

University of Waterloo Safeguarding Science Principles

The following six principles inform the University of Waterloo's safeguarding science workplan:

1. **Transparency:** transparent both within the University of Waterloo, with the Government of Canada and Ontario, and with our broader communities.
2. **Predictability:** provide predictability for researchers, research administrators, as well as our governments.
3. **Engagement and inclusivity:** engagement across the University, with particular attention towards diversity, equity, and inclusivity.
4. **Protection of researchers and their research:** work with our researchers to protect their research from harm, theft, and interference.
5. **Consistency:** consistency in risk assessment of research projects on national security grounds.
6. **Breadth of perspectives:** broad disciplinary boundaries and intricate knowledge are necessary for accurate risk assessment and risk mitigation.

Safeguarding Science Workplan: 2022-2023

| INITIATIVE #1 | University of Waterloo Safeguarding Science Strategy |
|---------------------------|---|
| Background context | <ul style="list-style-type: none">• University of Waterloo requires a strategic approach to safeguarding science to align with Government of Canada guidelines. |
| Overview | <ul style="list-style-type: none">• Consultation and engagement occurring within University of Waterloo Faculties, Centres and Institutes.• Extensive communication with Government of Canada and consortia across the sector (ISED, Public Safety, U15, NSERC).• Best practices being gathered from EU and US institutions. |
| Timeline | <ul style="list-style-type: none">• Immediate and ongoing |
| Activities | <ul style="list-style-type: none">• Build an interconnected community that links key researchers, Faculties, Departments, Centres and Institutes and management structures in a protective security architecture governed by UW principles.• Provide clarity to researchers on safeguarding science principles and the national security guidelines risk assessment process.• Develop risk mitigation plans with University of Waterloo Centres and Institutes• Establish open and frequent communication with the Government of Canada on safeguarding science• Raise awareness for anticipated future expansion of safeguarding science guidelines (e.g., Mitacs programs, commercialization activities). |
| Outcomes | <ul style="list-style-type: none">• University of Waterloo researchers are supported to understand the safeguarding science portfolio and navigate Government of Canada granting procedures.• Greater transparency in the safeguarding science process. |

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INITIATIVE #2

Vice-President, Research and International (VPRI) Website Portal for Safeguarding Science

Background context

- A single portal through which to understand safeguarding research issues has been requested by our community.

Overview

- Website portal to be constructed that outlines the context for safeguarding research risk assessments
- Develop training tools that focus on safeguarding science foundations and cyber security-cyber hygiene best practices.

Timeline

- March 2023

Activities

- Construct and regularly update portal
- Seek feedback from the community to continually improve the portal
- Develop training resources for the UW community

Outcomes

- Community members better understand safeguarding research
- Community members are updated regularly as guidelines change

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INITIATIVE #3

Due Diligence, Risk Assessments and Management Related to Corporate Partners

Background context

- Our researchers require assistance with their risk assessments, a requirement of the National Security Guidelines for Research Partnerships.

Overview

- Researchers require support to carry out the due diligence requirements of the National Security Guidelines for Research Partnerships, including risk assessments of partners and clarification of at-risk activities (e.g. “dual use” technologies or strategic technologies).
- Researchers require support to develop risk mitigation plans.
- It is important to continually monitor and report on unintended consequences of risk assessments, such as concerns voiced by researchers or reluctance to pursue funding opportunities.

Timeline

- Current

Activities

- Develop mitigation strategies to support safeguarding research results, methodologies, and data.
- Develop IP protection strategies.
- Develop approval, audit, and continuous evaluation of due diligence processes.
- Enact continuous learning and improvement in the processes of risk assessments.
- Conduct one-on-one discussions with researchers to collaboratively develop risk assessments and mitigation strategies.

Outcomes

- Researchers are well supported in development of risk assessments and mitigation plans.

Safeguarding Science Workplan: 2022-2023**INITIATIVE #4****Mapping Key Partner Networks and Creating Alternative Funding Sources**

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|---------------------------|---|
| Background context | <ul style="list-style-type: none">Given the National Security Guidelines for Research Partnerships, the Office of Research must be available to work with researchers to diversify current relationships and, if necessary, find alternative funding sources. |
| Overview | <ul style="list-style-type: none">The Vice-President, Research and International will develop a strategy for funding diversification. |
| Timeline | <ul style="list-style-type: none">Current |
| Activities | <ul style="list-style-type: none">Assess and evaluate alternative funding sources.Conduct a mapping exercise of key partner networks, to understand institutional and contractual linkages at the University of Waterloo. |
| Outcomes | <ul style="list-style-type: none">Researchers have a diversity of funding partners that support their research ambitions. |

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| INITIATIVE #5 | Government of Canada/Ontario Government Engagement Strategy |
|---------------------------|---|
| Background context | <ul style="list-style-type: none">• The University of Waterloo will extensively engage with the Government of Canada and the Government Ontario to properly implement the National Security Guidelines for Research Partnerships and other safeguarding science principles. |
| Overview | <ul style="list-style-type: none">• Close engagement between the University of Waterloo and Innovation, Science and Economic Development Canada (ISED) and the Ontario Ministry of the Solicitor General is necessary.• Working with newly constituted Research Security Center to ensure common principles, objectives, and procedures being followed between Government of Canada and university branches. |
| Timeline | <ul style="list-style-type: none">• Ongoing. |
| Activities | <ul style="list-style-type: none">• Engage with ISED, Ontario Ministry of the Solicitor General, and over government stakeholders to establish a common understanding of the National Security Guidelines for Research Partnerships.• Engage with regional Research Security Centres.• Collaboratively develop open-source methods for completing National Security Guidelines for Research Partnerships responses. |
| Outcomes | <ul style="list-style-type: none">• Greater harmonization between government and university on risk mitigation issues.• More comprehensive understanding regarding the role and application of dual-use technologies and export control regulations. |

Safeguarding Science Workplan: 2022-2023**INITIATIVE #6****Assessing University Priority Areas****Background context**

- The University of Waterloo needs to understand which of its areas of science and technology are most attractive and thus most vulnerable to foreign exploitation.

Overview

- Understanding vulnerabilities will allow prioritization of which areas may require further protections, particularly with respects to cybersecurity and the strengthening of data protocols.
- Individual labs are also being consulted to check for vulnerabilities and build institutional resilience in line with what University of Waterloo researchers see as current security gaps and areas of vulnerability.

Timeline

- Ongoing.

Activities

- Conduct an analysis and mapping exercise of University of Waterloo research activities to identify priority areas and potential vulnerabilities.
- Consult with individual researchers and labs to check for vulnerabilities and to help build institutional resilience.
- Consult with researchers to understand current security gaps and areas of vulnerability.
- Engage with University of Waterloo ITS and researchers to construct mitigation strategies for critical areas.

Outcomes

- University of Waterloo infrastructure and resources are better protected.
- Researchers are more aware of current threats and how to protect their resources.

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| INITIATIVE #7 | Engagement with Foreign Partners on Safeguarding Science Issues and Best Practices |
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| Background context | <ul style="list-style-type: none">• We need to engage with foreign partners on their best safeguarding science practices. |
| Overview | <ul style="list-style-type: none">• Other countries are also grappling with issues relating to safeguarding science. These include, but are not limited to, the United States, the United Kingdom, the Netherlands, Germany, Japan and Australia. |
| Timeline | <ul style="list-style-type: none">• Ongoing. |
| Activities | <ul style="list-style-type: none">• Engage with counterparts in peer countries to understand their protocols and current practices.• Continually refine safeguarding science principles at the University of Waterloo based on useful common practices. |
| Outcomes | <ul style="list-style-type: none">• Greater harmonization of practice across key international partners. |

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| INITIATIVE #8 | University of Waterloo Safeguarding Science Workshop, 2023 |
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| Background context | <ul style="list-style-type: none">• A gathering of key stakeholders (Government of Canada, funding agencies, researchers) to discuss issues relating to safeguarding science would help raise our level of common and mutual understanding. |
| Overview | <ul style="list-style-type: none">• A public, in-person event would be best positioned to foster debate and outline key policy issues. |
| Timeline | <ul style="list-style-type: none">• February 2023. |
| Activities | <ul style="list-style-type: none">• Convene a two-day, in-person workshop (February 2023) at the University of Waterloo to bring together key participants to discuss safeguarding science.• Invite University of Waterloo researchers, colleagues at peer institutions, as well as governmental agencies and organizations (e.g., ISED, Public Safety, NSERC, Solicitor General) |
| Outcomes | <ul style="list-style-type: none">• An enhanced shared and mutual understanding of the key issues and discussion of next steps that can be taken. |

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| INITIATIVE #9 | Consider and Suggest Modifications of UW's Risk Framework/Policies/Guidelines |
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| Background context | <ul style="list-style-type: none">• The University of Waterloo's University Risk Management program is detailed in Policy 11 – University Risk Management (URM). |
| Overview | <ul style="list-style-type: none">• Some Waterloo policies, notably Policy 11 and Policy 73 (Intellectual Property Rights) may require updating considering new safeguarding science initiatives. |
| Timeline | <ul style="list-style-type: none">• 2023 |
| Activities | <ul style="list-style-type: none">• Review existing UW policies, including but not limited to Policy 11 and Policy 73, to consider where explicit consideration of safeguarding science is warranted.• Review UW frameworks and guidelines to identify any gaps or issues relating to safeguarding science.• Develop risk frameworks for managing safeguarding science risks, including foreign interference threats to people, information, systems, and assets. |
| Outcomes | <ul style="list-style-type: none">• An understanding of potential changes to the research management framework, policies, and guidelines to better reflect safeguarding science principles. |

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| INITIATIVE #10 | Institutional International Partnerships |
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| Background context | <ul style="list-style-type: none">• The University of Waterloo engages into formal international partnerships, which need to be considered along safeguarding science principles. |
| Overview | <ul style="list-style-type: none">• Safeguarding science principles taken into consideration when evaluating formal partnership opportunities.• Risk mitigation strategies may be necessary when entering formal institutional partnerships.• Identify how we may provide information that would be useful to researchers and units in guiding international engagement. |
| Timeline | <ul style="list-style-type: none">• Ongoing |
| Activities | <ul style="list-style-type: none">• Develop international training for the evaluation of potential partners.• Engage with external peers, including Canadian peer institutions and U15, to share best practices, perspectives, and processes on international partnerships.• Continue to strengthen internal links between units which engage in international partnerships, including the Office of Research, Waterloo International, and the International Operations Council.• Develop processes for conducting internal risk assessments of international MOUs.• Develop risk mitigation strategies. |
| Outcomes | <ul style="list-style-type: none">• Researchers are more aware of potential international partnership risks.• Waterloo staff are better equipped to understand risk assessments and work with researchers on risk mitigations strategies. |

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| INITIATIVE #11 | Ensuring Network and Device Security |
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| Background context | <ul style="list-style-type: none">• The University of Waterloo needs to continually ensure network and device security. |
| Overview | <ul style="list-style-type: none">• The IT landscape at the University of Waterloo is relatively decentralized, requiring consideration of what can be centralized to ensure network and device security.• Funding agencies are paying more attention to Research Data Management.• The Government of Canada's Centre for Cyber Security provides resources for baseline cybersecurity controls. |
| Timeline | <ul style="list-style-type: none">• Ongoing. |
| Activities | <ul style="list-style-type: none">• Develop guidance for the secure use of portable storage devices.• Develop an institutional Research Data Management strategy.• Make cybersecurity training available for all researchers.• Arrange for more security visibility of IT assets on the campus network. |
| Outcomes | <ul style="list-style-type: none">• Reduced probability of cyberattacks, hacking, and network manipulation. |

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| INITIATIVE #12 | Procurement – Risk / Benefit Analysis |
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| Background context | <ul style="list-style-type: none">• The United States' <i>John S. McCain National Defense Authorization Act</i> Section 889(a)(b), public law 115-232, impact current and future U.S. federally funded research grants and contracts.• Section 889(a)(1)(B) prohibits executive agencies from entering into, or extending or renewing, a contract with an entity that uses any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system, on or after August 13, 2020, unless an exception applies, or a waiver is granted.• If Waterloo has <i>any</i> equipment that is banned, it will prohibit researchers from applying for US federal contracts. |
| Overview | <ul style="list-style-type: none">• The institution needs to conduct a risk/benefit analysis of potential responses by the institution to the McCain Act to best support Waterloo researchers. |
| Timeline | <ul style="list-style-type: none">• Ongoing. |
| Activities | <ul style="list-style-type: none">• Educate affected applicants and grant holders about restrictions.• Develop processes with procurement, research finance, and research legal counsel to ensure continued compliance with the McCain Act and appropriate language in service contracts.• Engage with senior leadership to develop an institutional response to the McCain Act. |
| Outcomes | <ul style="list-style-type: none">• A fully developed Institutional response to the McCain Act |

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| INITIATIVE #13 | Mitigate the Effects of Racial Profiling on the Academic Community |
|---------------------------|--|
| Background context | <ul style="list-style-type: none">• The University of Waterloo has a significant number of international students (40% Graduate; 21% Undergraduate), and many of our researchers (including faculty and postdoctoral fellows) come from diverse backgrounds.• Racism negatively impacts scientific discovery and limits innovation and impact. |
| Overview | <ul style="list-style-type: none">• We need to advocate for and support racialized researchers so that they are free to continue pursuing international scientific inquiry without fear of prejudice, profiling, or persecution.• All activities in this workplan should be viewed through a persistent Equity, Diversity, and Inclusion (EDI) lens. |
| Timeline | <ul style="list-style-type: none">• Ongoing. |
| Activities | <ul style="list-style-type: none">• Identify mechanisms to maintain the spirit of international collaboration, while safeguarding science.• Develop and provide community supports to researchers disproportionately impacted by the National Security Guidelines for Research Partnerships.• Ensure that developed training stresses the importance of an international, collaborative scientific approach. |
| Outcomes | <ul style="list-style-type: none">• An enriching climate for international collaborations.• Researchers are safeguarded from undue foreign influence. |