

Electrical and Computer Engineering

Graduate Student Orientation
Seminar - Safety Overview



UNIVERSITY
OF ALBERTA

U of A Safety Commitments

OUR SAFETY COMMITMENT

Safe behaviour is the shared responsibility of all University of Alberta faculty, staff, students, contractors and visitors. It is a legal and ethical obligation that prevents injuries and illness, saves lives and contributes to a rewarding working, learning and living experience. As university leaders, supervisors, staff and students we understand that we must work together to promote and sustain a culture of safety at the U of A.

OUR SHARED COMMITMENT:

- We plan our work and learning so it can be done safely.
- We support psychologically safe working, learning and living environments that are free of harassment, bullying and intimidation.
- We ensure we have the necessary training, skills and tools to work and learn safely.
- We stop unsafe work, alert anyone in danger and act quickly to remedy hazardous conditions and behaviour.
- We report incidents, injuries and unsafe behaviour to improve working, learning and living environments and so that others can learn from our experiences.
- We listen to the safety concerns of others and respond respectfully and with a call to action.
- Above all we understand that the primary responsibility for safe behaviour lies with each of us.

Bill Flanagan

BILL FLANAGAN
PRESIDENT AND VICE-CHANCELLOR
UNIVERSITY OF ALBERTA



A Culture of Care

Leadership Commitment

At the University of Alberta, creating a safe workplace across One University is multi-faceted and requires specific attention to several factors. Cultural, physical, and psychological safety are critical aspects of a healthy, diverse, inclusive, and respectful workplace that champions safety, equity and good relations.

The university has made a promise to Lead with Purpose and recognizes that people are the foundation of this institution's success in our core mission of research, teaching and community engagement. By embracing a core value of safety, the University of Alberta can strengthen this foundation by ensuring that people's health, safety and well-being, including that of our senior leaders, is central to everything we do while maintaining our commitment to open inquiry and the pursuit of truth.

Vision

A Culture of Care where everyone owns¹ their safety performance and that of others.

As a senior leader within the University of Alberta I will lead and act in alignment with the following principles:

We work safely and commit to:

- Accepting that the health, safety and well-being of our faculty, staff, students, contractors and visitors is a legal, moral, ethical, academic and operational imperative.
- Integrating health, safety and well-being into all aspects of research, teaching and community engagement activities.
- Maintaining compliance with health and safety legislation and university policies and procedures.

We take responsibility for safety performance and commit to:

- Taking personal accountability and holding peer leaders and direct reports accountable for health, safety and well-being performance.
- Participating in leadership initiatives and training that foster the improvement of health, safety and well-being across the university.
- Resourcing, promoting and measuring health and safety performance.

We champion safety and commit to:

- Engaging faculty, staff, students, contractors and visitors in improving health, safety and well-being.
- Actively building and supporting environments that are safe, welcoming, diverse, inclusive, equitable and respectful for all faculty, staff, students, contractors and visitors.

Bill Flanagan

Bill Flanagan
President and Vice-Chancellor

Kate Chisholm

Kate Chisholm
Chair, Board of Governors



¹Owning safety is meant to convey that we are responsible for our own safety, but have an express ethical obligation to protect others when they are impacted at work, by taking on the responsibility (duty to perform) to address/intervene as required to restore a safe environment.



A CULTURE OF CARE

University of Alberta's
Safety Action Plan
2023-25

U of A - A Culture of Care

3 year plan for safety improvements
across campus

- Physical Safety
- Psychological Safety
- Cultural Safety

Safety Representatives

- **Human Resources, Health, Safety + Environment (HRHSE)(Campus-wide):**
 - Michelle Rooker, and various other members
 - hse.info@ualberta.ca
- **Safety and Risk Management (SRM) Team (Faculty-wide):**
 - Syed Biyabani, B.Sc. (MecE), CRM - Manager, Engineering Safety & Risk Management
 - biyabani@ualberta.ca
 - Nathaniel Romance-Senneville, B.Sc., E.I.T. - Faculty Safety Advisor
 - romance@ualberta.ca
 - Derek Perepelitza, B.Sc., ROHT - Faculty Safety Advisor
 - perepelitza@ualberta.ca
- **Electrical and Computer Engineering Department:**
 - Ed Tiong - Instructional Team Lead and Department Safety Officer
 - etiong@ualberta.ca
 - (780) 722-6776
- **In the research lab, Research Safety Associate or Lab Safety Associate**

Safety in ECE - a priority at all

Levels

Safety of all students and staff is the highest priority in ECE, in Engineering, and across campus at the U of A

- The ECE department has placed a greater emphasis on improving the awareness and implementation of good safety practices in all of its research labs
- Faculty supervisors have the ultimate responsibility for ensuring that safe practices and proper training are provided in their research labs, *however*:
 - Everyone is responsible for workplace health and safety
- As graduate students, you are on the 'front line' for maintaining/improving our department safety culture. ***It is critical that you are given the resources to practice and recognize good safety protocols in your particular work spaces***



**Everyone is
responsible for
workplace health
and safety**



**UNIVERSITY
OF ALBERTA**

Overview of Safety Resources

Human Resources, Health, Safety + Environment (HRHSE)

- Provide the primary oversight on all HSE issues on campus
- Provide training courses, both general and specific
- Conduct laboratory inspections

Faculty of Engineering – ECE Safety and SRM Team

- Lab safety resources and support
- On site consultations
- Occupational hygiene consultations and testing
- LSA program
- Incidents and inspections



Overview of Safety Resources

The ECE Safety Committee

- Provide oversight on all ECE-specific safety issues, provide recommendations and input to the ECE Executive Committee and ECE Chair



Case studies - Faculty of Engineering

Things can go wrong..

Case studies - Faculty of Engineering

Carbon Disulfide (CS₂) Fire

- In the early evening of October 30th, a researcher was working in a research lab in engineering. The worker was working with CS₂ when the vapours caught fire in the fume hood. The worker's nitrile gloves also caught fire, as did a part of their lab coat.
- The researcher suffered second degree burns to their hands as a result of a chemical fire.
- The event can be linked to the auto-ignition of CS₂, which is a highly toxic and highly flammable chemical.



Case studies - Faculty of

Engineering

Nitric Acid Explosion

- There was a detonation in a small contained vessel being heated in a laboratory oven. The detonation caused the vessel to fail at a threaded joint. The two pieces of the vessel rapidly accelerated in opposite directions, tearing through the oven wall, destroying the laboratory oven.



Case studies - Faculty of

Engineering

Nitric Acid Explosion

- One of the pieces narrowly missed a lab occupant and the other piece ricochet within the lab.
- There were no injuries as a result of this incident. However, if the projectiles took a slightly different course, this could have been a very tragic event.




Case studies - Faculty of Engineering

“Minor” Incidents

- Cuts from knives, scalpels, etc.
- Needle pokes
- Electrocution from old or improperly grounded power bars, extension cords, or equipment
- Small chemical spills





Safety - what you should know

“Good safety is good science.”

- Michelle Rooker, HSE
Director

As a new graduate student, *feel empowered to advocate for good safety practices* in your work spaces

- Ensure that you complete the safety training before conducting research in your specific laboratory
- Ask if there is a “Research Safety Associate” or “Lab Safety Associate” in your laboratory
- Look for opportunities to be a leader in improving/maintaining good safety practices in your lab (consider taking other HSE courses beyond those minimally required for your lab)



Safety - what you should know

As a new graduate student, *feel empowered to advocate for good safety practices* in your work spaces

“If you don’t know, ask”

- Aidan O’Shannessy, The
Block Site Manager

- Ask if anyone in your lab has completed the “Supervisory HSE Professional Development” course
 - ECE is aiming to have at least one person from each laboratory complete this course
- Ensure that you are reviewing or drafting hazard assessments and other safety documentation before proceeding with experiments
- Know that you will be supported if you have concerns about safety!

Leading with Purpose.



**UNIVERSITY
OF ALBERTA**