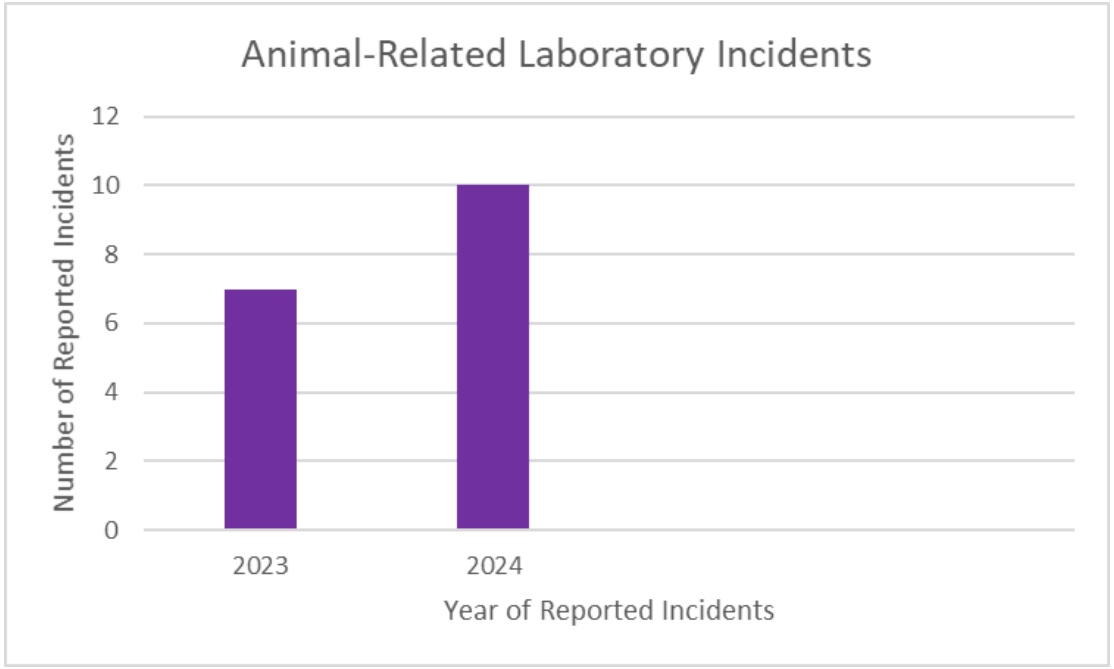

Most Affected Body Parts 2024
Body Part
Eyes
Nonspecificed
Hands
Fingers
0
1
2
3
4
5
6
7
8
Number of Reported Incidents


Incidents by Month of Year (2023 vs 2024)
Number of Reported Incidents
7
6
5
4
3
2
1
0
January
February
March
April
May
June
July
August
September
October
November
December
Month
Incidents (2023)
Incidents (2024)


Incidents by Time of Day
Number of Reported Incidents
9
8
7
6
5
4
3
2
1
0
0:00 1:00 2:00 3:00 4:00 5:00 6:00 7:00 8:00 9:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00
Time of Day (24-hour clock)
Incidents (2023)
Incidents (2024)


Incidents by Individual Role
Individual Role
KSU Faculty/Staff
KSU Student Employee/Grad Student Employee
0
5
10
15
20
25
Number of Reported Incidents
Incidents (2024)
Incidents (2023)


Research-Related Incidents in 2023 and 2024
Year of Reported Incident
2023
2024
0
2
4
6
8
10
12
14
16
Number of Reported Incidents


Animal-Related Laboratory Incidents
Number of Reported Incidents
12
10
8
6
4
2
0
2023
2024
Year of Reported Incidents

Findings

Incident Types and Affected Body Parts

- Top incidents: Cuts, punctures, scrapes, needlestick injuries and chemical burns.
- Hand tools and utensils were a top cause of injury in 2023.
- Most frequently injured body parts: Fingers, hands, and eyes.
- 90.9% of lab-related reported incidents in 2023 documented the use of PPE; 61.5% of lab-related reported incidents in 2024 documented the use of PPE.
- Gloves and lab coats were the most commonly used PPE, with gaps in eye protection.

Temporal Patterns

- Most reported incidents occur during standard business hours (8 am – 5 pm) with peak occurrences between 10 am – 11 am and 1 pm – 4 pm. Few reported incidents occurred from midnight - 10 am and 4 pm – 7pm.
- Seasonal peaks of incidents occurred in February, May, June, and August.

High Risk Locations

- Most incidents occurred on the Manhattan campus within STEM-related laboratory and research activities and environments.

Recommendations

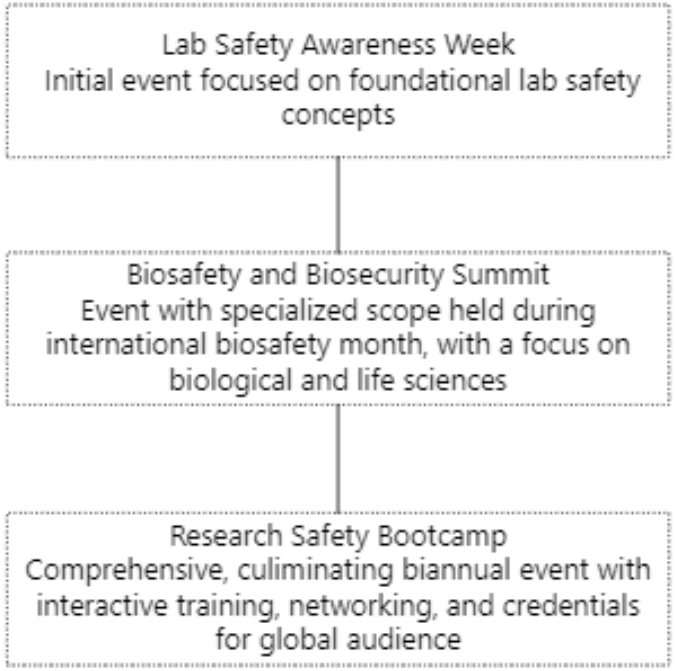
1. Strengthen PPE training and compliance
2. Targeted safety topics
3. Targeted audiences (including roles and time frames)
4. Improve incident and near miss reporting

BIANNUAL EDUCATION AND TRAINING EVENTS

Introduction

- Goal: Establish biannual, hybrid conference-style events that bridge gaps in current university safety training
  - Engage the University community in teaching research and safety topics aligned with subject-matter expertise
  - Invite subject-matter experts across organizations and specialties to present knowledge at Kansas State University
  - Include hands-on experiences and applications of topics presented
  - Connect researchers and laboratorians with vendors who provide laboratory and safety solutions and equipment
  - Provide opportunities for discussions, discourse, and idea generation across attendee populations
  - Encourage interdisciplinary collaboration and partnerships

Biannual Events 2024 - 2025



Planning Phase (6 months- 12 months)

- Define objective and scope
  - Target audience
  - Key topics and learning outcomes
  - Budget, partnerships, resources
- Establish timeline and milestones
- Identify format and technology needs
  - Hybrid delivery structure and platform
  - Accessibility and engagement settings
- Secure presenters and topics
  - Create master list of speakers and topics
  - Create session schedules
  - Coordinate training materials, handouts, and session assignments
- Logistics and registration
  - Secure venue
  - Establish registration platform
  - Organize technology for hybrid delivery

Event Execution

- Introduce Event
  - Deliver welcome address
  - Provide platform navigation instructions
- Conduct sessions
  - Monitor hybrid engagement
  - Capture attendance and participation data in real-time
- Engagement and interaction
  - Live Q&A, discussion forums, breakouts
  - Vendor Fair
  - Poster Sessions
- Plan for troubleshooting/ continuity
  - IT support
  - Connectivity
  - Venue closures/weather

Event Follow Up and Refinement

- Feedback
  - Post-event surveys
  - Session analytics
- Impacts and trends
  - Safety concerns from participants
  - Data comparison to past events and event goals
- Summarize findings and recommendations
  - Positives, negatives, areas for improvement
- Provide resources for continuing education
  - Archived presentations and training materials
  - Follow up workshops/discussions
  - Online repository of knowledge
- Plan for next event
  - Identify improvements
  - Update process map

LAB SAFETY AWARENESS WEEK

Whether in a laboratory, the clinic, or the field, researchers are at the heart of making great things possible. Lab Safety Week offers ideas, training, and resources to help keep our researchers safe and healthy. Faculty, staff, students, future researchers, the university community, and external stakeholders are encouraged to attend. Those in attendance will receive course certificates and entry into the grand prize drawing.

SCHEDULE OF EVENTS

All events will be in the K-State Student Union and on Zoom

MONDAY, FEBRUARY 12, ROOM 227

9 A.M.
Kickoff to Laboratory Safety Week and Events of the Week – Department of Environmental Health and Safety

10 A.M.–11 A.M.
Chemical Safety and Integrating Safety into Curriculum – Department of Chemistry, Dr. S. Karunaweera

1 P.M.–2 P.M.
DEA Controlled Substances – DEA, K. Daniels

TUESDAY, FEBRUARY 13, COTTONWOOD ROOM — ROOM 230

8 A.M.–10 A.M.
Personal Protective Equipment, Respiratory and Hearing Protection – 3M, T. Mahony

10 A.M.–NOON
Research Information Security and Protecting Research – BRI, W. Baldwin

NOON–2 P.M. - LUNCH PROVIDED
Engineering Controls, Biosafety Cabinets and Fume Hoods – Labconco, C. Beiermann, Dr. E. Dille

WEDNESDAY, FEBRUARY 14, BIG 12 ROOM - ROOM 221

9 A.M.–10 A.M.
Enhancing NBAF's Safety Culture Through High-Reliability Organization Principles (No Zoom Available) – NBAF, Dr. A. Clavijo

10:30 A.M.–NOON
Compressed Gas Safety – Matheson, M. Womochil

THURSDAY, FEBRUARY 15, BIG 12 ROOM - ROOM 221

9 A.M.–10:30 A.M.
Root Cause Analysis – College of Business Administration, D. Minick

11 A.M.–NOON
Laboratory Safety Topics – Kansas Department of Labor, S. Etzold

FRIDAY, FEBRUARY 16, BIG 12 ROOM — ROOM 221

10 A.M. – 11 A.M.
Research Animal Safety – Comparative Medicine Group, Dr. J. Grady

Featured Event

KEYNOTE SPEAKER

"Enhancing NBAF's Safety Culture Through High-Reliability Organization Principles."

Dr. Alfonso Clavijo
Director of the National Bio and Agro-Defense Facility (NBAF)

Visit **k-state.edu/safety** or contact Rachael Weiderman, Research and Laboratory Safety Manager, at warhurst@ksu.edu or 785-477-0409 for more information.

KANSAS STATE UNIVERSITY | Environmental Health and Safety

Flyer courtesy of K-State Communications and Marketing

Inaugural Biosafety and Biosecurity Summit

Oct. 10-11

We are excited to invite you to the Inaugural Biosafety and Biosecurity Summit, taking place on the K-State Manhattan campus and virtually via Zoom. This groundbreaking event will bring together researchers, subject matter experts, and industry leaders to discuss key challenges and advancements in biosafety and biosecurity, while also exploring emerging technologies in life science research.

EVENT HIGHLIGHTS

Visit ***https://www.k-state.edu/safety/programs/lab/biosafety/*** or scan the QR Code to view the full event schedule. The summit is hosted in the College of Engineering with virtual attendance available for some presentations.

Keynote Address

Learn about "Transcriptomics for Biomarker Discovery" with Dr. Laura Miller, Associate Professor of Veterinary Virology and Past President of the American Association of Veterinary Immunologists on October 10th at 8:30 am.

Engaging Presentations

Attend presentations by subject matter experts from the FBI, NBAF, Labconco, and the Colleges of Agriculture, Arts and Sciences, Engineering, Veterinary Medicine, and the K-State Office of Integrity, Compliance and Security. Poster presentations represent interdisciplinary research using emerging technologies across the KSU portfolio.

Networking Opportunities

Connect with professionals from diverse backgrounds in life sciences and interdisciplinary research, diagnostics, biosafety, and biosecurity to foster collaboration and innovation.

Laboratory Resources and Support

Visit the Fisher Scientific vendor fair to learn more about available lab equipment and safety resources for laboratories.

KANSAS STATE UNIVERSITY | Environmental Health and Safety

BRI Biosecurity Research Institute

LABCONCO

Kansas State Veterinary DIAGNOSTIC LABORATORY

KANSAS STATE UNIVERSITY

Carl and Melinda Helwig Department of Biological and Agricultural Engineering

KANSAS STATE UNIVERSITY | College of Agriculture

KANSAS STATE UNIVERSITY | Carl R. Ice College of Engineering

KANSAS STATE UNIVERSITY | College of Arts & Sciences Department of Psychological Sciences

Flyer courtesy of K-State Communications and Marketing

2025
Research Safety Bootcamp at KSU

REGISTER TODAY

to join us at the Research Safety Bootcamp hosted with Hale Library, February 10-14th, 2025.

The Research Safety Bootcamp brings together **students, faculty, staff, industry professionals, researchers, and laboratorians** from various organizations and states to network, discuss the latest technologies and lab equipment, and receive world-class training on topics relevant to the professional development of researchers and students.

Highlights:

Comprehensive Fume Hood Course with lunch from Labconco
Fisher Scientific Vendor Fair and After Hours Networking Event 14 sessions with topics for researchers, scientists, and professionals
OSHA-10 Certification Course with Laboratory Applicability
Attendees across departments, organizations, and states across US
Practice and apply what you learn in real time with expert trainers

Benefits:

Network with scientists, safety professionals, and subject-matter experts
Attend professional development designed for researchers
Earn a Certificate of Training for all attendees
1 credit hour toward academic programs for all attendees
Optional OSHA-10 certificate ($10 or free with paid registration)
Optional 15 Continuing Education Units ($25)

Pricing:

KSU Students: Free ($10 to add OSHA-10)
Non-KSU Students: $40
Professionals: $50
Group Rates Available

Attendance Options:

Hale Library or Remote

Scan the QR code to visit our event website, view the full schedule, and register to attend!

Thank you to our incredible partners for their support and contributions, which continue to make Research and Laboratory Safety events successful.

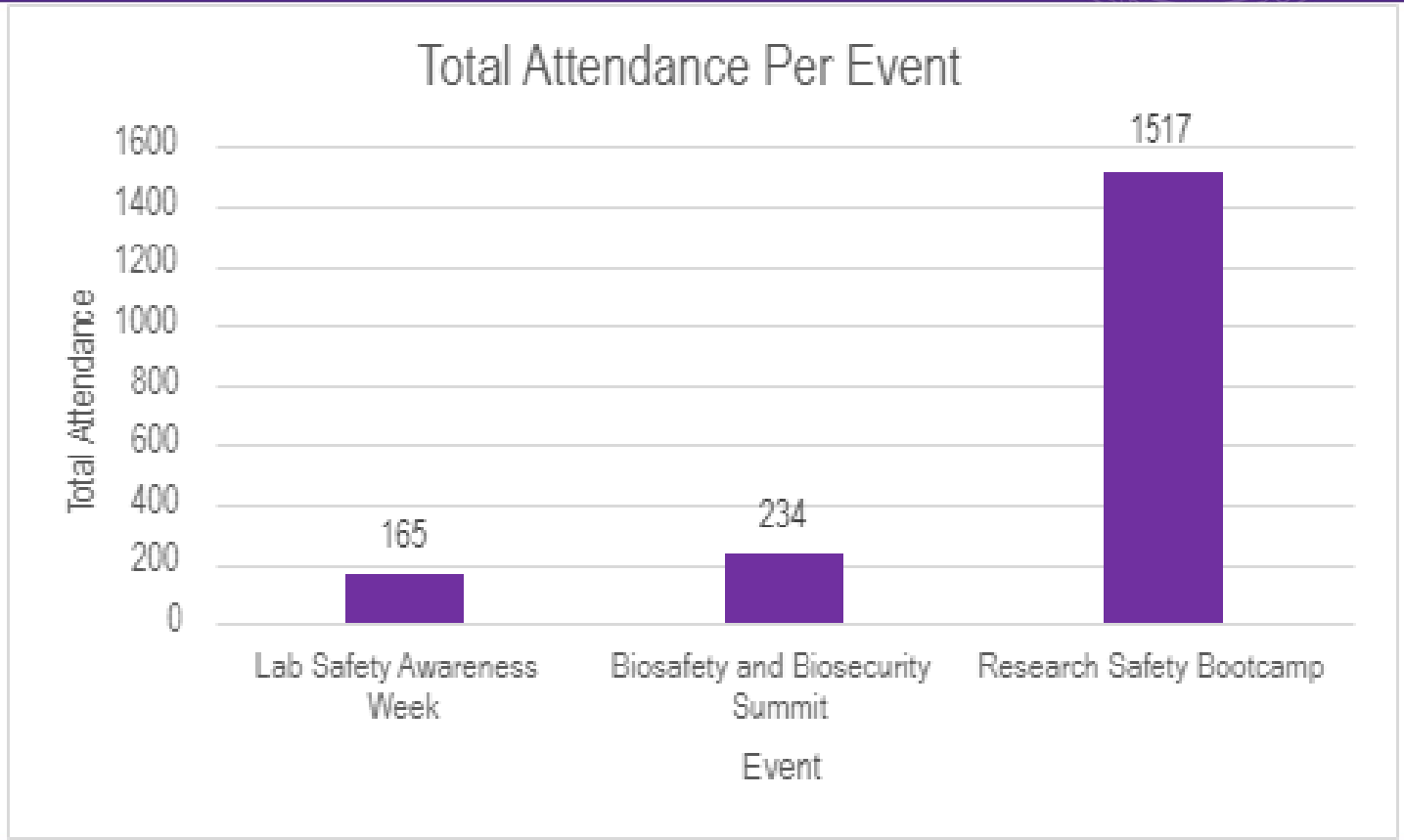
Questions, comments, or ideas:
Rachael M. Weiderman
Research and Laboratory Safety Manager
warhurst@ksu.edu

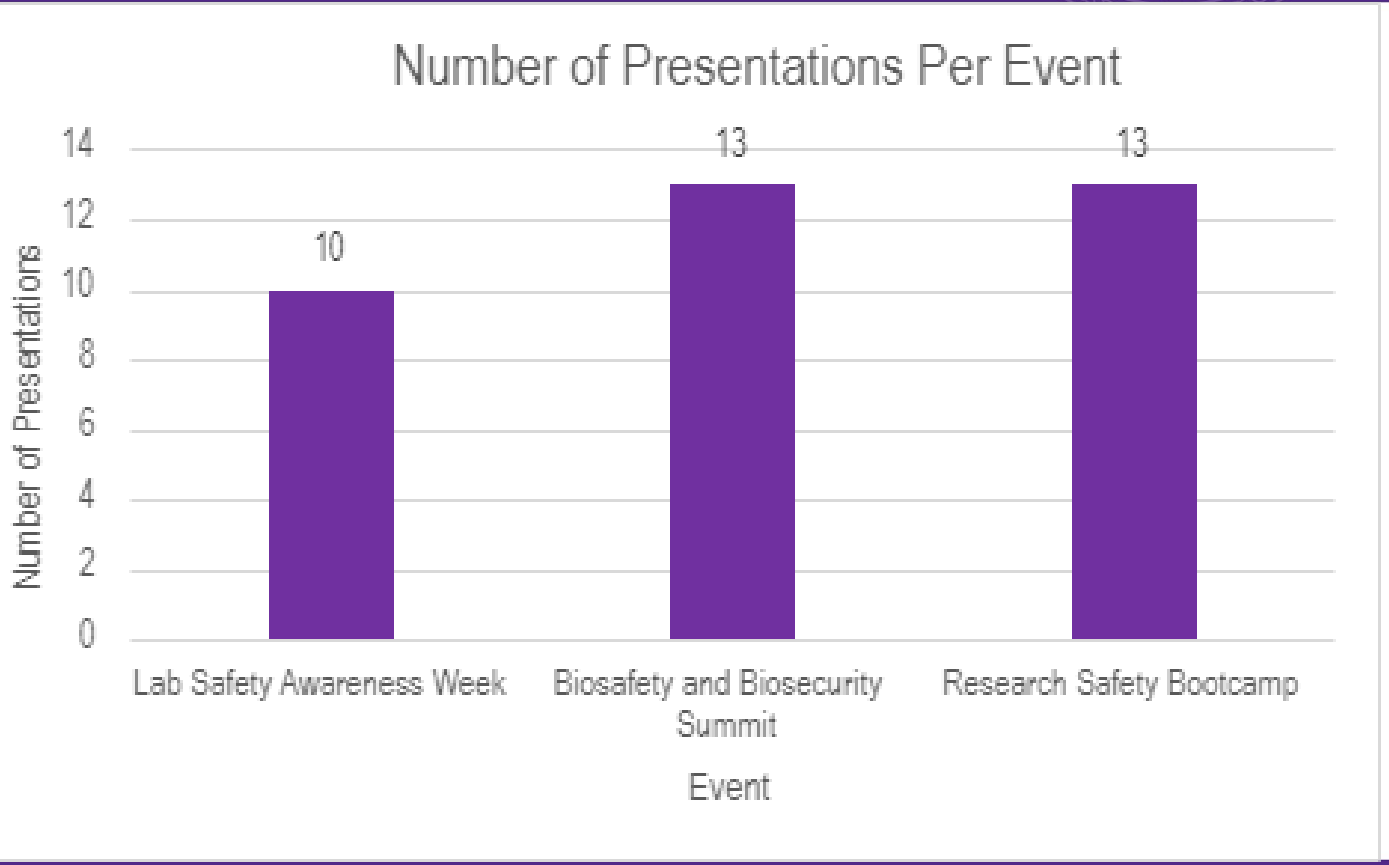
KANSAS STATE UNIVERSITY

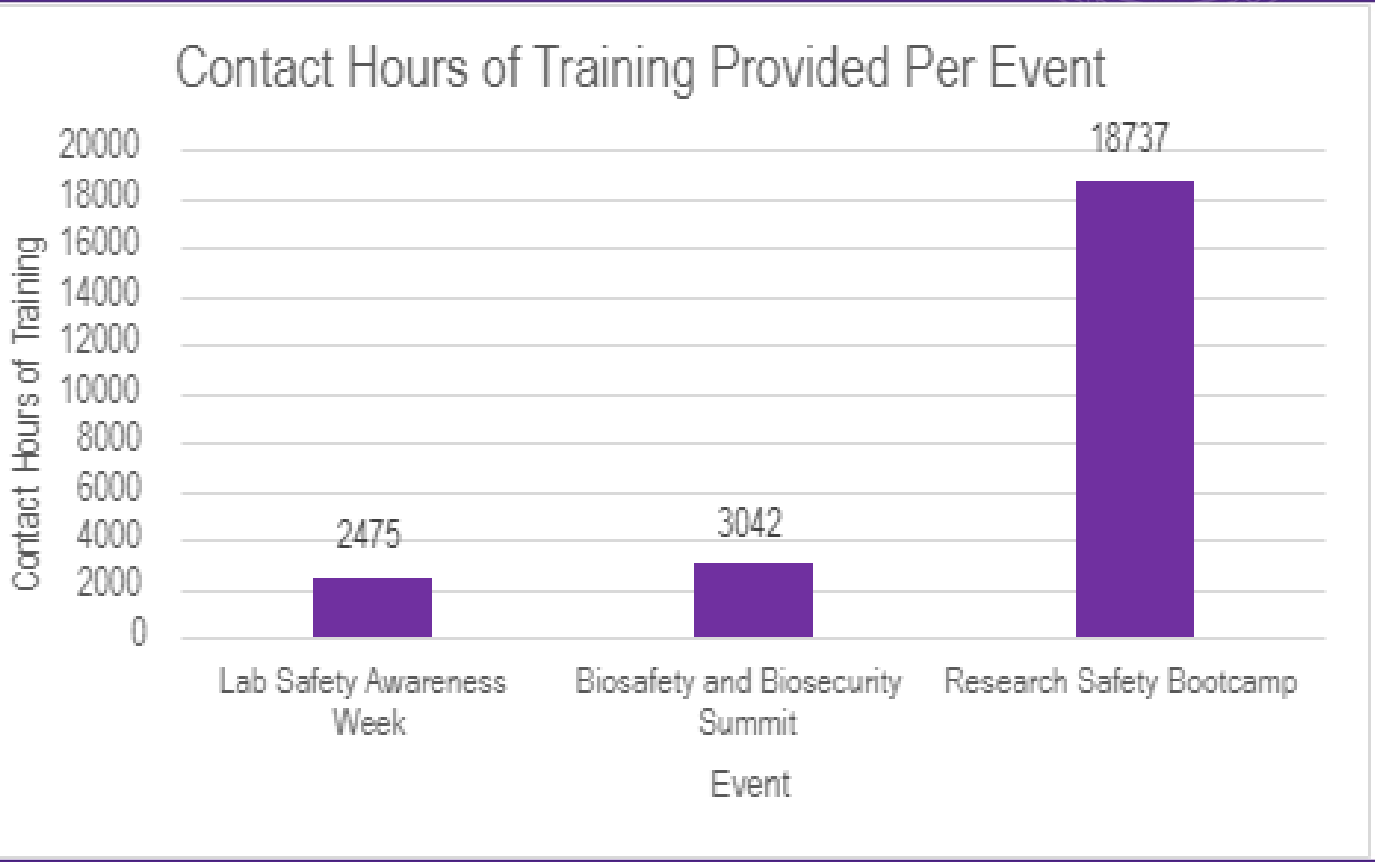
LABORATORY SAFETY AWARENESS WEEK
FEBRUARY 2024

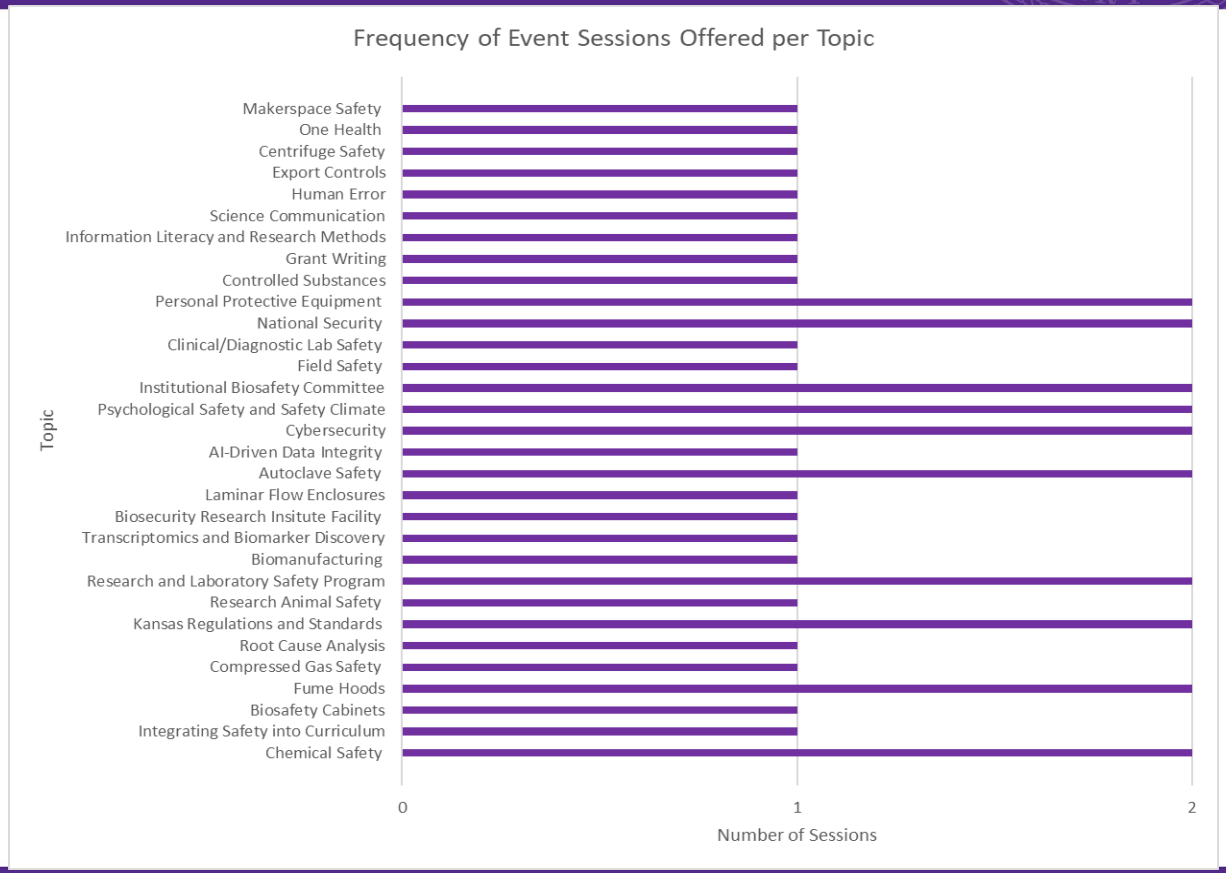
BIOSAFETY AND BIOSECURITY SUMMIT
OCTOBER 2024

RESEARCH SAFETY BOOTCAMP
FEBRUARY 2025


Total Attendance Per Event
1600
1400
1200
1000
800
600
400
200
0
Total Attendance
165
234
1517
Lab Safety Awareness Week
Biosafety and Biosecurity Summit
Research Safety Bootcamp
Event


Number of Presentations Per Event
14
12
10
8
6
4
2
0
Number of Presentations
10
13
13
Lab Safety Awareness Week
Biosafety and Biosecurity Summit
Research Safety Bootcamp
Event


Contact Hours of Training Provided Per Event
Contact Hours of Training
20000
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
2475
3042
18737
Lab Safety Awareness Week
Biosafety and Biosecurity Summit
Research Safety Bootcamp
Event


Frequency of Event Sessions Offered per Topic
Topic
Makerspace Safety
One Health
Centrifuge Safety
Export Controls
Human Error
Science Communication
Information Literacy and Research Methods
Grant Writing
Controlled Substances
Personal Protective Equipment
National Security
Clinical/Diagnostic Lab Safety
Field Safety
Institutional Biosafety Committee
Psychological Safety and Safety Climate
Cybersecurity
AI-Driven Data Integrity
Autoclave Safety
Laminar Flow Enclosures
Biosecurity Research Insitute Facility
Transcriptomics and Biomarker Discovery
Biomanufacturing
Research and Laboratory Safety Program
Research Animal Safety
Kansas Regulations and Standards
Root Cause Analysis
Compressed Gas Safety
Fume Hoods
Biosafety Cabinets
Integrating Safety into Curriculum
Chemical Safety
0
1
2
Number of Sessions

MIXED-METHODS SURVEY

Quantitative Questions, with numerical or predefined categorical responses:

Q3. How did you hear about the Research Safety Bootcamp? (Multiple-choice)

Q4. Which best describes your role? (Multiple-choice, select all that apply)

Q5. How did you attend the Bootcamp? (Multiple-choice)

Q11. How did you find the length of the event? (Multiple-choice)

Q12. How would you rate the organization, logistics, and marketing of the event? (Scale: 0–10)

Q13. How likely are you to connect with other attendees, presenters, and summit partners after the event? (Scale: 0–10)

Q14. How likely are you to recommend this event to a friend or colleague? (Scale: 0–10)

Q15. Would you be interested in attending future lab/research safety events at K-State? (Yes/No)

Q16. Which credit are you interested in earning for attending the Bootcamp? (Multiple-choice)

Q17. Would you be interested in taking a similar Lab Safety Course or Biosafety Course for continuing education credits? (Yes/No)

Q18. What kind of course credits would you be interested in? (Multiple-choice)

Qualitative Questions, with open-ended responses:

Q6. What presentation topics did you find most applicable to your work?

Q7. What presentation topics did you find least applicable to your work?

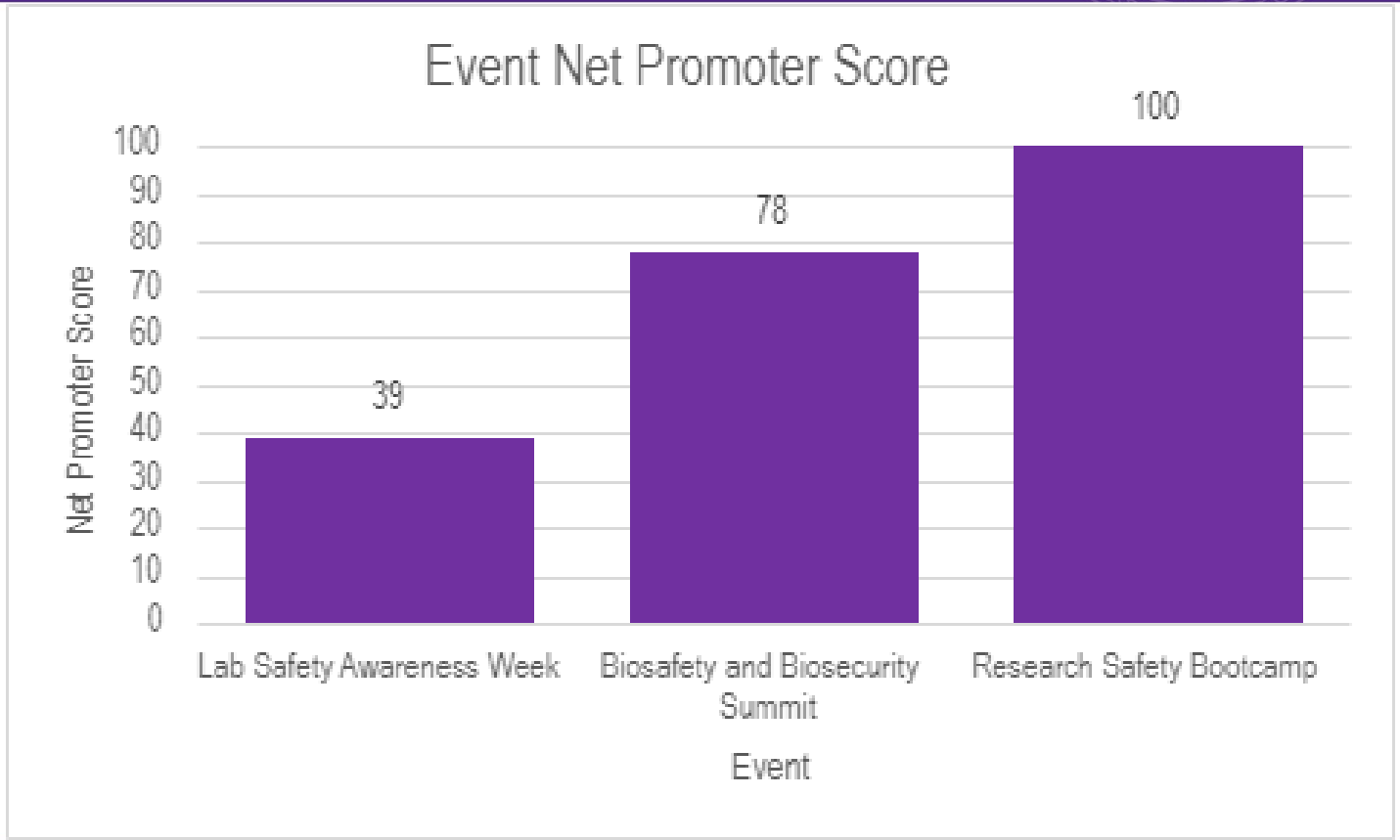
Q8. What presentation topics would you like to see covered at future events?

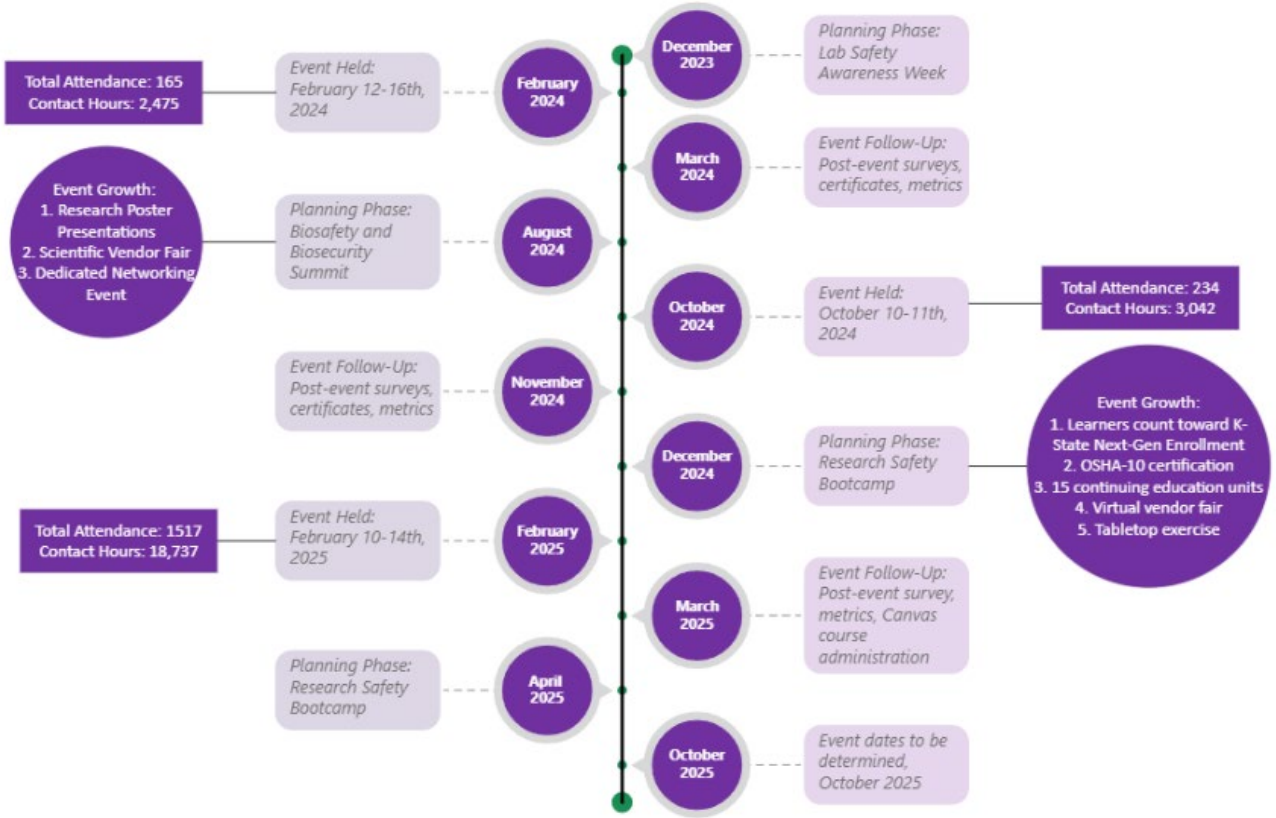
Q9. Do you have any recommendations for individuals to present?

Q10. Please let us know if you have any unanswered questions or comments for the presenters.

Q19. Suggestions for future Lab Safety, Research Safety, and Biosafety Events?

Q20. If you are comfortable, please leave us a brief review of the Research Safety Bootcamp.


Event Net Promoter Score
Net Promoter Score
100
90
80
70
60
50
40
30
20
10
0
39
78
100
Lab Safety Awareness Week
Biosafety and Biosecurity Summit
Research Safety Bootcamp
Event


December 2023
Planning Phase: Lab Safety Awareness Week
March 2024
Event Follow-Up: Post-event surveys, certificates, metrics
October 2024
Event Held: October 10-11th, 2024
Total Attendance: 234
Contact Hours: 3,042
Event Growth:
1. Learners count toward K-State Next-Gen Enrollment
2. OSHA-10 certification
3. 15 continuing education units
4. Virtual vendor fair
5. Tabletop exercise
December 2024
Planning Phase: Research Safety Bootcamp
March 2025
Event Follow-Up: Post-event survey, metrics, Canvas course administration
October 2025
Event dates to be determined, October 2025
February 2024
Event Held: February 12-16th, 2024
Total Attendance: 165
Contact Hours: 2,475
August 2024
Planning Phase: Biosafety and Biosecurity Summit
Event Growth:
1. Research Poster Presentations
2. Scientific Vendor Fair
3. Dedicated Networking Event
November 2024
Event Follow-Up: Post-event surveys, certificates, metrics
February 2025
Event Held: February 10-14th, 2025
Total Attendance: 1517
Contact Hours: 18,737
April 2025
Planning Phase: Research Safety Bootcamp

Kansas State University Partners and Collaborators

- Department of Chemistry
- K-State Research and Extension
- Department of Psychological Sciences
- Department of Communications and Agricultural Education
- Office of Research Integrity Compliance and Security
- Veterinary Diagnostic Laboratory
- College of Veterinary Medicine Libraries
- Department of Diagnostic Medicine and Pathobiology
- Kansas State University Master of Public Health Program
- K-State Libraries
- K-State Career Center
- K-State Olathe
- Biosecurity Research Institute
- College of Business
- Comparative Medicine Group
- Department of Grain Science and Industry
- Department of Electrical and Computer Engineering
- College of Engineering
- Department of Biological and Agricultural Engineering
- Kansas State Student Union
- Kansas State University Campus Store

External Partners and Collaborators

- American Society of Safety Professionals (ASSP) Heart of America Chapter
- National Bio and Agro-Defense Facility (NBAF)
- Federal Bureau of Investigation (FBI)
- Drug Enforcement Agency (DEA)
- 3M
- Fisher Scientific Vendors
- Matheson
- Kansas Department of Labor
- Labconco Corporation
- Cobb Refrigeration

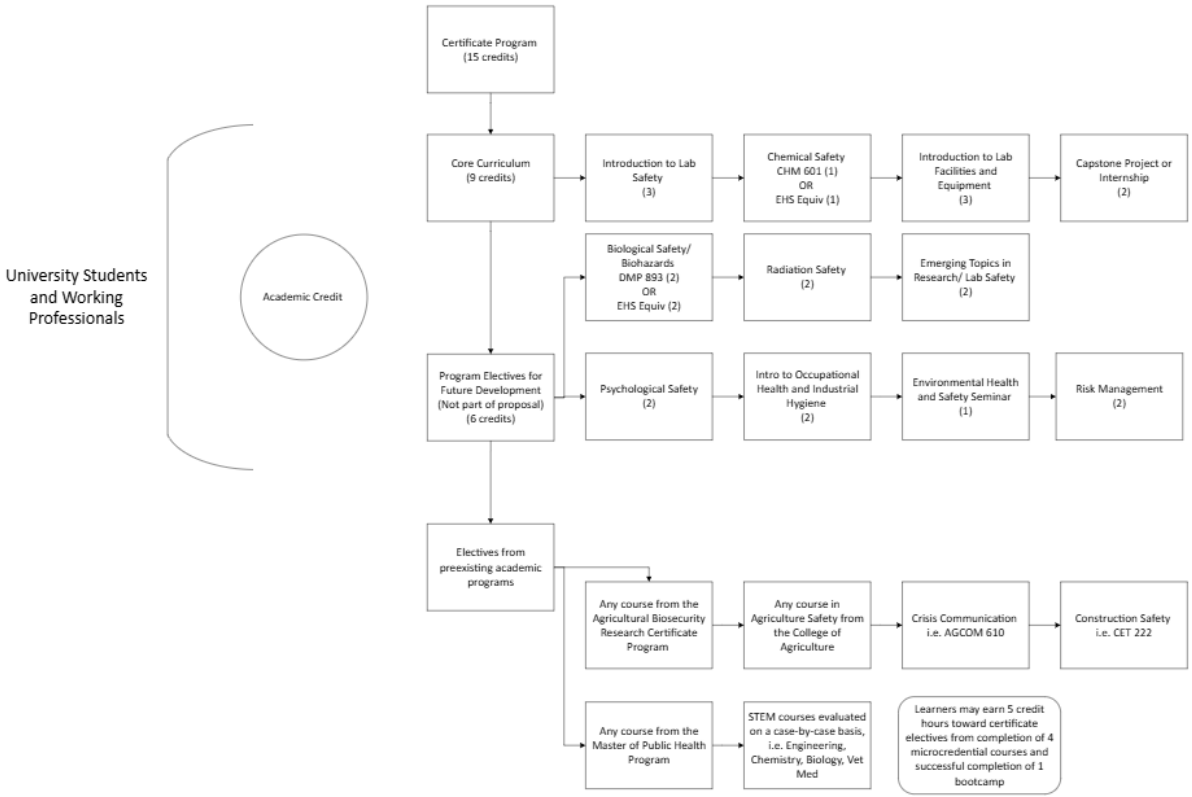
Impact Summary

- Over 200 individuals participated
- Total attendance > 1,900
- Over 24,000 contact hours of training administered
- Over 30 unique topics
- Over $1,500 net income from one event to support future events
- Institutional and external partnerships and collaborations realized
- Long-term, sustainable program established

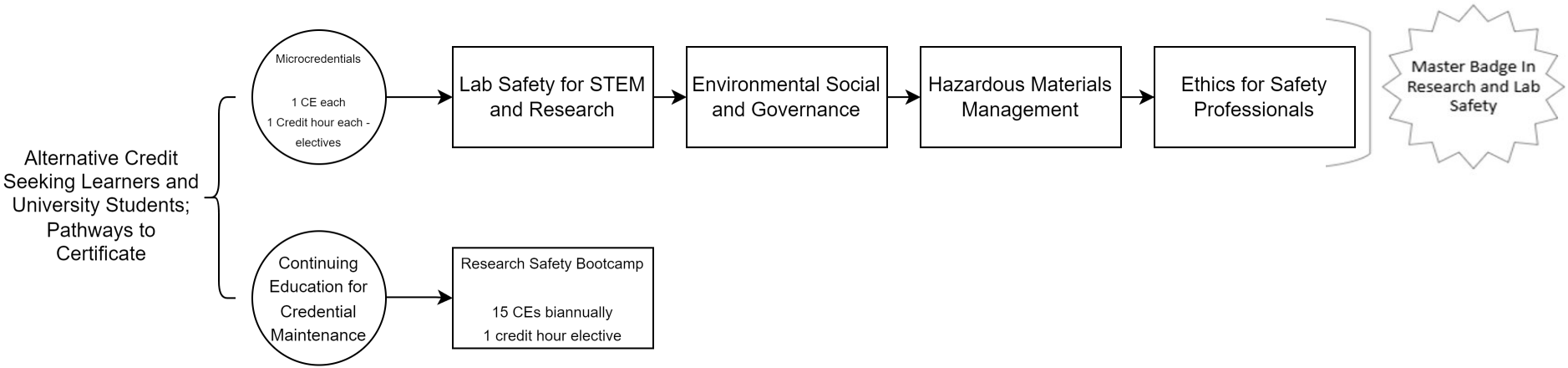
CURRICULUM DESIGN

Introduction

- Design of research and lab safety curriculum for multiple learner populations (university, industry, government)
  - Microcredentials
  - Continuing education
  - Undergraduate courses/certificate
  - Graduate courses/certificate
- Dual-credit courses provide CE/credit and multiple entry points into academic program
- Goal: K-State is choice institution for safety education and credential maintenance



Source: Weiderman, R. 2025


Alternative Credit Seeking Learners and University Students; Pathways to Certificate
Microcredentials
1 CE each
1 Credit hour each - electives
Lab Safety for STEM and Research
Environmental Social and Governance
Hazardous Materials Management
Ethics for Safety Professionals
Master Badge In Research and Lab Safety
Continuing Education for Credential Maintenance
Research Safety Bootcamp
15 CEs biannually
1 credit hour elective

FUNDING PROPOSALS

Introduction

- Academic Innovation Fund Initial and Full Proposals submitted
  - Funding to establish proposed microcredentials, CEs, undergraduate and graduate curriculum
  - Funding for: staff hours, faculty review, technology, training equipment
  - Submitted in partnership with the Department of Chemistry

Academic Innovation Fund Initial Executive Summary
Submission Deadline: October 4, 2024
For questions, email: academicinnovation@ksu.edu

Environmental Health and Safety partnering with Chemistry

Department(s) Requesting Funds

Ms. Rachael Weiderman	warhurst@ksu.edu	785-477-0409
Primary Contact	**Primary Contact Email**	**Primary Contact Phone**

Dr. Christer Aakeroy	aakeroy@ksu.edu
Primary Department Head	**Primary Department Head Email**

Dr. Joseph Whitlock, jwhitlo@ksu.edu
Additional Department Head(s)

Dr. Christopher Culbertson/Dr. Scott Tanona	culbert@ksu.edu
Dean or Designee	**Dean or Designee Email**

Total Dollar Amount Requested $112,000

Safety Education Credentials
Title of Academic Program or Microcredential

New microcredentials, CEUs, and undergraduate/graduate credit offerings
What type of program is this? (e.g., new bachelor's degree, microcredential, etc.)

Is this proposal multidisciplinary? (•) Yes ( ) No

Intended Audience *(select all that apply)*
☑ High School Students ☑ Traditional Learners ☑ Post-traditional Learners
☑ Alternative Credential-seeking Learners ☑ Other (describe) GTAs, Industry Professionals

Level: ☑ Undergraduate Credit ☑ Graduate Credit ☑ Noncredit

Modality: ☐ In Person ☑ Hybrid ☑ Online

Q1. Department(s) requesting funds:

Department of Environmental Health and Safety, Department of Chemistry

Q2. Primary Contact:

Rachael M. Weiderman

Q3. Primary Contact email:

warhurst@ksu.edu

Q4. Primary Contact phone:

785-493-1127

Q6. Primary Department Head:

Dr. Christer Aakeroy

Q7. Primary Department Head email:

aakeroy@ksu.edu

Q8. Dean or designee:

Dr. Christopher Culbertson/ Dr. Scott Tanona

Q9. Dean or designee email:

culbert@ksu.edu/ stanona@ksu.edu

Q10. Total dollar amount requested for this proposal:

113,589.58

Q12. Title of academic program or microcredential:

Safety Education Credentials (Research Safety Bootcamp, Microcredentials, Research and Lab Safety Certificate)

Personnel – Reassigned or Existing Positions

	First FY	Second FY	Third FY
Faculty	12,600	12,978	13,367
Administrators (other than instruction time)	7,360	7,580	7,807
Graduate Assistants	1,500	1,545	1,591
Support Staff for Administration (e.g., Office Assistant)	0	0	0
Fringe Benefits (total for all groups)	3,604	3,712.11	3,823.47
Other Personnel Costs	400	1200	1200

Operating Costs - Recurring Expenses

	First FY	Second FY	Third FY
Supplies/Expenses	0	0	0
Library/Learning resources	0	0	0
Equipment/Technology	1374	1374	1374
Travel	0	0	0
Program Marketing	6000	6000	6000
Other (Describe)			

Start-up Costs - One-Time Expenses

	First FY	Second FY	Third FY
Library/Learning resources	200	0	0
Equipment/Technology	11000	0	0

Physical Facilities: Construction or Renovation	0	0	0
Program Marketing	0	0	0
Other (Describe)			

Provide total expenses

	First FY	Second FY	Third FY
Grand Total Costs	44,038	34,389.11	35,162.47

B. Funding Sources

	Current	First FY (new)	Second FY (new)	Third FY (new)
Tuition/State funds	0	10,500	86,860.40	126,790.60
Student fees	0	0	4500	6,750
Other sources	1000	2400	4,000	6,000

Projected Surplus/Deficit +/-

	First FY	Second FY	Third FY
Total Funding minus Total Costs	- 31,138	+60,971.29	+104,378.13

Source: Weiderman, R. 2025

Outcomes

- Academic Innovation Fund Proposal awarded $123,000 for development of proposed curriculum
- Future:
  - Starting development of courses, including virtual laboratory environments and interactive activities
  - Planning for October 2025 Research Safety Bootcamp expansion

PRESENTATIONS

Communication Summary

- Biannual Events:
  - Key stakeholder communications during event planning, execution, and follow-up phases.
- Research and Lab Safety Presentations:
  - Developed and instructed Research Safety 101 Course (2 hours) Feb 2025

Outcomes

- Sharing of accomplishments, lessons learned, and paths toward improved institutional safety education programs:
  - International and national conferences
  - Safety professional focus groups
- Instruction in research and laboratory safety topics

FOUNDATIONAL COMPETENCIES

Competency	Coursework	Applied Learning
Planning and Management to Promote Health *"Explain basic principles and tools of budget and resource management"*	MPH 720 "Administration of Health Care Organizations" MPH 754 "Introduction to Epidemiology"	Complete a grant proposal for long-term development and implementation of safety education credentials, including budget and resource requirements for sustainability
Communication *"Communicate audience-appropriate public health content, both in writing and in oral presentation"*	DMP 815 "Multidisciplinary Thought and Presentation"	Provided key stakeholder communication throughout biannual event program development, execution, and follow-up. Developed and instructed a 2 hour course on Research and Laboratory Safety.
Interprofessional Practice *"Perform effectively on interprofessional teams"*	MPH 720 "Administration of Health Care Organizations" MPH 818 "Social and Behavioral Bases of Public Health"	Collaborate with stakeholders at Kansas State University and nationally across organizations and specialties to effectively design, plan, implement, and sustain safety education and training events and credentialing programs at K-State
Evidence-based Approaches to Public Health *"Select qualitative and quantitative data collection methods appropriate for a given public health context"*	MPH 701 "Fundamental Methods of Biostatistics" MPH 720 "Administration of Health Care Organizations" MPH 754 "Introduction to Epidemiology"	Design a mixed-methods survey for quantitative and qualitative data analysis for biannual event feedback and continuous improvement
Planning and Management to Promote Health *"Design a population-based policy, program, project, or intervention"*	MPH 754 "Introduction to Epidemiology"	Design and implement biannual, hybrid, conference-style safety education and training events for a global and local audience of faculty, staff, students, researchers, laboratorians, professionals

EMPHASIS AREA COMPETENCIES

Competency	Coursework	Applied Learning
Pathogens/pathogenic mechanisms *"Evaluate modes of disease causation and infectious agents"*	AAI 852 "Vaccinology"	Lab-related incident analysis Co-instruction at Research Safety Bootcamp: Pathogen Safety Data Sheets, biosafety levels, agent risk groups, laboratory-acquired infections, routes of exposure, biosafety cabinets, waste disposal
Host response to pathogens/immunology *"Investigate the host response to infection"*	DMP 817 "Veterinary Immunology"	Lab-related incident analysis Co-instruction Research Safety Bootcamp: Pathogen Safety Data Sheets, biosafety levels, agent risk groups, laboratory-acquired infections
Environmental/ ecological influences *"Examine the influence of environmental and ecological forces on infectious diseases"*	DMP 710 "One Health" DMP 802 "Environmental Health"	Conducted training on laboratory decontamination, use of engineering controls, and prudent waste practices
Disease surveillance *"Analyze disease risk factors and select appropriate surveillance"*	DMP 710 "One Health"	Incident Analysis Frequent routes of exposure, activities with greater risks, demographics for targeted training
Disease vectors *"Investigate the role of vectors, toxic plants, and other toxins in infectious disease"*	DMP 710 "One Health"	

Conclusions

- APE analyzed adverse safety outcomes (incidents), causes, and risk reduction strategies through implementation of best practices in safety education and training
- Public health intervention was established as biannual safety education and training events for the campus and global community
- Mixed-methods post event survey was created to collect quantitative and qualitative feedback
- Abstract submissions and presentations promoted sharing of current training initiatives with broader audiences
- Curriculum design proposed long-term, sustainable, tiered safety education credentials for both traditional and alternative credential seeking learners at multiple levels (CE, microcredential, undergraduate, graduate)

Conclusions

- Academic Innovation Fund Proposal defined proposed curriculum goals, outcomes, implementation timeline, budget, and alignment with Next-Gen K-State strategic goals and imperatives
- Systems Thinking Tools were used to create roadmaps for current biannual event processes and long-term continuous improvement refinement

The Future

- Continued development of safety education credentials in research and laboratory safety
  - Address literature gaps on campus
  - Development of proposed curriculum
  - Explore additional opportunities
  - Continue to build partnerships
- Continued refinement and expansion of research and laboratory safety services across campus

Acknowledgements

Dr. Laura Miller, Major Professor
Dr. Ellyn Mulcahy, Committee Member
Dr. Justin Kastner, Committee Member
Dr. Joseph Whitlock, KSU EHS Executive Director, Site Preceptor
Adam Ukena, Incident Data, Technical Support and Administration
Plern Kongsamut, MPH Program Support
EHS Staff, Biannual Event Support
Partners, presenters, advocates, and participants in biannual events
Family, friends, peers, colleagues

Contact Information

Rachael M. Weiderman MS, MHA, MLS(ASCP), RBP(ABSA)
MPH Candidate
Research and Laboratory Safety Manager
warhurst@ksu.edu

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