1 INSTRUCTOR

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2 AIMS & OBJECTIVES

2.1 Calendar Description

Students plan, develop, and write an industry- or faculty-led research paper and produce required tools, services, and software. Projects should advance knowledge or practice, and address an emerging challenge in cybersecurity, cyber threat intelligence, digital forensics and incident response, cyber threat hunting, or a closely related field.

2.2 Course Description

In this course, students will plan, develop, and write an industry- or faculty-led research paper along with required tools, services, and software (depending on the project need). The projects should advance knowledge or practice, and address an emerging challenge in cybersecurity, cyber threat intelligence, digital forensics and incident response, cyber threat hunting, or closely related fields.

2.3 Learning Outcomes

Upon successful completion of this course, students will have demonstrated the ability to:

1. Work closely and efficiently with different project stakeholders (industry or academic expert and project customers) to identify and address a challenge in cybersecurity and attack analysis, or a closely related field;
2. Independently manage and implement a research and development project in cybersecurity, threat intelligence, or closely related field and professionally deliver the project outcome along with a research paper to the project stakeholders;

3. Critically analyse various aspects of an emerging challenge in cybersecurity and threat intelligence and offer a full working solution to address the challenge; and

4. Analyse and integrate ethics, regulations, and best practices in planning, development, and implementation of the research project and writing of the research paper.

2.4 Instructor’s Role and Responsibility to Students

The project title, summary, name of the proposed supervisor, and ethics form should be submitted to Cybersecurity Project Committee, which the course Instructor chairs, prior to conducting any of the project activities. The committee will either approve the project or provide the student with detailed feedback and directions to revise and resubmit the proposal.

Once a project is approved, the Committee will appoint a faculty member as project mentor who will work closely with the project team (student and supervisor(s)) and provide timely feedback and evaluation. The project team will submit the project proposal, project solution, and final project paper to the mentor. All project deliverables are evaluated by the project supervisor and/or the project mentor (as described in Assessment section, below) and all project marks are submitted to the Cybersecurity Project Committee for final approval.

3 Teaching and Learning Activities

3.1 Course Schedule

Students are required to identify an industry or an academic expert who is willing to support their project. Students are strongly encouraged to begin looking for an industry or academic expert to partner with during the first (Fall) semester of the program.

<table>
<thead>
<tr>
<th>Date</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>Student liaises with prospective supervisor, prospective mentor, and course instructor to develop project concept and complete ethics form</td>
</tr>
<tr>
<td>February 1</td>
<td>Submission of project title, summary, name of supervisor, and ethics form to the Cybersecurity Project Committee</td>
</tr>
<tr>
<td>February 15</td>
<td>Project approval from the Cybersecurity Project Committee and project kick-off</td>
</tr>
<tr>
<td>March 15</td>
<td>Submission of the project proposal to the project mentor</td>
</tr>
<tr>
<td>April 1</td>
<td>Feedback on the project proposal by the project mentor</td>
</tr>
<tr>
<td>July 15</td>
<td>Project solution presentation and delivery to the project supervisor</td>
</tr>
<tr>
<td>August 1</td>
<td>Feedback on the project solution by the project supervisor</td>
</tr>
<tr>
<td>August 15</td>
<td>Submission of project final paper and all deliverables to the project mentor</td>
</tr>
<tr>
<td>August 31</td>
<td>Final paper feedback of evaluation by the project mentor</td>
</tr>
</tbody>
</table>
4 LEARNING RESOURCES

4.1 Course Website

Standard rubrics for the evaluation of student work will be posted to the CIS*6590 Courselink site. Students, mentors, and supervisors will all have access to the rubrics throughout the course.

5 ASSESSMENT

5.1 Dates and Distribution

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Due Date</th>
<th>Weighting</th>
<th>Learning Outcome(s) Assessed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Proposal</td>
<td>March 15</td>
<td>20%</td>
<td>LO1, LO3, LO4</td>
</tr>
<tr>
<td>Project Solution</td>
<td>July 15</td>
<td>40%</td>
<td>LO1, LO3, LO4</td>
</tr>
<tr>
<td>Final Paper (and other deliverables)</td>
<td>August 15</td>
<td>40%</td>
<td>LO1, LO2, LO3, LO4</td>
</tr>
</tbody>
</table>

5.2 Assessment Descriptions

**Project Proposal**
The project proposal should clearly define the research gap, state the problem, and the project approach/methodology. The project proposal will be evaluated by the faculty project mentor according to a standardized rubric provided by the Cybersecurity Program Committee.

**Project Solution**
The project solution should include any tools, software, or services that address the research gap along with rigorous evaluation of project results and identification of any challenges or limitation for the project. The project solution will be evaluated by the project supervisor according to a standardized rubric provided by the Cybersecurity Program Committee.

**Final Paper and Other Project Deliverables**
The final paper is a rigorous academic or industry report, following standard writing and formatting requirements of major publications in the field. The project paper should clearly explain the project gap, the problem, project methodology/approach, proposed solution, evaluation, and analysis of the results, and offer a conclusion and discussion of future works. Project deliverables include any tools, software, or services that are developed during the project. All project deliverables are evaluated by the project supervisor and the project mentor, according to a standardized rubric provided by the Cybersecurity Program Committee, and all project marks are submitted to the Cybersecurity Project Committee for final approval.
Students will receive a SAT or UNSAT notation upon completion of this course.

5.3 Course Grading Policies

**Accommodation of Religious Obligations**: If you are unable to meet an in-course requirement due to religious obligations, please email the course instructor within two weeks of the start of the semester to make alternate arrangements. See the graduate calendar for information on regulations and procedures for Academic Accommodation of Religious Obligations: https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/sec_d0e2228.shtml

**Passing grade**: In order to pass the course, students must obtain a grade of 65% or higher on the total mark of all assessments.

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6 UNIVERSITY STATEMENTS

6.1 Email Communication

As per university regulations, all students are required to check their e-mail account regularly; e-mail is the official route of communication between the University and its students.

6.2 When You Cannot Meet a Course Requirement

When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons please advise the course instructor (or designated person, such as a teaching assistant) in writing, with your name, id#, and e-mail contact. The grounds for Academic Consideration are detailed in the Graduate Calendar: https://www.uoguelph.ca/registrar/calendars/graduate/current/index.shtml

6.3 Drop Date

Courses that are one semester long must be dropped by the end of the fortieth class day; two-semester courses must be dropped by the last day of the add period in the second semester. The regulations and procedures for changing graduate course registration are available in the Graduate Calendar: https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg-genreg-regregchg.shtml

6.4 Copies of Out-of-class Assignments

Keep paper and/or other reliable back-up copies of all out-of-class assignments; you may be asked to resubmit work at any time.

6.5 Accessibility

The University promotes the full participation of students who experience disabilities in their academic programs. To that end, the provision of academic accommodation is a shared responsibility between the University and the student.
When accommodations are needed, the student is required to first register with Student Accessibility Services (SAS). Documentation to substantiate the existence of a disability is required; however, interim accommodations may be possible while that process is underway.

Accommodations are available for both permanent and temporary disabilities. It should be noted that common illnesses such as a cold or the flu do not constitute a disability.

Use of the SAS Exam Centre requires students to book their exams at least seven days in advance and not later than the fortieth class day.

More information can be found on the SAS website: [https://www.uoguelph.ca/sas](https://www.uoguelph.ca/sas)

### 6.6 Academic Misconduct

The University of Guelph is committed to upholding the highest standards of academic integrity, and it is the responsibility of all members of the University community—faculty, staff, and students—to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring. University of Guelph students have the responsibility of abiding by the University’s policy on academic misconduct regardless of their location of study; faculty, staff, and students have the responsibility of supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection.

Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

The Academic Misconduct Policy is detailed in the Graduate Calendar: [https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/sec_d0e2642.shtml](https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/sec_d0e2642.shtml)

### 6.7 Recording of Materials

Presentations that are made in relation to course work—including lectures—cannot be recorded or copied without the permission of the presenter, whether the instructor, a student, or guest lecturer. Material recorded with permission is restricted to use for that course unless further permission is granted.

### 6.8 Resources

The Academic Calendars are the source of information about the University of Guelph’s procedures, policies, and regulations that apply to undergraduate, graduate, and diploma programs: [https://www.uoguelph.ca/academics/calendars](https://www.uoguelph.ca/academics/calendars)